CENTRAL UNIVERSITY OF HARYANA

Term End Examinations June-July 2023

Programme:	**B. Tech PPT**	**Session: 2022-23**
Semester:	**VI semester**	**Max. Time 3 Hours**
Course Title:	**Positive Psychology**	**Max. Marks: 70**
Course Code:	**BT PPT 607 A**	

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and a half Marks.

2. Question no. 2 to 5 have three parts and students are required to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Define Positive Psychology.

b) Write a short note on Flow.

c) What is Happiness? Write three strategies to enhance it.

d) How does optimism differ from hope?

e) Define gratitude. State three positive impacts of gratitude.

f) State the difference between empathy and apathy.

g) What are the various components of well-being?

Q 2. (2X7=14)

a) How do you define Virtues? Explain the classification in detail.

b) Describe the need and emergence of Positive Psychology as a subject.

c) Write a note on Buddhist perspective of positive psychology.

Q3. (2X7=14)

a) What is meant by upward spirals of positive emotions? Explain with the help of theory.
b) How is hedonic happiness different from eudemonic happiness?
c) What is savoring? Explain the steps wise Approach to it.

Q 4. (2X7=14)

a) Show your familiarity with:

I) Self efficacy

II) Resilience

b) What is mindfulness? How is it related with well-being of an Individual?

c) What is meant by Spirituality? How is it different from religiosity?

Q 5. (2X7=14)

a) Define Forgiveness. State its role in Psychological Well Being of an individual.

b) Elaborate upon various types of love with examples.

c) State the characteristics of close relations and their importance for flourishing.

Central University of Haryana
VII Semester (Re-appear) Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT 705A — Max Time: 03 Hours
Course Title: Printing Ink Technology — Max Marks: 70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1. Write a short note on the following
(a) Solvent based inks
(b) Driers
(c) Factors influencing viscosity
(d) Rheology
(e) Ball Mill
(f) Light fastness test
(g) Rub resistance test

PART –II

Q. No.2. Define pigments. Write about the types of pigments used in printing inks in detail.
OR
Q. No.2. Write about oils used in printing inks in detail.

Q. No.3. Explain any three-drying mechanism of printing inks in detail.
OR
Q. No 3. Write about units of viscosity, complex high viscosity and simple low-viscosity inks.

Q. No.4. Write about single roll, twin roll and triple ball mill process of paste inks in detail?
OR
Q. No .4. Write about trends and developments in the ink manufacturing process.

Q. No.5. Explain special security features used in printing inks in detail.
OR
Q. No.5. (a) Write about tests for grinding control and control of drying time. 07 Marks
(b) Write about Nano inks used in the printing industry. 07 marks

Central University of Haryana
Second Semester Term End Examination July 2023
B.Tech. Programmes
Branch: Printing & Packaging Technology

Course Code: BTPHY 115A **Max Time: 3 Hrs**
Course Title: Waves, Optics & Quantum Mechanics **Max Marks: 70**

Instructions:

- Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
- Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) What are electrical oscillators. Derive the energy of the oscillator as an LC circuit.

(b) A wave travels from medium A to medium B. The wave speed in medium A is 5 m/s, and the wave speed in medium B is 2 m/s. If the angle of incidence is 45 degrees, calculate the angle of reflection.

(c) In Young's double-slit experiment, if the distance between the slits and the screen is 2.2 meters and the distance between the adjacent bright fringes is 6 cm, what is the wavelength of the light used?

(d) What are the Fresnel equations, and how do they describe the behavior of light at the interface between two media?

(e) Discuss the significance of the wave-particle duality in modern physics and its impact on our understanding of the behavior of matter at the atomic and subatomic level.

(f) Differentiate longitudinal and transverse waves. Calculate the frequency of the radio waves transmitted by a station if the wavelength of these waves is 300m.

(g) Provide examples of commonly used metals, semiconductors, and insulators, along with their respective applications in various industries.

PART –II

Q. No.2 What is Simple Harmonic Oscillator? (2)

Explore the following:

a) State the differential equation that describes the motion of a simple harmonic oscillator. (4)

b) Draw a labeled graph depicting the displacement as a function of time for a simple harmonic oscillator. (4)

c) Reflect on the significance of the simple harmonic oscillator in various scientific and engineering applications. (4)

OR

Q. No.2 Explain the wave equation for a transverse wave on a string, including its key components and their physical meanings. Explain the characteristics of Electromagnetic Waves in details.

Q. No.3 Give construction and working of the Newton's rings experiment. Derive an expression for the radius of curvature of a plano-convex lens using the Newton's rings experiment.

OR

Q. No.3 What do you mean by spontaneous emission stimulated emission and absorption? Establish the relation between Einstein A and B coefficient. Explain the principle of operation and construction of a Ruby laser.

Q. No.4 State the time-independent Schrödinger equation and its significance in quantum mechanics. Discuss the concept of quantization of energy levels and its implications in the time-independent Schrödinger equation.

OR

Q. No.4 A particle is confined in one dimensional box of length a. Solve Schrodinger equation to find energy values and energy eigen function of the particle. Calculate minimum energy of a proton in one dimensional box of width 1 A°.

Q. No.5 Define the concept of the density of states (DOS). Derive the expression for the density of states in 1D, 2D, and 3D dimension and explain the factors that influence its behavior.

OR

Q. No.5 A pure silicon crystal has an intrinsic carrier concentration of 1.5×10^{10} cm^{-3} at room temperature. If the crystal is doped with 5×10^{15} atoms of arsenic per cm^3, calculate the electron and hole concentrations at room temperature assuming that all dopant atoms ionize.

Central University of Haryana
Re-Appear IV Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT 307A — **Max Time: 03 Hours**
Course Title: Basics of Printing and Packaging Technology — **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1. Write a short note on the following
(a) Printing
(b) Flexography printing
(c) Doctor Blade
(d) Packaging
(e) Secondary packaging
(f) Stretch wrapping
(g) Shrink packaging

PART –II

Q. No.2. Define letterpress printing and write classification of letterpress printing machine.
OR
Q. No.2. Describe stack press and write about mechanical principles of flexography printing machine.

Q. No.3. Define screen printing and explain steps used in pre-make ready & make ready in detail.
OR
Q. No 3. Define the digital printing process and explain the application, advantages & disadvantages of the digital printing process.

Q. No.4. Explain factors influencing design of a package in detail.
OR
Q. No .4. Write about markings on package in detail?

Q. No.5. Discuss skin, blister and vacuum innovative packaging techniques with suitable examples.
OR
Q. No.5. Write the production steps of folding cartons and their types.

Central University of Haryana
EVEN Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Electrical Engineering & Printing & Packaging Technology
Course Code: BT AUD409A/BT EE 409 (For EE) & BT AUD410A (For PPT)
Max

Time: 3 Hrs
Course Title: Indian Constitution **Max Marks:** 70

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 (2*7 = 14)

a) Define the meaning of legislative powers?
b) Define Communal award?
c) Define Crown rule?
d) Define importance of fundamental duties?
e) Define constitutional amendment?
f) What is Urban Local Self Government?
g) Define Emergency provisions?

PART –II

Q. No.2

(i) Describe the various salient features and characteristics of the Indian Constitution? [10 marks]

(ii) Briefly describe the importance of constitution to country like India? [4 marks]

OR

(iii) Article '17' under Fundamental Right to equality abolishes untouchability. Give your comment on the contribution of this article in the upliftment of the society? [10 marks]

(iv)Define the features of fundamental rights? [4 marks]

Q. No.3

(i) Explain the distribution of financial powers between the Union and the states? [10 marks]

(ii) Differentiate between federal form of government and unitary form of government? [4 marks]

OR

(iii) Explain the distribution of legislative powers between the Union and the States? [10 marks]

(iv) Briefly describe any four fundamental duties? [4 marks]

Q. No.4

(i) Define the eligibility to become President of India and also describe the various types of powers enjoyed by the President of our country? [10 marks]

(ii) Briefly describe the features of Parliamentary form of government? [4 marks]

OR

(iii) Explain the procedure for Constitutional amendment? [10 marks]

(iv) Write down the types of Emergencies and under what circumstances emergency can be imposed in a country? [4 marks]

Q. No.5

(i) Explain for what purposes creation of urban local self government like Cantonment board, Port trust, Township area and Municipal Corporation has been occurred? [10 marks]

(ii) Write down the various fundamental rights guaranteed under 'Right to article? [4 marks]

OR

(iii) Explain to achieve which objectives 'Right to Life and Personal Liberty' under article 21 has been included in the constitution of Indian? [10 marks]

(iv) Mention any eight rights which later on declared as part of Article 21 by Supreme Court? [4 marks]

Central University of Haryana
Even Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT608A **Max Time: 3Hrs**
Course Title: Colour Essentials **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 Write a short note on the following:

(a) WYSWYG.
(b) HSB colour model.
(c) Metamerism
(d) Grey Balance
(e) UCR
(f) Masking
(g) Colour correction

PART –II

Q. No.2 Write in detail about the colour reproduction from original to colour printing.

OR

Q. No.2 Explain the RGB, HSB and ICC colour models used in colour management.

Q. No.3 Write a note on CIE colour standard and tri-stimulus values in detail.

OR

Q. No 3 Write a note on originals and transparencies, its types. Mention qualities of good original.

Q. No.4 Write a note on the following:

i) Spectrophotometer.
ii) Colorimeter

OR

Q. No .4 Discuss in detail about the process of manual colour separation.

Q. No.5 What is screening. Discuss about different types of screening methods with their advantages and disadvantages.

OR

Q. No.5 Write the principle of electronic scanning. Describe various elements of scanners with suitable diagrams.

Central University of Haryana
VI Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT615A — **Max Time: 03 Hours**
Course Title: 3D Printing — **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1. Write a short note on the following

(a) 3DPrinting

(b) Warping

(c) Extrusion

(d) Infiltration

(e) Print head considerations in inkjet printing

(f) Color Jet

(g) Use of 3D printing in healthcare

PART –II

Q. No.2. Write about the various softwares used in 3D printing in detail?

OR

Q. No.2. Explaining scanning process and files formats used in 3D printing in detail.

Q. No.3. Write about the materials used in 3D printing with their applications and limitations in detail?

OR

Q. No 3. Explain the Vat polymerization process with advantages and limitations in detail.

Q. No.4. Write about the motion control of inkjet printing technology and the continuous-type inkjet printing process.

OR

Q. No .4. Discuss the drop-on-demand inkjet printing process with diagrams in detail.

Q. No.5. Explain future trends of 3D printing in detail.

OR

Q. No.5. Explain use of 3D printing in printed electronics, medical and food technology in detail.

Central University of Haryana
Semester Term End Examination June 2023
B.Tech. Programmes
Printing and Packaging Technology

Course Code: **BT PPT 407A** Max Time: **3 Hours**
Course Title: **Costing, Estimating and ERP** Max Marks: **70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.
Note:-Calculator may allowed

PART -I

Q. No.1

a) What do you mean by fixed cost and variable cost?
b) Write down the formula to calculate the weight of loose sheets.
c) Define costing.
d) What is the importance of accurate estimating?
e) Describe hourly rates.
f) Define ERP.
g) What do you mean by Daily Docket?

PART –II

Q. No.2

a) How estimating department is inter related with sales and purchase department? (7)
b) Explain the importance of Costing and Estimating in printing and publishing industry.(7)

OR

Q. No.2 What do you mean by costing system? Give brief introduction to Indian Federation costing system.(14)

Q. No.3

a) A ream of paper in 61x 88cm size having weight 21.5 kg. Find out the weight of same paper in quad imperial size.(7)
b) What do you mean by reprint work and how it is estimated? (7)

OR

Q. No 3

a) Estimate the quantity of ink required in Kg for 25700 copies of a sheet of labels. 20 label to view per sheet with each label having a print area 160x 184mm printed on one side of super calendar paper. The process of printing is Gravure and labels are printed in four colour halftone picture.(7)

b) Discuss in details about the qualification of an estimator for printing and packaging industry.(7)

Q. No.4 Describe element of cost also discuss about nine elements of cost with suitable example. (14)

OR

Q. No .4

a) Discuss in details about form of Work Instruction Ticket with suitable diagram. (7)

b) Describe Time rate system and Work rate system with their advantages.(7)

Q. No.5 Discuss in details about the estimation of a complete job from designing to binding and finishing. (14)

OR

Q. No.5

a) Discuss in details about estimation and consideration for new work.(7)

b) Write a short note on the estimate of outsource work. (7)

Central University of Haryana
Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Tech.

Course Code: BT PPT 605A **Max Time: 03Hours**

Course Title: Speciality Printing, Marketing and Legislations in Packaging

Max Marks: 70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Define Debossing.

(b) What do you mean by graphic design?

(c) Define demand forecasting.

(d) What do you mean by market research?

(e) Describe Export marketing.

(f)What do you mean by FPO?

(g)Define legislation in packaging.

PART –II

Q. No.2 Describe Specialty Printing and explain various processes comes under specialty printing.

OR

Q. No.2

a) What do you mean by Graphic Design also explain die cutting process.

b) Explain the foil stamping and embossing process with diagram.

Q. No.3 Give brief introduction about marketing management with market structure and model.

OR

Q. No 3

a) What is the role of demand forecasting in relation to the marketing management discuss in detail?

b) Describe about physical distribution and its importance.

Q. No.4 Discuss in detail about impact of package design on marketing of a product.

OR

Q. No .4

a) Explain how better packaging is an instrument of marketing.

b) Explain role of package as self-salesman.

Q. No.5 Discuss in detail about legislations in packaging and their requirements in packaging industry.

OR

Q. No.5

a) What do you mean by Prevention of Food Adulteration Act? Explain the rules and regulations of PFA.

b) Describe the Standards of Weights & Measures Act (SWMA) in details.

Central University of Haryana
Semester Term End Examination June 2023
B.Tech. Programmes
Printing and Packaging Technology

Course Code: **BT PPT 603A** Max Time: **3 hours**
Course Title: **Print Finishing and Converting** Max Marks: **70**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

a) Define punching operation.
b) Describe any two safety devices used in cutting machine.
c) Write any two factors affecting buying of paper.
d) Define Gathering.
e) What do you mean by imposition scheme?
f) What do you mean by securing operation?
g) Write name of any two types of folding with diagram.

PART –II

Q. No.2 Give brief introduction to print finishing and Explain various miscellaneous materials used in print finishing and converting process.

OR

Q. No.2

a) What do you mean by End-Papers? Explain purpose and quality required for End-papers.

b) Discuss in details about binding and finishing tools used in post-press section with diagram.

Q. No.3 Discuss in details about single knife guillotines cutting machine, its parts, operation and mechanism with suitable diagram.

OR

Q. No 3 Discuss in details about various problems and remedies of guillotines cutting machine also explain automatic programming system.

Q. No.4 Define folding process also explain mechanism, operation and adjustment of folding machine with diagram.

OR

Q. No .4

a) Write short note on folding scheme with diagram.
b) Explain various folding terminology.

Q. No.5 Discuss in details about principle of gathering also explain working procedure of gathering machine.

OR

Q. No.5

a) Explain working procedure of wire stitching machine with diagram.
b) Describe the term collating and inserting with suitable diagram.

Central University of Haryana
Even Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT 406A — Max Time: 3 Hours
Course Title: Printing & Packaging Materials Science-II — Max Marks: 70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 Write short note on followings:

(a) UV Printing Inks

(b) Environment-friendly materials

(c) Diazo compound

(d) Coating materials

(e) Impact of toxic materials in printing press.

(f) Any two properties of inks

(g) Importance of pH in Printing

PART –II

Q. No.2 Discuss various components of printing and packaging inks in details.

OR

Q. No.2 Explain general characteristics of printing inks for offset and Gravure printing processes.

Q. No.3. Discuss Acid-Base concepts and pH scale in details.

OR

Q. No 3 What is pH? Explain different methods of measuring pH.

Q. No.4 Define recycled paper. Explain also various steps taken into consideration for recycling of waste papers.

OR

Q. No .4 Discuss Bio-degradable materials used in both printing and packaging segments.

Q. No.5 What is adhesive? Explain also various applications of adhesive in printing & packaging segments.

OR

Q. No.5 Write note on following:

(a) Applications of Varnish in packaging and printing industries-7 marks

(b) Aromatic compounds- 7 marks

Central University of Haryana
VI Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT613A — **Max Time: 03 Hours**
Course Title: Smart Packaging — **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1. Write a short note on the following: -

(a) Smart Packaging

(b) Temperature compensating films

(c) Antimicrobial food packaging

(d) Surface modification of packages with antimicrobials

(e) RFID and its use

(f) Smart Branding

(g) Tamper proof packaging

PART –II

Q. No.2. Write about the carbon dioxide scavengers and ethylene scavengers in detail? (14 marks)

OR

Q. No.2. Explain the ethanol emitters and flavour/odour absorbers in detail. (14 marks)

Q. No.3. Explain incorporation of antimicrobial agent into the polymer matrix and antimicrobial packaging using gas-based systems mechanism in detail. (14 marks)

OR

Q. No 3. (a) Write about the history of antimicrobial packaging in industry? (06 marks)

and

(b) Write about the future of antimicrobial packaging systems in detail? (08 marks)

Q. No.4. Write in detail the influence of product and packaging materials on RFID? (14 marks)

OR

Q. No .4. Explain the smart packaging system characteristics on RFID in detail.

(14 marks)

Q. No.5. Explain the thermo-chromic labeling and pro-biotic release packaging in detail.

(14 marks)

OR

Q. No.5. Explain nutrient release packaging and odour removal packaging in detail.

(14 marks)

Central University of Haryana
Re-appear - IV Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT409A — **Max Time: 03 Hours**
Course Title: Printing and Packaging Materials — **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1:-Write a short note on the following: -

(a) What is thermosetting plastic?

(b) Write any two physical characteristics of polymers?

(c) Differentiate between gloss paper and newsprint paper.

(d) State nature of paper.

(e) Write about light sensitive materials?

(f) Define drying method of printing ink.

(g) List down end-use of properties of ink.

PART –II

Q. No.2. Explain classification of polymers in detail with examples.

OR

Q. No.2. Explain natural and synthetic rubber in detail.

Q. No.3. Discuss physical properties of paper in detail.

OR

Q. No 3. Explain natural, synthetic and solvent-responsive adhesives in detail.

Q. No.4. Explain photographic materials used in printing industries in detail.

OR

Q. No .4. Write about aluminium foil and discuss its properties?

Q. No.5. Write about types of inks used in various printing processes in detail?

OR

Q. No.5. Explain printing ink ingredients in detail.

Central University of Haryana
IV Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT403A — **Max Time: 03 Hours**
Course Title: Packaging Process-I — **Max Marks: 70**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1:-Write a short note on the following: -

(a) Types of packaging

(b) Material and machine interface

(c) Discuss about types of design

(d) Under what circumstances you would consider changes in package design

(e) Metal foil packaging

(f) Types of labels

(g) Eco-friendly packaging

PART –II

Q. No.2. Describe the need for packaging and explain functions of packaging in detail.

OR

Q. No.2. Explain selection criteria of packaging material in detail.

Q. No.3. Explain elements and principles of design in detail with diagram.

OR

Q. No 3. Write in detail about the structural design of folding cartons and glass bottles?

Q. No.4. Explain corrugated box manufacturing process in detail.

OR

Q. No .4. Write in detail about flexible pouches forming machines and its type?

Q. No.5. Discuss blister packaging, vacuum packaging and retort packaging with their use in packaging industries?

OR

Q. No.5. What do you understand about cushion packaging and explain design requirements and types of cushion packaging?

Central University of Haryana
Even Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT401A **Max Time: 3Hrs**
Course Title: Offset Technology **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 Write a short note on the following:

(a) Principle of offset printing.

(b) Any four tools used in offset printing

(c) Sheet feeding types

(d) Types of side lays

(e) Role of alcohol in dampening system

(f) Printing pressure

(g) Recent advancement in sheet fed offset

PART –II

Q. No.2 Write a note on classification of printing organizations. Discuss about recent trends in offset press technology.

OR

Q. No.2 Discuss in detail about the construction and categories of sheet fed offset press.

Q. No.3 Write a note on sheet separation mechanisms used in an offset printing machine. Also, discuss about various components of feeder.

OR

Q. No 3 Describe the functions of different types of rollers used in a sheet fed offset machine.

Q. No.4 Discuss about various types of dampening system used in offset machines.

OR

Q. No .4 Write a detailed note on cylinders and their construction.

Q. No.5 Write a note on sheet control devices used in a delivery system.

OR

Q. No.5 Write about any ten defects which occurs in offset printing and their remedies.

Central University of Haryana
EVEN Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Printing & Packaging Technology
Course Code: BT PPT405A **Max Time:** 3 Hrs
Course Title: Essentials of Management **Max Marks:** 70

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 (2*7 = 14)

a) Define Management?
b) Define Organizing?
c) Define Delegation of authority?
d) Define Leadership?
e) Define Motivation?
f) Define the meaning of 'Sole Proprietorship firm'?
g) Define use of computers and IT in management control?

PART –II

Q. No.2

(i) Explain the various techniques of 'Work Study' under Taylor's scientific management? [10 marks]

(ii) Management is a science or an art. Comment on it? [4 marks]

OR

(iii) Write down the importance of Human relations study and also explain the 'Great Illumination Experiment' conducted by Elton Mayo and its colleagues? [10 marks]

(iv) Differentiate between Manager and Entrepreneur? [4 marks]

Q. No.3

(i) Explain all the steps of decision making process with suitable examples and figures? [10 marks]

(ii) Differentiate between centralization and decentralization of authority? [4 marks]

OR

(iii) Describe all the stages of planning process with suitable examples and figures? [10 marks]

(iv) Differentiate between formal and informal organizations? [4 marks]

Q. No.4

(i) Explain the importance as well as characteristics of Trait theory of Leadership? [10 marks]

(ii) Differentiate between On the job and Off the job training? [4 marks]

OR

(iii) Explain the Herzberg's two factor theory of Motivation with suitable example? [10 marks]

(iv) Briefly describe the barriers in communication? [4 marks]

Q. No.5

(i) Explain the process of Controlling with suitable example? [10 marks]

(ii) Briefly describe direct and preventive control? [4 marks]

OR

(iii) Define Report and Explain the need and benefits of reporting? [10 marks]

(iv) Differentiate between budgetary and non-budgetary control techniques? [4 marks]

Central University of Haryana
VI Semester Term End Examination, June 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT PPT 601A **Max Time: 3 Hours**
Course Title: Digital and Security Printing **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 **Write on followings:**

(a) Security printing

(b) Digital workflow

(c) Chemical plates

(d) Holography

(e) Watermark

(f) Image-setter

(g) OVI

PART –II

Q. No.2 Explain electronic trapping and imposition used in digital printing.

OR

Q. No.2 Discuss various digital proofing techniques used in printing house.

Q. No.3 What do you mean by plate-setter? Explain its types in details.

OR

Q. No 3 Define LASER? Discuss various types of lasers used in digital imaging systems.

Q. No.4 Discuss Indian security documents with their security features.

OR

Q. No .4 Discuss different types of security ink features and their applications.

Q. No.5 Discuss various security printing technologies used in security printing houses.

OR

Q. No.5 Explain various innovative developments and trends being carried out in security printing segment.

Central University of Haryana
III/V Semester Term End Examination June 2023 (Re-apper)
B.Tech. Programmes
Branch: All branch (2nd year)

Course Code: **BT EE 405** **Max Time: 3hrs**

Course Title: **Electrical Measurements & Measuring Instruments** **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carry two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Question No.1 Write short note on:

(a) The Wien's bridges is suitable for the measurement of frequency of the range of .....

(b) What is the mean by real, true and actual value in the network?

(c) Megger is a ..... type instrument.

(d) What is the power factor?

(e) Define the transducer?

(f) Explain the difference between CT and PT.

(g) What is the role of bridges in the network?

PART –II

Unit-I

Question No.2 (a Define the following terms: (a) Accuracy (b) Precision (c) Resolution (d) Threshold (e) Sensitivity (7)

Question No.2 (b) Discuss a method for measurement of low resistance. (7)

Or

Question No.2 (a) With the help of block diagram explain the Generalized Instrument. (7)

Question No.2 (b) Explain the differences between indicating and integrating instruments. Also explain the various methods of providing controlling torque and damping torque in indicating instruments. (7)

Unit-II

Question No.3 (a) With the help of diagram explain the construction and working principle of voltmeter. (7)

Question No.3 (b) With a neat diagram explain in detail the construction and working of PMMC instrument. (7)

Or

Question No.3 How to extend the range of the ammeter and voltmeter? Explain in detail.(14)

Unit-III

Question No.4 (a) An energy meter is designed to make 100 revolutions of the disc for one unit of energy. Calculate the number of revolutions made by it, when connected to a load carrying 40 A at 230V and 0.4 p.f. for 1 hour. If it actually makes 360 revolutions, find the percentage error. (7)

Question No.4 (b) Write the short note of Wein's bridges. (7)

Or

Question No.4 (a) With the help of diagram explain the construction and working of watt meter. (7)

Question No.4 (b) Explain the energy meter with detail. (7)

Unit-IV

Question No.5 What is LVDT transducer? Explain in detail. (14)

Or

Question No.5 Write the short note of

a. CT transformer (7)

b. Piezoelectric transducers (7)

Central University of Haryana
Term End Examination
B.Tech. Programmes
Branch: Electrical Engineering

Course Code: BT EE405A — **Max Time: 3hrs**
Course Title: Power Systems - 1 — **Max Marks:70M**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

1. (a) Write the importance of electrostatic precipitator.
   (b) What is chain reaction?
   (c) What is meant by Ferranti effect?
   (d) How the Corona Phenomena occurs in transmission lines.
   (e) Explain the arcing phenomenon in circuit breaker?
   (f) Define restriking voltage, recovery voltage, active recovery voltage and arc voltage?
   (g) Discuss the relation between relay and circuit breaker?

PART –II

Q. No.2 Draw the general layout of the thermal power station and discuss each component in detail. (14M)

OR

Q. No.2 Explain the working of a Nuclear Power Station with a neat layout diagram? (14M)

Q. No.3 (a) Derive the expression for the capacitance of a three phase line having unsymmetrical spacing (7M).

(b) What is skin effect and proximity effect of the transmission line? (7M).

OR

Q. No 3 Derive the expression for the (a) inductance of a single phase line and (b) inductance per phase of a three phase line (7M+7M).

Q. No.4 Explain in detail the construction and working principle of bulk oil circuit breaker. List out the advantages and disadvantages of the bulk oil circuit breaker (14M).

OR

Q. No .4 With a neat sketch, explain the construction and working principle of SF_6 circuit breaker?

Q. No.5 (a) Discuss the different types of transformer faults. What are the various protective schemes available for transformer? (7M)

(b) List out the applications of non directional over current and directional over current relays? (7M)

OR

Q. No.5 (a) Describe with a neat sketch the percentage differential protection of a modern alternator? (7M)

(b) Explain the working of a static over current relay? (7M)

Central University of Haryana
Reappear Term End Examination 2023
B.Tech. Programmes
Branch: Printing and Packaging Technology

Course Code: BT EE 103A — **Max Time: 3 Hours**
Course Title: Basic Electrical Engineering — **Max Marks: 70 marks**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 Explain the following:- (2X7=14)

(a) Superposition and maximum power transfer Theorem with circuit diagram
(b) Average, RMS, Form factor, Peak factor of 1-phase AC circuit
(c) Principle of operation of DC Generator
(d) Mathematical eq. of Phase and Line current, Phase and Line voltage in star connection 3-phase supply
(e) Techniques of Power factor improvement
(f) Explain the condition of Ideal Transformer
(g) Explain the classification of DC generators

PART –II

Q. No.2 Derive delta to star transformations for DC circuit with proper diagrams. Find current *I* in the network shown in Fig (i) using star-delta transformation.

(1X14=14)

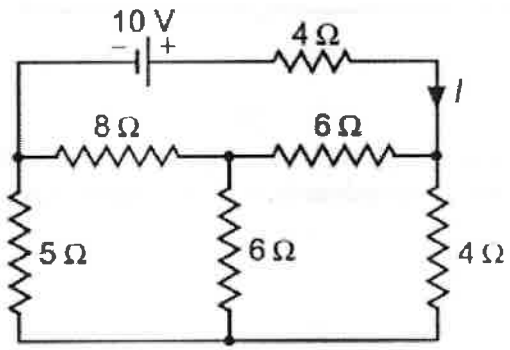


Fig. 1

OR

Q. No.2 A balanced delta connected load of (8+j6) ohm per phase is connected to a 3 phase 230 volt, 50 Hz AC supply. Find 1) Phase current 2) Line current 3) Power factor 4) Active power 5) Reactive power 6) volt- amp.

Q. No.3 Explain the open and short circuit test of transformer? What are the different types of losses in transformer? Write it mathematical equation. (1X14=14)

OR

Q. No 3 Explain the losses in a Single phase transformer? Draw the phasor diagram of transformer on load and on no-load? Drive an expression for condition for maximum efficiency of a single phase transformer.

Q. No.4. A 4 pole, DC shunt motor takes 22A from 220 V supply. The armatures and fields resistance are 0.5 ohm and 100 ohm respectively. The armature is lap connected with 300 conductors. If the flux per pole is 20mWb. Calculate 1) speed 2) Torque (1X14=14)

OR

Q. No .4 Explain with diagrams and equations the construction and working of 3-phase induction motor and synchronous
generators.

Q. No.5 Explain Resonance in Series and Parallel AC circuits with appropriate diagrams. A coil of resistance 40 ohms and inductance 0.75 H forms a part of a series circuit for which resonance frequency is 55 Hz in Fig. (iv). If supply is 250 V, 50 Hz, find (i) line current, (ii) power factor, (iii) power consumed and (iv) voltage across the coil. (1X14=14)

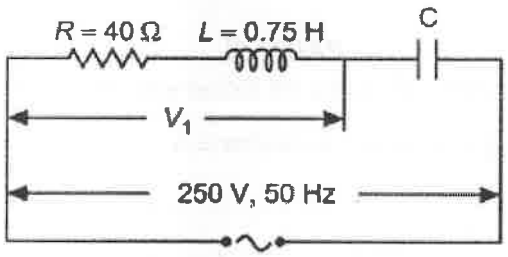


Fig 2

OR

Q. No.5 Explain the concept of earthing and Grounding in electrical installations with diagram. Also explain types of wires and cables as components of LT Switchgear. Explain following terms 1) MCB 2) MCCB 3) RCCB

Central University of Haryana
III Semester Term End Examination, 2023
B.Tech. Programme (Reappear)
Branch: Electrical Engineering

Course Code: **BT EE 307** **Max Time: 3 Hrs**

Course Title: **Transmission and Distribution** **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carry two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Question No.1

(a) Give Voltage levels of Primary Transmission and Secondary distribution.
(b) What are the functions of Current and Potential Transformers in a Substation?
(c) Define Line Capacitance and Line Inductance in Transmission lines.
(d) State the line lengths of Short, Medium and Long transmission lines.
(e)Define Sag and Stress in transmission lines.
(f) Define String Efficiency of suspension type insulators.
(g) Define Grading of Cables.

PART –II

Unit-I

Question No.2

Explain the Layout of Substation with diagrams. State the difference between Radial and Ring main distribution system.

Or

Question No.2

Explain the Advantages and Disadvantages of HVAC system. Draw the layout of different busbar schemes.

Unit-II

Question No.3

Explain Ferranti effect with phasor diagram. Explain Proximity Effect with diagram. Explain the benefits of using bundled conductors.

Or

Question No.3

Explain modelling of Short, medium and long transmission lines with diagram and derivations of voltage regulation for all the models.

Unit-III

Question No.4

Give the description of two types of mechanical vibrations in transmission lines and means to damp them. Explain with diagrams various kinds of Insulators.

Or

Question No.4

Explain with diagram and equations different methods for equilization of potential over insulator string.

Unit-IV

Question No.5

With diagrams explain the contruction of various types of Underground Cables. Give the advantages and disadvantages of underground cables when compared to Overhead Transmission lines.

Or

Question No.5

Explain Corona losses, critical voltage and methods to reduce corona. Explain Radio Interference because of power transmission.

Central University of Haryana
VII Semester Term End Examination June-July 2023
B.Tech. Programmes
Branch: Electrical Engineering

Course Code: BTEE706A **Max Time: 3Hrs.**
Course Title: A Nonlinear and Optimal Control System **Max Marks: 70**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Explain essential nonlinear phenomena.

(b) Explain singular Point.

(c) Explain Stable focus.

(d) Explain Saddle point.

(e) Write necessary and sufficient conditions for a differentiable function f to take on a minimum value at point x^*.

(f) Explain the mathematical statement of Kalman's conjecture.

(g) Consider a nonlinear system described by following state equations determine the number of equilibrium point(s) of the system.

$$\dot{x} = x - y$$

$$\dot{y} = x^2 + y^2 - 2$$

PART –II

Q. No.2 Explain Relay Nonlinearity (On-Off Nonlinearity).

OR

Q. No.2 Explain saturation and backlash.

Q. No.3 Explain Lyapunov's first criterion of stability with all expressions and example.

OR

Q. No 3 Explain Variable Gradient method for stability.

Q. No.4 Find the points in the three-dimensional Euclidean space that extremize the function $f(x_1, x_2, x_3) = x_1^2 + x_2^2 + x_3^2$ And lie on the intersection of the surfaces $x_3 = x_1\, x_2 + 5$, $x_1 + x_2 + x_3 = 1$.

OR

Q. No .4 Suppose that the system $\dot{x}_1(t) = x_2(t)$ and $\dot{x}_2(t) = u(t)$Is to be controlled to minimize the performance measure $J(x, u) = \frac{1}{2}\int_0^2 u^2 dt$ Find a set of necessary condition for optimal control.

Q. No.5 A one dimensional regulator is defined by the state equations

$$x(k+1) = x(k) + u(k)$$

Minimize the performance index by dynamic programming.

OR

Q. No.5 Explain Continous time Linear state Regulator

Central University of Haryana
Re-Appear VI Semester Term End Examination ----
B.Tech. Programmes June 2023
Branch: Electrical Engineering

Course Code: BT EE 502 **Max Time: 3 Hrs**
Course Title: Control System Engineering **Max**

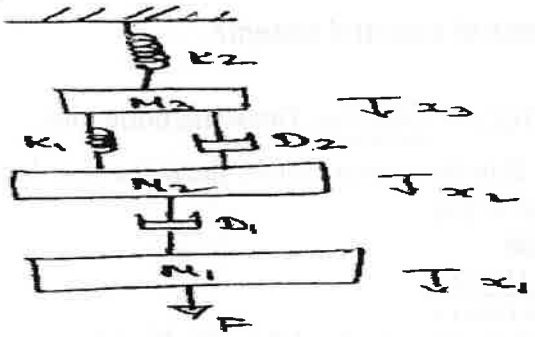
Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

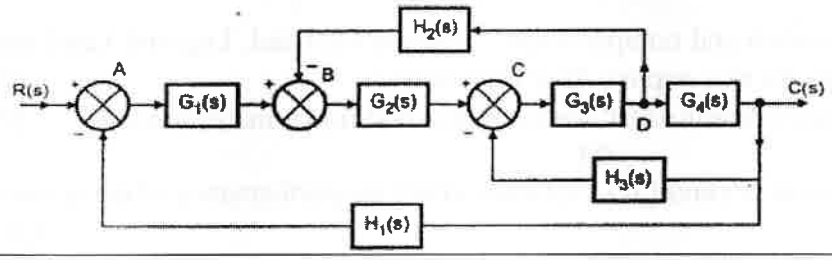
Q. No.1
(a) With example explain difference between open loop and closed loop system?
(b) What is steady state errors and give steady state error for standard inputs for type 1 system?
(c) How will you find root locus on real axis? Explain with example.
(d) Explain the relationship between time domain and frequency domain specifications?
(e) What are the difference between induction motor and servo motor?
(f) Write comparison proportional, integral and derivative controller?
(g) What is the basis for framing the rules of block diagram reduction technique?

PART –II

Q. No.2 (a) Write the differential equations governing the mechanical systems shown in fig and determine the transfer function. (7)

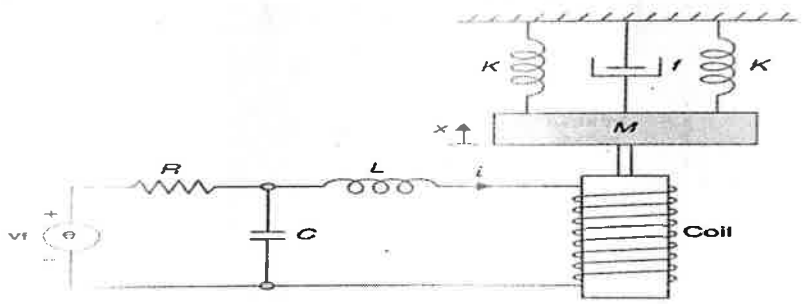


(b) Simplify the following diagram using block diagram reduction method; Also derive the transfer function of the same using signal flow graph. .(7)

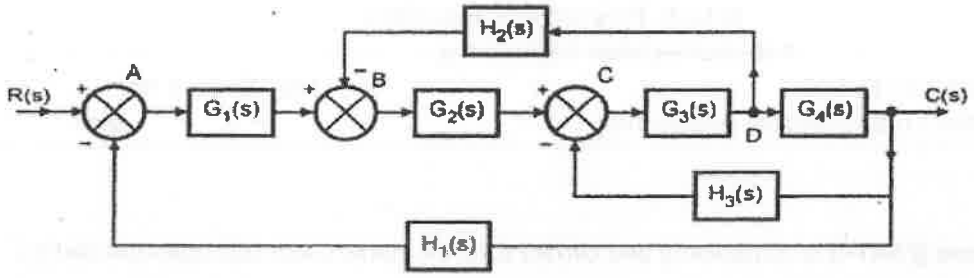


OR

Q. No.2 (a) Find the transfer function $X(s)/V_f(s)$ (7)



(b) Simplify the following diagram using block diagram reduction method; Also derive the transfer function of the same using signal flow graph. (7)



Q. No.3 (a) Derive time domain specification of a second order subjected to a step input. (7)

(b) For a system whose $G(s) = \frac{10}{s(s+1)(s+2)}$, Find the study steady response when it is subjected to input $r(t) = 1 + 2t + 1.5t^2$ (7)

OR

Q. No 3 (a) A feedback system employing output rate damping shown in figure 1.

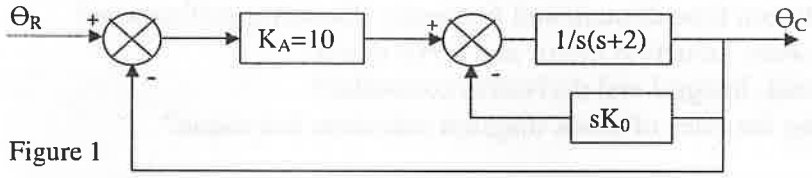


Figure 1

Determine the derivative feedback constant K0, which will increase the damping factor of the system to 0.8. What is the steady state error resulting from unit ramp input with this setting of the derivative feedback constant? (9)

(b) What are transient and steady state response of a control system? (5)

Q. No.4 (a) A unity fed back control systems $G(s) = \frac{K(s+3)}{(s+2)(S+5)}$. Draw the bode plot. (7)

(b) Consider that for the system with transfer function given below, draw the root locus and predict its stability. $G(S)H(S)=K/s^4+12s^3+64s^2+128s$. (7)

OR

Q. No .4 (a) Draw the bode plot for $G(s) = \frac{(3s+1)}{(s+1)(4s+1)}$ (7)

(b) Sketch the root locus for $G(S)H(S)=K(s+1)/s(s+2)(s+3)$. Find the gain, K at the point where the locus crosses the imaginary axis. (7)

Q. No.5 (a) What is compensation and compensators? Analyze on Lead, Lag and Lag-Lead compensators with a neat diagram also explain their importance. (7)

(b) Explain working of armature controlled DC servo motors and find transfer function. (7)

OR

Q. No.5 (a) How the Proportional (P) and PID controller effect the performance of the system, explain with example. (7)

(b) Explain the working of AC servo motor. What are the difference between induction motor and AC Servo motor. (7)

Central University of Haryana
Term End Examination June 2023
B.Tech. Programmes
Branch: Electrical Engineering

Course Code: **BTEE401A** **Max Time: 3h**
Course Title: **Logic and Sequential Circuits** **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART –I

Q. No.1

(a) Determine the decimal number represented by binary number $(101101.10101)_2$

(b) $(675.625)_{10} = (\ ?\ )_{16}$

(c) Draw the circuit diagram of gated J-K flip flop.

(d) State Sample and Hold circuit.

(e) Draw the circuit diagram of Bi-directional shift register.

(f) What is Multipleser?

(g) Define Carry Look Ahead Adder.

PART –II

Q. No.2 (a) Construct Hamming code for BCD 0110. Use even parity.

(b) Explain CMOS Logic NAND and NOR gates.

OR

Q. No.2 (a) Design a circuit for interfacing an ECL 2-input NOR gate with TTL inverter to obtain NOR function of the combined circuit.

(b) Write short note on DTL Nand gate circuit.

Q. No.3 Simplify the given Boolean function using K-Map method and realise the minimised Boolean expression using NAND gates:

$$Y(A,B,C,D,E) = \sum m\,(0,5,6,8,9,10,11,16,20,24,27,29,31)$$

OR

Q. No 3 Simplify the given Boolean function using Quine-McCluskey method and realise the minimised Boolean expression using NAND gates:

$$Y = \sum m(0,1,2,3,5,7,8,9,11,14)$$

Q. No.4 Design a 3-bit binary UP/DOWN counter with a direction control M by using J-K Flip Flops.

OR

Q. No.4 Design and explain the BCD Subtractor by using 4-bit adder.

Q. No.5 Write a short note about the following:

(a) ADC using Voltage to Frequency conversion

(b) ADC using Voltage to Time Conversion

OR

Q. No.5 Describe the process of Digital to Analog conversion. Write down the characteristics of the Digital to Analog convertors. Also explain the weighted resistor Digital to Analog convertor.

Central University of Haryana
VII Semester Re- appear June 2023
B.Tech. Programmes
Branch: Electrical Engineering

Course Code: BT EE701A
Course Title: Electric Drives

Max Time: 3 hrs
Max Marks:70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) State essential parts of electric drive.
(b) Write about the function of power modulator.
(c) List mode of operation of electric drives
(d) What do you understand by regenerative braking.
(e) What type of closed loop speed control schemes are used in multimotor drives?
(f) Define active and passive load torques? What are the differences between two?
(g) List the braking method of induction motor drives.

PART –II

Q. No.2

a) How does a Phase locked loop speed control scheme operate? Where do you use it ?
b) Describe the operation of closed loop torque control scheme and its application in battery powered vehicle or rail cars.

OR

Q.No.2

A drive has following equation for motor and load torques

$T = 1+2\omega_m$ $\quad T_l = 3\sqrt{\omega_m}$

Obtain the equilibrium points and determine their steady state stability. Also define steady state stability and load and motor torques.

Q. No.3 State and explain about rate of motor. State and explain the disadvantage of using a motor of wrong rating.

OR

Q. No 3 What do you mean by energy conservation in electrical drives? List type of losses takes place in electrical drives? Explain how the variable speed drive allows saving of energy in pump drives.

Q. No.4 Draw the speed torque characteristics for dynamic braking operation of dc series motor. Why torque becomes zero at finite speed?

OR

Q. No .4

a) A separately excited dc motor is running on no load with weak field. Now field current is increased . State and explain various operations (braking, Motoring) the motor will have before it settles at a new steady-state speed.

b) What factors limit the maximum speeds of field controlled dc motors?

Q.No. 5 Why is slip power recovery scheme suitable mainly for drives with a low speed range? Why a resistance starter is generally required for the induction motor drive employing slip power recovery? Why is the power factor slip power recovery scheme of speed control of induction motor low?

OR

Q. No.5 Why the rotor resistance control is preferred in low power crane drives? How does the rotor resistance control help during counter-torque braking? State the major features of rotor resistance control of wound rotor induction motor.

Central University of Haryana
Even Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Electrical Engineering (Regular/ Reappear)

Course Code: **BT EE 408A** **Max Time: 3 hours**
Course Title: **Mathematics-III** **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks). Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.
Note: Normal table should be provided with this paper. Use of scientific calculator allowed.

PART -I

Q. No.1

(a) Give the relation between moment about the mean, with moment about any point for first three moments. **[2]**

(b) A random variable X has mean 12 and variance 9 and an unknown probability distribution. Using Chebyshev's theorem, estimate P(6<X<18). **[2]**

(c) Write a short note on the types of Sampling. **[2]**

(d) Let X be a random variable with density function **[2]**

$$f(x) = \begin{cases} x^2/3, & -1 < x < 2 \\ 0, & elsewhere \end{cases}$$

Find the variance of the random variable $g(X)$= 4X+3.

(e) The fraction X of male runners and the fraction Y of female runners who compete in marathon races are described by the joint density function **[2]**

$$f(x,y) = \begin{cases} 8xy, & 0 \le y \le x \le 1, \\ 0, & elsewhere \end{cases}$$

Find the covariance of X and Y.

(f) Six dice are thrown 729 times. How many times do you except at least three dice to show a five or six? **[2]**

(g) Show that the $S^2 = \frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2$ is the unbiased estimator for σ^2. **[2]**

PART –II

Q. No.2

(a) The first four moments of distribution about the value 5 of the variable are 2, 20, 40 and 50. Obtain as far as possible the various characteristics of the distribution on the basis of the information given. **[7]**

(b) For a distribution of 250 heights, calculations showed that the mean, standard deviation, and were 54, 3, 0 and 3 inches respectively. It was however, discovered on checking that the two items 64 and 50 in the original data were wrongly written in place of correct values 62 and 52 inches respectively. Calculate the correct frequency constants. [7]

OR

(a) A random variable X has the following probability [7]

x	1	2	3	4	5	6	7
P(x)	k	2k	2k	3k	k^2	$2k^2$	$7k^2 + k$

Find k, distribution function and minimum value of a such that

$$P(X \leq a) > 1/2$$

(b) In a certain college, 25% of boys and 10% of girls are studying mathematics. The girls constitute 60% of the student body. (a) What is the probability that mathematics is being studied? (b) If a student is selected at random and found is to be studying mathematics, find the probability that the student is a girl (c) a boy? [7]

Q. No.3

(a) Seven coins are tossed and number of heads noted. The experiment is repeated 128 times and the following distribution is obtained: [7]

No. of Heads	0	1	2	3	4	5	6	7
Frequencies	7	6	19	35	30	23	7	1

Fit a Binomial Distribution assuming (i) the coin is unbiased, (ii) the nature of coin is not known, (iii) the probability of a head for four coins is 0.5 and the remaining three coins is 0.45.

(b) Derive the Poisson approximation from the binomial distribution. [7]

OR

(a) The pressure of the gas corresponding to various volumes V is measured, given by the following data: [7]

$V\ (cm^3)$	50	60	70	90	100
$P\ (kg/cm^2)$	64.7	51.3	40.5	25.9	78

Fit the data to the equation $PV^\gamma = c$.

(b) The marks obtained by 10 students in Mathematics (X) and Statistics (Y) are given below. Find the rank correlation between X and Y [7]

Roll No.	1	2	3	4	5	6	7	8	9	10
X	75	30	60	80	53	35	15	40	38	48
Y	85	45	54	91	58	63	35	43	45	44

Q. No.4

(a) The diameter, say X, of an electric cable, is assumed to be a continuous random variable with probability density function: $f(x) = 6x(1-x), 0 \leq x \leq 1$ [7]

(i) Check that the above is a probability density function.

(ii) Obtain an expression for the cumulative distribution function of X

(iii) Compute $P(X \leq 1/2 \mid 1/3 \leq X \leq 2/3)$.

(iv) Determine the number k such that $P(X < k) = P(X > k)$.

(b) In a distribution exactly normal, 31% of the items are under 45 and 8% of the items are over 64. What are the mean and standard deviation of the distribution? [7]

OR

(a) The joint probability distribution of two random variables X and Y is given by: [7]

$$P(X = 0, Y = 1) = \frac{1}{3}, P(X = 1, Y = -1) = \frac{1}{3}, and\ P(X = 1, Y = 1) = \frac{1}{3}.$$

Find marginal distributions of X and Y and the conditional probability distribution of X given $Y = 1$.

(b) For an army personnel of strength 25, the regression of weight of kidneys (Y) on weight of heart (X) is $Y - 0.399X - 6.934 = 0$ and the relation of weight of heart on weight of kidney is $X - 1.212\,Y + 2.461 = 0$ [7]

Find the correlation coefficient between X and Y and their mean values.

Q. No.5

(a) A sample analysis of examination results of 200 MBA's was made. It was found that 46 students had failed, 68 secured a third division, 62 secured a second division and the rest were placed in first division. Are these figures commensurate with the [7]

general examination result which is in the ratio of 4:3:2:1 for various categories respectively?

(b) Random samples of 400 men and 600 women were asked whether they would like to have a flyover near their residence. 200 men and 325 women were in favour of the proposal. Test the hypothesis that proportions of men and women in favour of the proposal, are same against that they are not, at 5% level. **[7]**

OR

(a) The mean weekly sales of soap bars in departmental stores was 146.3 bars per store. After an advertising complain the mean weekly sales in 22 stores for a typical week increased to 153.7 and showed a standard deviation of 17.2. Was the advertising campaign successful? **[7]**

(b) A random sample of 500 apples was taken from a large consignment and 60 were found to be bad. Obtain the 98% confidence limit for the percentage of bad apples in the consignment. **[7]**

Central University of Haryana
IV/VI Semester Term End Examination JUN 2023
B.Tech. Programmes
Branch: Electrical Engineering (2nd year)

Course Code: **BT EE403A** **Max Time: 3hrs**
Course Title: **Electrical Machine-II** **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carry two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Question No.1 Write short note on:

a) Explain pitch factor and distribution factor
b) Comparison of Slip ring and Squirrel Cage motor.
c) Write any four advantages of short pitched winding in alternators.
d) What is meant by cogging in three phase Induction motor? How can it be eliminated?
e) Design a three step starter in three phase 400 V wound rotor induction motor. Full load slip is 3% and maximum starting current is limited to full load value. Rotor resistance per phase is 0.015 ohm.
f) Compare the operation of Induction generator and synchronous generator.
g) Explain the principle of operation of Synchronous Induction motor.

PART –II
Unit-I

Question No.2 Write short note on:

(i) Explain revolving magnetic field theory
(ii) (ii) Explain the M.M.F of AC winding (14)

Or

Question No.2 (a) Example: make a winding table for the armature of a 3-phase machine with the following specifications:

Total number of slots = 24 Double – layer winding

Number of poles = 4 Phase spread=60° , Coil-span = full-pitch

(i)Draw the detailed winding diagram for one phase only , (ii) Show the star of coil-emfs. Draw phasor diagram for narrow-spread ($\sigma=60^{\circ}$) connections of the 3-phase winding showing coil-emfs for phases A and B only.

(7)

Question No.2 (b) A 3-phase, 8-pole, 750 r.p.m. star-connected alternator has 72 slots on the armature. Each slot has 12 conductors and winding is short chorded by 2 slots. Find the induced emf between lines, given the flux per pole is 0.06 Wb. (7)

Unit-II

Question No.3 (a) Explain the method of starting of slip ring Induction motor. (7)

Question No.3 (b) Explain the O.C. and S.C. Characteristics of Synchronous Generator. (7)

Or

Question No.3 Explain speed control of 3 phase induction motor by slip power recovery scheme with neat sketches. (14)

Unit-III

Question No.4 (a) Using double field revolving theory, explain why a single phase induction motor is not self-starting. Also obtain the equivalent circuit of single phase induction motor with necessary equations. (7)

Question No.4 (b) Define doubly-Fed Induction Machines? Explain its applications. (7)

Or

Question No.4 Explain Split-phase single phase induction motor. Also explain its starting methods and applications. (14)

Unit-IV

Question No.5 (a) Describe briefly the effect of varying excitation upon the armature current and power factor of a three phase synchronous motor when input power to the motor is maintained constant. (7)

Question No.5 (b) A 75KW, 400 V, 4-pole, 3-phase, star-connected synchronous motor has a resistance and synchronous reactance per phase of 0.04 ohm and 0.4 ohm respectively. Compute for full load 0.08 pf lead the open-circuit emf per phase and gross mechanical power developed. Assume an efficiency of 92.5%.

Or

Question No.5 With the help of a phasor diagram explain the parallel operation of alternators under no load and loaded condition. (14)

Central University of Haryana
Term End Examination June 2023
B.Tech. Programmes
Branch: Electrical Engineering

Course Code: BT EE633A
Course Title: Utilization of Electric Power and traction

Max Time: 3hrs
Max Marks:70M

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) What are the factors to be considered for the sizing of transformer?

(b) How do you determine the appropriate cable sizing for electrical installations?

(c) Explain the principle behind resistance heating?

(d) What are the safety precautions o be taken while working with electric heating and welding?

(e)Define the efficiency of battery and the procedure to calculate the efficiency?

(f) Explain the significance of Faraday's Law of Electrolysis?

(g) Write a short note on electric traction?

PART –II

Q. No.2 (a) With the help of a diagram, explain in detail about ultrasonography? (7M)

(b) What are the factors to be considered for sizing and selecting the cables in electrical installations? (7M)

OR

Q. No.2 Explain in detail about different types of sensors and transducers used for the measurement of (i) Temperature, (ii) Pressure, (iii) Displacement, (iv) Velocity, (v) Acceleration, (vi) Strain and (vii) Torque? (14M)

Q. No.3 With the help of diagram, explain about (a) resistance heating, (b) induction heating and (c) dielectric heating? (5M+5M+4M)

OR

Q. No 3 (a) Explain the concept of arc welding and the role of welding generator and welding transformer in the welding process? (7M)

(b) What safety measures are to be taken while working with electric heating and welding processes?

(7M)

Q. No.4 Define Electrolysis, with the help of example explain the principle of electrolysis (14M).

OR

Q. No .4 (a) what are the different types of battery available in the market (7M)

(b)How do we estimate capacity and efficiency of the battery (7M)

Q. No.5 (a) Explain in detail about electric traction systems? (7M)

(b) How do traction motors work? (7M)

OR

Q. No.5 State the art of regenerative braking with three phase induction motors? (14M)

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations June 2023

Programme: B.Tech. **Session: 2022-23**
Semester: IV **Max. Time: 3 Hours**
Course Title: SIGNALS & SYSTEMS **Max. Marks: 70**
Course Code: BT EE407A

Instructions:

1. Question no. 1 is compulsory and carries total 14 marks (Each sub-question carries 2 marks).
2. Question no. 2 to 5 carry 14 marks each with internal choice.

Q 1.

a) What do you mean by absolute integrability of signal?
b) Explain system causality in terms of unit impulse response.
c) Comment on stability, if unit impulse response of an LTI system is given by:
$h(n) = 2n.u(n + 2)$
d) What are the requirements of system realizability?
e) Write synthesis and analysis equation of discrete time Fourier Transform (DTFT).
f) Define poles and zeros of a system.
g) What is aliasing effect?

Q2.

a) What are linear and non-linear systems. Check the system, $y(n) = 2x(n) + 3$; for linearity.
b) Sketch the signal $x(t) = u(t) - u(t - 2)$ and find its energy.

OR

a) What are LTI systems? Check whether the system, $y(n) = 0.25\, y(n-1) + x(n)$; is LTI or not?
b) Check whether the DT signal $x(n) = e^{j7\pi n}$ is periodic or not? If periodic, find its period.

Q 3.

a) Compute the convolution $y(t) = x(t) * h(t)$, if $x(t) = e^{2t}.u(1 - t)$ and $h(t) = e^{-t}u(t + 3)$
b) Find the causality and stability of an LTI system, if its unit impulse response is
$h(t) = e^{2t}.u(50 + t)$

OR

(a) Compute the convolution, $y(t) = x(t) * h(t)$, if $x(t) = e^{-3t}u(t)$ and $h(t) = u(t-3)$
(b) Evaluate the unit step response of the LTI systems represented by its unit impulse response as:
$h(t) = e^{-2t}.\, u(t)$

Q4.

a) Determine the Fourier series coefficients of a periodic square wave with period T=2, defined over one period as: $x(t) = 1$, for $t=-1/2$ to $1/2$ and
$= 0$, for $t= -1$ to $-1/2$ and $+1/2$ to 1
b) What are Drichlet conditions?

OR

a) Consider a signal y(t) which is related to two signals $x_1(t)$ and $x_2(t)$ by

$y(t) = x_1(t-2) * x_2(t+3)$ *where* $x_1(t) = e^{-2t}u(t)$ *and* $x_2(t) = e^{-3t}u(t)$

Find the Laplace transform of y(t).

b) Find the Z-transform of unit step signal with possible ROC.

Q 5.

a) Explain sampling theorem and its implications in frequency domain.

b) What is zero order hold? Find its transfer function.

OR

a) Explain signal reconstruction using first order hold.

b) Explain frequency domain analysis of interpolation.

Central University of Haryana

VI Semester End Term Examination, June/July 2023

B.Tech. Programme (2022-2023 session)

Branch: Electrical Engineering

Course Code: BT EE641 **Max Time:** 3 Hrs

Course Title: Sensors & Transducers **Max Marks:** 70

Instructions:

- Question number 1(one) (Part-I) is compulsory and carries 14 marks
- Question number 2(two) to 5(five) carry 14(fourteen) marks each with internal choice.

PART-I

Question No. 1

(a) Draw the block diagram of Data Acquisition System. (2)

(b) What are the factors affecting the Selection of Transducer? (2)

(c) Make a list of all sensors used for the measurement of different process parameters. (2)

(d) Key Difference between Integrated and Smart Sensors. (2)

(e) Define the following terms: (1.5*4=6)

(i) Calibration (ii) Linearity (iii) Sensitivity (iv) Drift

PART-II

Unit-I

Question No. 2

(a) Differentiate the Zero order and First order instruments with examples? Also write their dynamic characteristic equations. (4)

(b) How's the Strain Gauges used in "Load Cell" and "Torque Cell"? (**Note**: ***Only draw the schematic representations***). (3)

(c) How can we use the variable inductance transducers (**Like LVDT**) for the measurement of Pressure, Displacement, and Flow rate? (**Note**: ***Only draw the schematic representations***). (4)

(d) What are the methods used for the compensation of "Cold Junction Temperature" in a thermocouple? (3)

OR

Question No. 2

(a) What are the points to be remember & careful while using the strain gauges for stress analysis in a load carrying beam? (5)

(b) **Explain the following:**

(i) Desirable properties of Thermocouple for industrial use. (3)

(ii) Advantages of Thermopile over Thermocouple. (3)

(iii)Working Principle of LVDT. (3)

Unit-II

Question No. 3

Give appropriate and brief answers with diagrams of the following parts:

(i) Differential-Capacitor pressure pick up (**Note:** ***Draw Schematic Representation and circuit diagram***) (4)

(ii) Applications of Piezoelectric Sensor (3)

(iii) Piezoelectric Accelerometer (3)

(iv) Application of photo diode as digital revolution counter (4)

OR

Question No. 3

(a) Draw the "Gain and phase plot of capacitor microphone". (3)

(b) What do you mean by '**g**' and '**d**' constants of piezoelectric transducers. (3)

(c) What is a Stroboscope? Explain it with the help of diagram (5)

(d) Linearization of capacitor sensor (3)

Unit-III

Question No. 4

(a) How can we measure vacuum pressure? Draw the circuit arrangement used to convert vacuum pressure signal to electric signal. (4)

(b) List about the critical factors and their effects on the sensitivity, working range, and non-linearity of "Diaphragm Pressure Gauge". (3)

(c) Draw the circuit diagrams of different types of Hot wire Anemometer. (3)

(d) Explain the pH measurement process through pH probe. (4)

OR

Question No.4

(a) Compare the features of "**Doppler Shift**" and "**Transit Time**" based Ultrasonic Flow meters. Which one is best suitable for flow measurement in a "Large Diameter Pipe"? (5)

(b) How can we measure the viscosity of a liquid? (3)

(c) Draw the configuration of "Bourdon Tube Pressure Gauge" for the measurement of absolute pressure. (3)

(d) How can we measure the flow rate of conductive fluid flowing in a pipe? (***Note: Method should be non-invasive and the answer should indicate the relationship between flow rate and emf generation***). (3)

Unit-IV

Question No.5

(a) What are the features that must be in a sensor to call it as a "Smart-Sensor"? (5)

(b) Why the "**Sample & Hold**" circuitry would require while the conversion of Analog Signal to Digital Signal? (4)

(c) Explain the importance of "**Signal Conditioning & Data Acquisition System**" in an Instrumentation. (5)

OR

Question No. 5

(a) Stated the Applications of smart sensors in different engineering fields. (6)

(b) Describe the complete process of "Automation System", starting from sensing the physical variable to controlling the actuator. (***Note: All important elements and systems should be involved***). (8)

Central University of Haryana
Term End Examination June 2023
B.Tech. Programmes
Branch: Electrical Engineering

Course Code: BT EE 624A — **Max Time: 3hrs**
Course Title: Digital Control System — **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Explain mapping of the z-transform to the Laplace transform?
(b) Explain Digital Control System with the example of Closed-Loop Drug Delivery System or Aircraft Turbojet Engine.
(c) Explain the steps involved in Analog to Digital Conversion.
(d) Analog pressures are recorded using a pressure transducer as voltages between 0 and 3 V. The signal must be quantized using a 3-bit digital code. Indicate how the analog voltages will be covered to digital values.
(e) Explain the Dynamic Range.
(f) Explain quantization error?
(g) Draw block diagram of any example of digital control system.

PART –II

Q. No.2 Given the linear continuous-time system

$$\dot{x} = \begin{bmatrix} 0 & 1 & -2 \\ 3 & -4 & 5 \\ -6 & 7 & 8 \end{bmatrix} x + \begin{bmatrix} 0 & -1 \\ 2 & -3 \\ 4 & -5 \end{bmatrix} u$$

Find the controllability and observability of the system.

OR

Q. No.2 Consider a linear continuous-time dynamic system represented by its transfer function $H(s) = \frac{(s+3)}{(s+1)(s+2)(s+3)}$ examine the controllability and observability matrices.

Q. No.3 Obtain the inverse z-transform of the function: (1) using partial fraction method (2) using long division method.

$$F(z) = \frac{z+1}{z^2 + 0.3z + 0.02}$$

OR

Q. No 3 Test the stability of the polynomial

$$F(z) = z^5 + 2.6z^4 - 0.56z^3 - 2.05z^2 + 0.0775z + 0.35 = 0$$

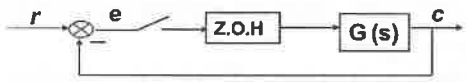
We compute the entries of the Jury table using the coefficients if the polynomial.

Q. No.4 Find GZAS(z) for the cruise control system for the vehicle shown in figure, where u is the input force, v is the velocity of the car, and b is the viscous friction coefficient.

OR

Q. No .4 Explain ladder programming for Realization of Digital Controllers and Digital Filters

Q. No.5



$T = 1s \quad G(s) = \frac{K}{s(s+5)}$

1) Determine K for the stable system. 2) If r(t) = 1+t, determine e_{ss}=?

OR

Q. No.5 Design a digital compensator.

Central University of Haryana
VI Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Electrical Engineering

Course Code: BT EE 601A
Course Title: Power Systems II

Max Time: 3 Hrs
Max Marks: 70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Why one bus is selected as slack bus.
(b) Derive formula for building Y-Bus when new element is added between existing bus.
(c) Write comparison between Gauss-Seidel and Newton-Raphson Method.
(d) Explain the ideal speed droop characteristics of a speed governor.
(e) What is the necessity to regulate voltage and frequency in the power system?
(f) What is the difference of ACE in single-area and two area power systems
(g) Summarize the common advantages of STATCOM?

PART –II

Q. No.2 (a) Explain clearly with a flow chart the computational procedure for load flow solution using Newton-Raphson method when the system contains all types of buses. (7)

(b) The load flow data for a three-bus system is given in tables. The voltage magnitude at bus 2 is to be maintained at 1.03 p.u. The maximum and minimum reactive power limits for bus 2 are 0.2 and 0.5 p.u. respectively. Taking bus 1 as the slack bus, determine the voltages of the various buses at the end of first iteration starting with a flat voltage profile for all buses except slack bus using Gauss-Seidel method with acceleration factors 1.4. (7)

Bus code	*Impedance*	*Bus code*	*Line changing admittance* $\frac{y'_{pq}}{2}$
1–2	0.06 + *j*0.18	1	*j* 0.05
1–3	0.02 + *j*0.06	2	*j*0.06
2–3	0.04 + *j*0.12	3	*j*0.05

Bus code	*Assumed voltages*	*Generation*		*Load*	
		MW p.u.	*MV Ar* p.u.	*MW* p.u.	*MV Ar* p.u
1	1.06 + *j*0.0	0.0	0.0	0.0	0.00
2	1.0 + *j*0.0	0.2	0.0	0.0	0.00
3	1.0 + *j*0.0	0.0	0.0	0.6	0.25

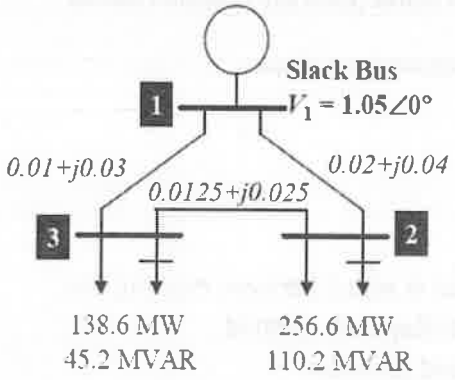
OR

Q. No.2 (a) Develop the block diagram of an Automatic Generation Control system of an isolated power system. (7)

(b) Figure below shows the single-line diagram of three-bus power system with generation at bus 1. The scheduled loads at buses 2 and 3 are as marked on the diagram. Line impedances are marked in per unit on 100 MVA base.

a) Using Gauss-Seidel method, determine the phasor values of the voltage at load buses 2 and 3 (P-Q buses) to 4 decimal places (two iterations).

b) Find slack bus real and reactive power. (7)



Q. No.3 (a) Draw the functional diagram of real power control mechanism of a generator. Explain how a "raise" command to the speed changer will result in increased generator output power. (7)

(b) Two generators rated at 120MW and 250 MW are operating in parallel. The governor setting on the machines are such that have 4 percent and 3 percent drops. Determine (i) The load taken by each machine for a total load 200MW.(ii) The percentage no load speed and rated output of machine 1 to made by the speeder motor if machine are to share a load equally. (7)

OR

Q.No.3 (a) Draw the complete block diagram representation of ALFC of single area system and describe the role of different components. (7)

(b) Two generators rated 400MW and 700MW are operated in parallel. The droop characteristics of their governors are 3% and 4% respectively from no load to full load. Assuming that the governors are operating in 50Hz at no load, how would a load of 1000MW is shared between them? What will be the system frequency at this load? Assume linear governor operation. Determine the full load speed for each machine. (7)

Q. No.4 (a) Explain system state classification with relevant figure clearly indicating all security levels and transition between different security levels. (7)

(b) Discuss various components of SCADA with neat diagram. Also list some of the common features of SCADA. (7)

OR

Q. No.4 (a) Explain the voltage stability and voltage collapse? Explain the techniques for prevention of voltage collapse. (7)

(b) Describe the working principle of the two types of Static Var Compensators SVC with neat schematic diagrams.. (7)

Q. No.5 (a) Describe structure of wholesale competition model with help of a figure. (7)

(b) Explain with diagram different entities involved in deregulation and their function. (7)

OR

Q. No.5 (a) Describe structure of deregulated (restructured) power industry with the help of a neat figure. (7)

(b) Explain the method of price selection in Single sided and double sided linear bid market.(7)

Central University of Haryana
Second Semester Reappear Examination July 2023
B.Tech. Programmes
Branch: Electrical Engineering

Course Code: BT EPH 203 **Max Time: 3 Hrs**
Course Title: Engineering Physics II **Max Marks: 70**

Instructions:

- Question Number one (PART-I) is compulsory and carries total 14 marks (Each sub Question carries two Marks).
- Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Define Packing Fraction. Write its value for SC and BCC structures.
(b) What are Miller Indices?
(c) Explain the physical significance of effective mass of an electron.
(d) Define Nanotechnology.
(e) What do you mean by Superconductivity? Show the behavior of superconductor by curve.
(f) What are Coherent Sources?
(g) What do you mean by Meissner effect?

PART –II

Q. No.2 What is the difference between Crystal and Non-crystal? Define Face Cubic Crystal. Prove that FCC is closely packed than BCC.

OR

Q. No.2 what is Fermi Level. Explain Fermi-Dirac distribution function.

Q. No.3 Write short note on the following:

a) Debye Model
b) Hall Effect
c) Kroning Penny Model

OR

Q. No.3 Calculate effective mass of Electron. Also draw and discuss effective mass verses wave vector graph. Also define and calculate Crystal Momentum.

Q. No.4 Distinguish between type-I and type-II superconductors. Briefly discuss the BCS theory of superconductivity.

OR

Q. No.4 Discuss Top down and Bottom up approach of synthesis of Nanomaterials.

Q. No.5 What do you mean by spontaneous emission stimulated emission and absorption? Establish the relation between Einstein A and B coefficient.

OR

Q. No.5 Give the construction and working of a Helium Neon laser.

Central University of Haryana
Term End Examination JUNE 2023
B.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 403 **Max Time: 3 Hours**
Course Title: Discrete Structure **Marks:70**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Define Power set and find the number of element in the power set P(S) of the set S={ { Φ} , 1 , {2,3}} .

(b) A= {1, 2, 3, 4} which ordered pair are in the relation R= {(a, b) |a divides b} |R|=?

(c) What do you mean by cyclic Group explain with example?

(d) Define the Disjunction terms with appropriate truth table.

(e) In how many ways can 12 students be arranged in a circle?

(f) How many edges are there in a complete graph having 12 nodes?

(g) What is multi graph?

PART –II

Q. No.2 (a) Define Cartesian product of set. Also write the properties of Cartesian product. If A = {7, 8} and B = {2, 4, 6} find A× B and B×A.

Q. No.2 (b) Let set A = {1, 2, 3, 4, 5, 6, 7, 8}, and set B = {3, 5, 7, 9, 11, 13}. Find: (i) A U B (ii) A ∩ B (iii) (A ∩ B)'.

OR

Q. No.2 (a) Explain the Properties of union and intersection operation set.

Q. No.2 (b) How many Symmetric, Asymmetric and Anty symmetric relation are possible in a set A whose n (A) = 4.

Q. No.3 (a) Prove that the fourth roots of unity and cube root of unity form an abelian multiplicative group.

Q. No.3 (b) Describe the Homomorphism, Isomorphism and Endomorphism with suitable Example.

OR

Q. No. 3 (a) Prove Lagrange's theorem that states "for any finite group G the order of every group H divides the order of G".

Q. No.3 (b) Explain Closer Properties of a group with suitable Example.

Q. No.4 (a) Define quantifiers, universal quantifiers and existential quantifiers by giving an example.

Q No.4 (b) Explain principle of mathematical induction. Prove that N (N^2 +5) is an integer multiple of 6 for all positive integer.

OR

Q. No .4 (a) Explain Tautologies, Contradiction, Contingencies with suitable examples.

Q. No. 4 (b) State and prove pigeonhole principle. Find the minimum number of teacher in a college to be sure that four of them are born in the same month.

Q. No.5 what is graph colouring? Define chromatic number. Give any one example to explain your answer.

OR

Q. No.5 Define planner graph, Bipartite graph, and spanning tree with diagram.

Central University of Haryana
Term End Examination JUNE 2023
B.Tech Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 604 A — **Max Time: 3 Hours**
Course Title: Data warehouse and Data mining — **Marks:70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 Write sort notes on each of the following items:

(a) Star schema and Snowflake schema.
(b) What is the need for developing data warehouse?
(c) Data Visualization.
(d) Integration.
(e) Constraint Based Frequent Pattern Mining.
(f) DBSCAN.
(g) Naive Bayes Method.

PART –II

Q. No.2 (a) Discuss the various schematic representations in multidimensional model.
Q. No.2 (b) differences between OLAP and OLTP.

OR

Q. No.2 (a) briefly explain major issues and challenges of Data Mining.
Q. No.2 (b) Explain the different components of a data warehouse.

Q. No.3 (a) Discuss the activities of data cleaning with the process associated with it.
Q. No.3 (b) Can you briefly describe the four stages of Knowledge Discovery (KDD)?

OR

Q.No.3 (a) what is the need of Data Pre-processing? Discuss various forms of pre-processing
Q.No.3 (b) what do you mean by data reduction techniques? Discuss attribute subset selection method with the help of suitable example.

Q. No.4 what are association rules? Define frequent Sets, Support and Confidence. Discuss importance of discovering association rules.

OR

Q. No .4 what is the "Apriori property"? How it is used by the Apriori Algorithm? Explain the limitation of Apriori Algorithm.

Q. No.5 Discuss in detail about the Bayesian and decision tree classifier.

OR

Q. No.5 List out the differences between classification and clustering methods with example.

Central University of Haryana
IV/VI & Re-Appear VI Semester Term End Examination June/July 2023
B.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 602A — **Max Time: 3Hrs.**
Course Title: Compiler Design — **Max Marks:70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 — 2 x 7=14M

(a) Discuss various phases of a compiler .

(b)What is an Operator Precedence grammar.

(c) Discuss Transition diagram with example.

(d) Explain the concept of function overloading.

(e) What is a Recursive Descent Parsing?

(f) Define L-Attribute and S-Attribute.

(g)What is the Peep-Hole Optimization?

PART –II

Q. No.2

a) What is a Translator? Differentiate between Interpreter and Compiler. 7M

b) What are the two parts of compilation? Discuss in detail with diagram. 7M

OR

Q. No.2.

a) Discuss all issues in lexical analysis. Differentiate between lexeme, pattern and token. 7M

b) Show that the grammar S -> 0S1| SS |ϵ is ambiguous. 7M

Q. No.3

a) Differentiate between SLR, LALR and CLR. 7M

b) What is syntax directed translation? Write the semantic rules for conversion from Binary to Decimal conversion of a number. 7M

OR

Q. No 3

a) What is a parsing? Discuss all types of parser in detail. 8M

b) Explain LL(1) grammar for the sentence
S-> iEts | iEtSeS |a E->b 6M

Q. No.4

a) Explain the concept of parameter passing in run time system. 7M

b) What do you mean by operators overloading? 7M

OR

Q. No .4

a) What is type checking and type conversion? Explain by taking an example. 7M

b) Define Dynamic Storage Allocation in run time system. 7M

Q. No.5

a) Translate the given expression into Quadruples, triples and indirect triples

$$x = (a + b) * (c - d) + (a * b - c) * b.$$

And list advantages and disadvantages. 7M

b) Differentiate various techniques used for machine independent and dependent optimizations. 7M

OR

Q. No.5. Write a short note on-

a) DAG 4M

b) Basic blocks and Flow Control 5M

c) Loop Optimization 5M

Central University of Haryana

IV/VI & Re-Appear VI Semester Term End Examination June/July 2023

B.Tech. Programmes

Branch: Computer Science and Engineering

Course Code: BT CS 401 **Max Time: 3Hrs.**

Course Title: Database Management Systems **Max Marks:70**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 2 x 7=14M

(a) Define Database Management Systems.

(b)What is Entity Integrity?

(c) Discuss Database Languages.

(d) Explain the concept of Normalization.

(e) What is an ACID property.

(f) Define Functional Dependency.

(g)What is the condition for a relation to be in third normal form?

PART –II

Q. No.2

a) Differentiate between Database system and file system. 7M

b) Discuss different data models with suitable examples. 7M

OR

Q. No.2.

a) Describe Database System Architecture with diagram. 7M

b) Explain ER diagram with suitable example. 7M

Q. No.3

a) Explain Aggregate Function of SQL. 7M

b) Write SQL Queries for following set of tables: 7M

EMPLOYEE (EmpNo, Name, DoB, Address, Gender, Salary, DNumber)

DEPARTMENT (DNumber, Dname, ManagerEmpNo, MnagerStartDate).

i) Display the Age of 'male' employees.

ii) Display all employees in Department named 'Marketing'.

iii) Display the name of highest salary paid 'female' employee.

iv) Which employee is oldest manger in company?

v) Display the name of department of the employee 'SMITH'.

OR

Q. No 3

a) Explain the following: 8M

i) Key constraints

ii) Integrity constraints

iii) Referential Integrity

iv) Domain Constraints

b) What is a JION? Discuss left outer join, right outer join and full outer join by taking an example. 6M

Q. No.4

a) Explain briefly about 2NF, 3NF and BCNF with suitable examples? 7M

b) What do you mean by Serializability of a schedule? 7M

OR

Q. No .4

a) What is Functional Dependency? Explain properties of FD's. 7M

b) Define Recoverability. How to recover a transaction from failure? 7M

Q. No.5 Discuss any two concurrency control techniques in detail with example. 14M

OR

Q. No.5. Write a short note on-

a) Shadow Paging 4M

b) Multiple Granularity 5M

c) Concurrency Control Techniques 5M

Central University of Haryana
VI Semester Term End Examination, June/July 2023
B.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 622 Max Time: 3 Hours
Course Title: Unix and Linux Programming Max Marks: 70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Mention the command to zip a folder in Linux. (2 marks)
(b) Mention the command to open the calendar of 20 July 2023. (2 marks)
(c) Difference between grep, egrep, and fgrep. (2 marks)
(d) What is gcc compiler? (2 marks)
(e) How to debug using gdb? (2 marks)
(f) Differentiate between at, batch, cron? (2 marks)
(g) How linux I/O system works? (2 marks)

PART –II

Q. No. 2 Explain any 7 file oriented commands in detail.

OR

Q. No. 2 Discuss about various types of shells in Unix/Linux system.

(14 marks)

Q. No. 3 Explain regular expression pattern command with examples.

OR

Q. No. 3 Describe about AWK with a suitable example.

(14 marks)

Q. No. 4 What is debugging? How is gdb tool helpful to find the bugs in Linux programming?

OR

Q. No. 4 What do you mean by static and dynamic libraries? How is dynamic memory management performed in Linux?

(14 marks)

Q. No. 5 What is firewall? How does it helps to restrict unauthorized access of information?

OR

Q. No. 5 Explain job control commands in Linux with examples.

(14 marks)

Central University of Haryana
Term End Examination JUNE 2023
B.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 603 A — **Max Time: 3 Hours**
Course Title: Software Engineering — **Marks: 70**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 Write sort notes on each of the following items:

(a) List of Software Engineering Challenge

(b) Write characteristics of software process.

(c) Role of architect.

(d) Staffing Level Estimation

(e) ISO 9000 and CMM

(f) Refactoring.

(g) Unified Modelling language language.

PART –II

Q. No.2 (a) Explain Software life cycle of spiral model and discuss various activities in each phase.

Q. No.2 (b) what is functional and non-function requirement?

OR

Q. No.2 (a) Explain about software engineering paradigm in details.

Q. No.2 (b) Describe SDLC Model with diagram.

Q. No.3 (a) Difference between cohesion and coupling.

Q. No.3 (b) Explain briefly about project management in detail.

OR

Q. No. 3 (a) List and Explain the step in risk management process.

Q. No.3 (b) Define Project size Estimation.

Q. No.4 how can we estimate the cost of software using COCOMO Modal? A company needs to develop digital signal processing software for one of its newest inventions. The software is expected to have 40000 lines of code. The company needs to determine the effort in person-months needed to develop this software using the basic COCOMO model. The multiplicative factor for this model is given as 2.8 for the software development on embedded systems, while the exponentiation factor is given as 1.20. What is the estimated effort in person-months?

OR

Q. No .4 Define various type of metrics.

Q. No.5 Discuss the Various Black box and white box testing technique with suitable example.

OR

Q. No.5 Discuss Software testing strategies. Differentiate between Verification and Validation.

Central University of Haryana

IV Semester Term End Examination, June 2023

B. Tech. Program

Branch: Computer Science and Engineering

Course Code: BT CS 402 Max Time: 3 Hours

Course Title: Object Oriented Programing using C++ Max Marks: 70

Instructions:

Question Number **1 (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries 2 Marks).

Question Numbers **2** (two) to **5** (five) carry fourteen marks each with internal choice.

PART-1

Q1

i. What do you mean by the terms *precedence* and *associativity?* (2)

ii. What is the significance of *static member data*? Give an example of its usage. (2)

iii. What is *dynamic memory allocation*? Explain with the help of an example how to create and destroy objects dynamically. (2)

iv. In *inheritance* relationship, what is the order of *construction* and *destruction*. (2)

v. What is *dynamic binding* or *late binding*? (2)

vi. What are C++ *streams*. (2)

vii. Explain the various ways of defining *pure virtual function*. (2)

PART-2

Q2 i. Explain the important *features* of *OOPS* languages and mention *advantages* of *OOPS* approach over procedural programming. (5)

ii. Write a C++ program to illustrate *Return* value of one *Function* as the *Default Argument* of *Another Function*. (5)

iii. Write the at least four differences between *Call by Value* and *Call by Reference*. (4)

OR

Q2 i. What is *function overloading*? Write the C++ program to implement the concept of *function overloading*. (4)

ii. How the *execution* of a C++ program happens? (3)

iii. How *preprocessor directives* can be classified? Please explain. (3)

iv. Is it possible to give *arguments* in the *main()* function? If *Yes*, give example and if *No*, Why? (4)

Q3 i. Explain the different types of *constructor* in C++. (3)

ii. How does the *copy constructor* work? Give example. (4)

iii. Can we return *object* of a *class* from a *member function*? Explain with an example. (3)

iv. Write a C++ program to illustrate *arrays as members* of class. (4)

OR

Q3 i. Can we access the *private member data* of a *class* outside the *class*? If yes, How? and if no, why? (4)

ii. What is *this pointer*? Explain the two benefits of using *this pointer* with separate example for each. (7)

iii. Differentiate between *local objects* and *global objects*. (3)

Q4 i. What do you mean by *type conversion*? Give an example of *basic type* to *derived (object) type* conversion and vice versa. (6)

ii. Mention the difference between *overloading* a *unary* operator and *binary* operator. Also overload binary '+=' operator. (5)

iii. What is *operator overloading*? List out the operators that cannot be overloaded. (3)

OR

Q4 i. Define the term *virtual base class* and its implementation in C++. How it is used in *function overriding*? (4)

ii. Design three classes student, test and results, where result is inherited from test and test is inherited from student. Write the possible member functions to initialize the values. Also write a main function for execution by creating objects. (4)

iii. Why do we need *virtual destructor*? Explain with example. (3)

iv. What is *containership*? Explain with example. (3)

Q5 i. Draw a chart showing hierarchy of various classes in the *iostream* library and explain each separately. (7)

ii. Explain the step involved in *reading* and *writing* a file in C++ program with an example. (7)

OR

Q5 i. Explain *function templates* with *multiple parameters*. Explain its syntax. (4)

ii. Explain the procedure of finding the *number of records* in a file. (6)

iii. Explain the concept of non-type template arguments and their use. (4)

Central University of Haryana
Term End Examination JUNE 2023
B.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: BT CS 721 **Max Time: 3 Hours**
Course Title: Information Security **Marks:70**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

a) What are the principles of security?
b) Write about steganography.
c) What are the limitations of firewalls?
d) What is a digital signature?
e) Give features of Authentication Header.
f) List three approaches to message authentication
g) What is password management?

PART –II

Q. No.2 (a) Explain Fermat's little theorem with an example

Q. No.2 (b) Explain about IPsec architecture and security association.

OR

Q. No.2 (a) Explain the concept of Cryptanalysis and Brute force attack.

Q. No.2 (b) what is Intrusion? Discuss Intrusion detection system with neat diagram.

Q. No.3 (a) Explain Block Cipher design principles.

Q. No.3 (b) Explain the AES algorithm.

OR

Q. No. 3 (a) Explain the step for the key generation of DES algorithm.

Q. No.3 (b) Define private key and public key.

Q. No.4 (a) Define the generation and verification of the digital signature using Digital Signature standard algorithm.

Q. No.4 (b) Discuss the discrete logarithm and explain Diffie-Hellman key exchange with its merits and demerits.

OR

Q. No. 4 (a) Define encryption and decryption in RSA algorithm using suitable example and how to determine the strength of RSA algorithm.

Q. No. 4 (b) User A and B exchange the key using Diffie-Hellman algorithm. Assume $\alpha = 5$,q $= 11$, $X_A = 2$, $X_B = 3$. Find Y_A, Y_B and K.

Q. No.5 (a) Explain about SSL Handshake protocol

Q. No.5 (b) Explain MD5 algorithm and X.509 authentication service.

OR

Q. No.5. (a) Explain the secure Hash Algorithm (SHA) with their Merit and Demerit.

Q. No.5. (b) How does a Digital Signature Certificate (DSC) work?

Central University of Haryana
Odd Semester Reappear Term End Examination June 2023
B.Tech. Programmes

Branch: Computer Science & Engineering
Course Code: BT CS 702 **Max Time:3 hour**
Course Title: Principles of Cloud Computing **Max Marks:70**
Semester: VII

Instructions:
Question Number **one (PART-I)** is compulsory and carries a total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 [2X7=14]

a. Define Cloud Computing according to Forrester.
b. Write two advantages of cloud computing.
c. What is a virtual machine?
d. What is virtualization
e. Explain dishonest computation in remote servers .
f. Why security is important in the cloud.
g. Write the importance of the Xen.

PART –II

Q. No.2

a. Discuss all the service models of the cloud computing environment. [8]
b. Discuss the essential characteristics of Cloud Computing. [6]

OR

c. Explain the Cloud Architecture in detail. Also use proper diagram for explanation [8]
d. Write short notes on Virtual Appliances. [6]

Q. No.3

a. Discuss Virtual Machine Manager in detail. [8]
b. Discuss Full Virtualization and Para Virtualization in detail. [6]

OR

c. Write short notes on the following (i) Type 0 Hypervisor, (ii) Hardware Assisted virtualization. [3+3]
d. Why portability and interoperability are difficult to achieve. [8]

Q. No.4

a. Why data security is needed in cloud Environment. [7]
b. Discuss the features of network management systems [7]

OR

c. Explain how cloud management work and what are its benefits. [8]

d. Write short notes on Identity Management in the cloud. [6]

Q. No.5

a. How does cloud computing differ from cloud federation? Explain why cloud federation is needed. Also write the advantages obtained by CSPs in the federation. [2+2+4]

b. Discuss any two virtualization software of VMware. [6]

OR

c. Discuss the following: (i) Amazon Ec2 Service, (ii) Eucalyptus cloud, (iii) Microsoft Azure. [5+5+4]

Central University of Haryana
Semester Term End Examination June 2023
B.Tech Program

Branch: Computer Science and Engineering | **Session 2022-23**
Course Code: BT AUD 308A | **Max Time: 3 Hrs**
Course Title: Environmental Studies | **Max Marks: 70**
Semester: Fourth

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) **(Part –II)** carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Give the details account of Hot Spot of Biodiversity?
(b)What is nuclear hazard discussed in details?
(c) What is rain water harvesting discussed in detail?
(d)Give the details account about environment ethics: issues and possible solutions?
(e)Define the nuclear accident with an example?
(f) How is human population growth responsible for environmental degradation?
(g) Explain in brief about the Bishnoi community and movement?

PART –II

Q. No.2 Define the water pollution discuss in the details with sources, effect and control measure?

OR

Q. No.2 What is the land Resources, land degradation, land slide soil erosion and desertification? Discuss the environmental factor and effects on ecosystem?

Q. No.3 Define the air pollution? Give the detailed account about sources, effect and control of air pollution?

OR

Q. No 3 Give the details about thermal water pollution? Discuss the issues of ground water pollution with sources, effect and control measure?

Q. No.4 What is the ecosystem? Structure and functions of ecosystem? Define the energy flow in ecosystem with a model and ecological pyramid?

OR

Q. No .4 What is solid waste management, type factors and sources and bad impact of municipal solid waste discussed in details?

Q. No.5 What are forest resources? Give the details account about the use and over overexploitation, deforestation, conservation of the forest?

OR

Q. No.5 What is biodiversity conservation, types of biodiversity and conservation i. e. Ex-situ and In-situ discussed in details

Central University of Haryana
EVEN Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Computer Science & Engineering/Electrical Engineering
Course Code: BT ECO507A /BT HS 407 **Max**
Time: 3 Hrs
Course Title: Economics **Max Marks:** 70

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 (2*7 = 14)

a) Define Indifference curve analysis?
b) Define any two exceptions to the Law of Demand?
c) Differentiate between Individual demand and Market demand schedules?
d) Define Price elasticity of demand?
e) Write an example of sunk cost?
f) Define Market?
g) Write down the objectives of World Trade Organization?

PART –II

Q. No.2

(i) Explain the circular flow of Economic activities through four sector model of economy? [10 marks]
(ii) Differentiate between Cardinal utility analysis and ordinal utility analysis with suitable examples? [4 marks]

OR

(iii) Explain the Law of Equi-marginal utility with suitable example? [10 marks]
(iv) Briefly explain the term utility and its importance with suitable example? [4 marks]

Q. No.3

(i) Explain all the properties of indifference curve analysis with suitable graphs? [10 marks]

(ii) Briefly describe the relationship between Price discrimination and Consumer Surplus? [4 marks]

OR

(iii) Explain the various methods of measuring Price Elasticity of Demand? [10 marks]

(iv) Briefly explain the types of price elasticity of demand? [4 marks]

Q. No.4

(i) Explain the law of variable proportions using suitable example and graphs? [10 marks]

(ii) Why Average Cost Curve is U-shaped? [4 marks]

OR

(iii) Explain the various types of internal and external economies of scale with suitable examples? [10 marks]

(iv) Differentiate between implicit and explicit costs and also differentiate between recurring and non-recurring costs with suitable examples of each type? [4 marks]

Q. No.5

(i) Explain the various types of Market Structures along with their suitable examples? [10 marks]

(ii) Briefly describe the importance of World Bank? [4 marks]

OR

(iii) Define Globalization and also explain the merits and demerits of globalization? [10 marks]

(iv) Briefly describe the importance of International Monetary Fund? [4 marks]

Central University of Haryana
EVEN Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Computer Science & Engineering
Course Code: BT ECO507A
Course Title: Economics

Max Time: 3 Hrs
Max Marks: 70

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

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(iv) Briefly describe the importance of International Monetary Fund? [4 marks]

Central University of Haryana

Even Semester Term End Examination June-July 2023
B.Tech. Programmes
Branch: Computer Science & Engineering

Course Code: BT CS 633 **Max Time: 03 Hr.**
Course Title: Distributed System **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

a) List the characteristics of the distributed system?

b) What are the different types of switching used in computer networking?

c) Write a short note on the quality of service in distributed systems.

d) What are Software and hardware service layers in distributed systems?

e) What is the difference between RMI and RPC?

f) What are the Distributed file system requirements?

g) What is a napster file system?

PART –II

Q. No. 2 Explain the various challenges of distributed systems. Explain how inter-process communication is handled in UNIX/Linux Operating System?

OR

Q. No. 2 Describe in detail about client-server communication with suitable diagrams.

Q. No. 3 Explain in detail about Remote Procedure call with a case study

OR

Q. No. 3 **(a)** Discuss about threads in distributed systems

(b) Discuss about the distributed file system.

Q.No. 4 Discuss in detail about deadlock and locking schemes in concurrency control.

OR

Q.No. 4 What are the significant factors affecting the interacting processes in distributed systems? how does the interaction model deal with the difficulty of setting time limits in a distributed system? Explain.

Q.No. 5 **(a)** Name all modules of file system operations and write in detail about distributed file system requirements.

(b) Discuss the mounting issues of remote file systems on NFS client.

OR

Q. No. 5 **(a)** Describe the internal and external synchronization of Physical clocks.

(b) Explain the Chandy and Lamports snapshot algorithm for determining the global states of distributed systems.

Central University of Haryana
Even Semester Term End Examination July 2023
B.Tech. Programmes
Branch: CSE (Regular/ Reappear)

Course Code: **BTMAT119B/A** **Max Time: 3 hours**
Course Title: **Mathematics-II** **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks). Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.
Note: Normal table is provided with this paper. Use of scientific calculator allowed.

PART -I

Q. No.1

(a) A distribution consists of three components with frequencies 300, 200 and 600, having their mean 16, 8 and 4 respectively. Find the mean of combined distribution. **[2]**

(b) What are the characteristics of probability mass function of a discrete random variable. **[2]**

(c) A random variable X has mean 12 and variance 9 and an unknown probability distribution. Using Chebyshev's theorem, estimate P(6<X<18). **[2]**

(d) Let X be a random variable with density function **[2]**

$$f(x) = \begin{cases} x^2/3, & -1 < x < 2 \\ 0, & elsewhere \end{cases}$$

Find the variance of the random variable $g(X)$= 4X+3.

(e) What are the different types of Sampling? **[2]**

(f) State Central Limit theorem with suitable diagram/example. **[2]**

(g) What is the limiting form of Student's t distribution when $n \to \infty$. **[2]**

PART –II

Q. No.2

(a) Two airplanes bomb a target in succession. The probability of each correctly scoring a hit is 0.3 and 0.2 respectively. The second will bomb only if the first misses the target. Find the probability that (a) target is hit, (b) both fails to score hits. **[7]**

(b) The first four moments of distribution about the value 5 of the variable are 2, 20, 40 and 50. Obtain as far as possible the various characteristics of the distribution on the basis of the information given. **[7]**

OR

(a) A random variable X has the following probability **[7]**

x	1	2	3	4	5	6	7
P(x)	k	2k	2k	3k	k^2	$2k^2$	$7k^2 + k$

Find k, distribution function and minimum value of a such that

$$P(X \leq a) > 1/2$$

(b) Assume that a firm has selected a random sample of 100 from its production line and has obtained the data shown in the table below: **[7]**

Class interval	Frequency	Class interval	Frequency
130-134	3	150-154	19
135-139	12	155-159	12
140-144	21	160-164	5
145-149	28		

Compute Karl Pearson's coefficient of skewness.

Q. No.3

(a) Let X and Y be two random variables each taking three values -1,0, and 1, and having joint probability distribution **[7]**

Y ↓ X→	-1	0	1
-1	0	0.1	0.1
0	0.2	0.2	0.2
1	0	0.1	0.1

Show that X and Y have different expectation and are uncorrelated. Also find variance of Y.

(b) Seven coins are tossed and number of heads noted. The experiment is repeated 128 times and the following distribution is obtained: **[7]**

No. of Heads	0	1	2	3	4	5	6	7
Frequencies	7	6	19	35	30	23	7	1

Calculate the error when fitted with a Binomial Distribution assuming that the coin is unbiased.

OR

(a) The variable X and Y are connected by the equation $aX + bY + c = 0$. Show that the correlation between them is -1 if the signs of a and b alike and 1 if they are different. **[7]**

(b) A manufacturer, who produces medicines bottles, find that 0.1% of the bottles are defective. The bottles are packed in boxes containing 500 bottles. A drug manufacturer buys 100 boxes from the producer of bottles. Using Poisson distribution, find how many boxes will contain: **[7]**
(i) no defective, and (ii) at least two defectives.

Q. No.4

(a) A continuous random variable X has a probability density function given by **[7]**

$$f(x) = \begin{cases} kxe^{-\theta x}, & x \geq 0,\ \theta > 0 \\ 0, & otherwise \end{cases}$$

Determine the constant k and obtain the mean and variance of X.

(b) An electrical firm manufacturers light bulb that have a life, before burn-out, that is normally distributed with mean equal to 800 hours and a standard deviation of 40 hours. Find the probability that a bulb burns between 778 and 834 hours. **[7]**

OR

(a) The joint probability distribution of two random variables X and Y is given by: **[7]**

$$P(X = 0, Y = 1) = \frac{1}{3}, P(X = 1, Y = -1) = \frac{1}{3}, and\ P(X - 1, Y - 1) - \frac{1}{3}.$$

Find marginal distributions of X and Y and the conditional probability distribution of X given $Y = 1$.

(b) The pressure of the gas corresponding to various volumes V is measured, given by the following data: **[7]**

$V\ (cm^3)$	50	60	70	90	100
$P\ (kg/cm^2)$	64.7	51.3	40.5	25.9	78

Fit the data to the equation $PV^Y = c$.

Q. No.5

(a) A manufacturer of lens is qualifying a new grinding a new grinding machine and will qualify the machine if the percentage of polished lenses that contain surface defect does not exceed 2%. A random sample of 250 lenses contain six defective lenses. Formulate and test an appropriate set of hypotheses to determine if the machine can be qualified. [7]

(b) The guaranteed average life of a certain type of electric light bulb is 1000 hrs with a standard deviation of 125 hrs. It is decided to sample the output so as to ensure that 90% of the bulbs do not fall short of the guaranteed average by more than 2.5%. What must be the minimum size of the sample. [7]

OR

(a) A sample analysis of examination results of 200 MBA's was made. It was found that 46 students had failed, 68 secured a third division, 62 secured a second division and the rest were placed in first division. Are these figures commensurate with the general examination result which is in the ratio of 4:3:2:1 for various categories respectively? [7]

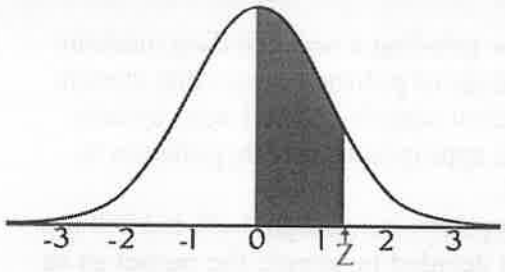
[Given ${\chi^2}_{0.05}|_4 = 9.488$ *and* ${\chi^2}_{0.05}|_3 = 7.815$

(b) Two random samples gave the following results [7]

Sample	Size	Sample Mean	Sum of squares of deviation from mean
1	12	14	108
2	10	15	90

Test whether the same come from the same normal population at 5% level of significance.

[Given $F_{0.05}(9,11) = 2.90$; $F_{0.05}(11,9) = 3.10$; $t_{0.05}(20) = 2.086$]



STANDARD NORMAL TABLE (Z)

Entries in the table give the area under the curve between the mean and z standard deviations above the mean. For example, for $z = 1.25$ the area under the curve between the mean (0) and z is 0.3944.

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0190	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2969	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3513	0.3554	0.3577	0.3529	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998

Central University of Haryana
Term End Examination JUNE 2023
M.Tech. Programmes
Branch: Computer Science and Engineering

Course Code: MT CS 202 **Max Time: 3 Hours**
Course Title: Advanced Algorithms **Marks:70**

Instructions:

Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).

Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

a) Define Asymptotic Notation with example.
b) Write Line segments properties.
c) Define set covering problem.
d) Write functions in increasing order: 10, $\sqrt{n}$, n, log 2 n, 100/n.
e) What is the time complexity of recurrence relation is T (n) = T (n/4) + T (n/2) $+n^2$.?
f) The minimum Number of comparisons required to find the minimum and the Maximum of 24 number is ____.
g) What is the master theorem and when and why is it used?

PART –II

Q. No.2 (a) Explain the full details of the difference between the greedy and dynamic techniques with the help of a common example.

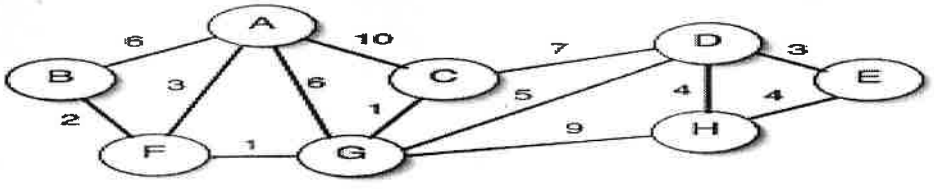
Q. No.2 (b). What divide and conquer technique? Write down the pseudo-code for merge sort and merge sort. Sort the given array: 66, 33, 40, 20, 50, 88, 60, 11, 77, 30, 45, 65, by using both sorting methods.

OR

Q. No.2 (a) What is knapsack problem? How can we solve using greedy approach take suitable example and write pseudo code.

Q. No.2 (b) Suppose the letters a, b, c, d, e, f have probabilities 1/2, 1/4, 1/8, 1/16, 1/32, 1/32 respectively. What is the average length of Huffman codes?

Q. No.3 (a) Define minimum Spanning trees: Explain Kruskal's algorithm, find the given graph's minimum cost.



Q. No.3 (b) Explain Hamiltonian cycle and write an algorithm to find all Hamiltonian cycle in graph

OR

Q. No. 3 (a) How many colours are needed for wheel graph, complete graph, cycle graph, regular graph and bipartite graph? Explain with suitable example.

Q. No.3 (b) Define Ford-Fulkerson algorithm with example?

Q. No.4 (a) How do you solve a linear modular equation and explain with example?

Q. No.4 (b) Explain the least square approximation theorem.

OR

Q. No. 4 (a).Difference between DFT and FFT.

Q. No. 4 (b) Describe Chinese remainder theorem with example.

Q. No.5 (a) How does a vertex cover problem come under approximation algorithms justify your answer?.

Q. No.5 (b) Difference between NP-hard and NP-complete problem and proof that travelling Salesman is NP-hard.

OR

Q. No.5. (a) Describe Randomization and linear programming, Subset-sum problem

Q. No.5. (b) Define the Relation between class P, NP, NP-complete and NP-hard problem with an example of each class.

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations June 2022

Programme: B.Tech(CSE) | **Session: 2021-22**

Semester: 4th | **Max. Time: 3 Hours**

Course Title: Database Management Systems | **Max. Marks: 70**

Course Code: BT CS 401

Instructions:

1. Question Number one is compulsory and carries total 14 marks (Each sub Question carries two Marks).
2. Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

Q1			(7X2=14)
	A	Differentiate between instance and schema.	
	B	Differentiate Forward recovery and Backward recovery.	
	C	With an example Justify the statement "Multivalued dependencies are consequences of 1NF". Also discuss how multivalued dependencies are eliminated with example.	
	D	Explain the different data types in SQL.	
	E	Differentiate Immediate Update and Deferred Update	
	F	What are Assertions? Give example	
	G	Discuss the significance of indexing in databases.	
			(1X14=14)
Q2		What is Entity set? And also define Relationship set. List and explain the symbols used to draw ER Diagram with a suitable example.	
OR			
Q2	A	List and explain various data models used for database design.	
	B	Explain the operation of two-tier client/server architecture for RDBMS. Give its various applications.	
			(1X14=14)
Q3	A	Explain the following SQL constructs with examples: (a) *order by* (b) *group by* and *having* (c) *as select* (d) *like*	
	B	Explain in detail about various key constraints used in database system.	
OR			
Q3		Consider the following schemas: **Sailors (sid, sname, rating, age)** **Reserves (sid, bid, day)** **Boats (bid, bname, color)** Write the following queries in relational algebra:	

		a) Find the name of sailors who have reserved boat 103. b) Find the names and ages of sailors with a rating above 7. c) Find the names of sailors who have reserved a red boat. d) Find the sname, bid, and day for each reservation. e) Find the name of sailors who have reserved at least one boat.	
			(1X14=14)
Q4		What is normalization and why is it done? Explain the various normal forms with example.	
OR			
Q4	A	What is serializable schedule? Give an example of conflict serializable and view serializable schedule.	
	B	List and explain various issues while transactions are running concurrently in DBMS.	
			(1X14=14)
Q5		How the recovery control is managed in distributed systems? Discuss with example.	
OR			
Q5	A	What is checkpoint? Discuss its significance in backup and recovery techniques.	
	B	Write and explain optimistic concurrency control protocol.	

Central University of Haryana
Even Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Computer Science & Engineering

Course Code: BT CS 601A — **Max Time:3 hour**
Course Title: Principle of Operating System — **Max Marks:70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 [2X7=14]

a. What are the two main purposes of an operating system?.
b. What is the purpose of system calls?
c. Briefly explain the binary semaphores.
d. Define the term Waiting time and Response time in reference to scheduling algorithms.
e. Explain race condition in synchronization.
f. Explain starvation with example.
g. Discuss the threat logic bomb.

PART –II

Q. No.2

a. Explain in detail about the Storage-device hierarchy in operating system. [7]
b. Using diagram explain the Multiprocessor computer system architecture in detail. [7]

OR

c. What is process control block. Using diagram explain its working in detail [8]
d. Discuss the following (a) Multiprogramming and (b) Multitasking. [3+3]

Q. No.3

a. Discuss Readers-Writers problem? Give a solution and code to the Readers-Writers problem. [9]
b. Explain all the scheduling criteria based on which performance of the CPU scheduling algorithms are evaluated. [5]

OR

c. The following processes are being scheduled using a preemptive, round-robin scheduling algorithm

Process	Priority	Burst	Arrival
P_1	40	20	0
P_2	30	25	25
P_3	30	25	30
P_4	35	15	60
P_5	5	10	100
P_6	10	10	105

Each process is assigned a numerical priority, with a higher number indicating a higher relative priority. In addition to the processes listed above, the system also has an idle task (which consumes no CPU resources and is identified as **Pidle**). This task has priority 0 and is scheduled whenever the system has no other available processes to run. The length of a time quantum is 10 units. If a process is preempted by a higher-priority process, the preempted process is placed at the end of the queue.

i. Show the scheduling order of the processes using a Gantt chart.
ii. What is the turnaround time for each process?
iii. What is the waiting time for each process?

[14]

Q. No.4

a. The information in the file can be accessed in several ways. In this regard discuss different file access methods in detail. [14]

OR

b. Explain how the bit vector, linked list, and grouping free-space list are implemented? Use examples to explain the details. Discuss also the advantages and disadvantages of each technique.
c. Discuss the working of Tree Structured Directory. [10+4]

Q. No.5

a. Write short notes on the following: (a) Protection Domain, (b) Protection Matrix, (c) Access Control List, (d) Two Factor Authentication.

[3+3+4+4]

OR

b. Explain the symmetric key and Asymmetric Key Cryptography. [4]
c. The most sophisticated types of threats to computer systems are presented by programs that exploit vulnerabilities in computing systems. In this respect discuss the common methods like Trojan horse, Ransomware code-injection, virus, and worms by which programs cause security breaches. [10]

Central University of Haryana
Semester Term End Examination June 2023
B.Tech. Programmes
Branch: Common for all branches except CSE (Reappears)

Course Code: BT MAT 112B — Max Time: 3 Hours
Course Title: Mathematics 1 — Max Marks: 70

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1

(a) Show that $\begin{bmatrix} 1 & 3-i & 3+2i \\ 3+i & 0 & 2-3i \\ 3-2i & 2+3i & -2 \end{bmatrix}$ is a Hermitian matrix.

(b) Are the following vectors are linearly independent $(1,2,4)$; $(2,-1,3)$, $(0,1,2)$ and $(-3,7,2)$.

(c) Discuss the convergence of the series $1-\frac{1}{2}+\frac{1}{3}-\frac{1}{4}+\cdots$

(d) Evaluate the integral $\int_0^1 \frac{x^2}{\sqrt{(1-x^4)}}dx$.

(e) How to determine the given functions are functionally dependent?

(f) Find the rank of the following matrix:

$$\begin{bmatrix} 0 & 1 & -3 & -1 \\ 1 & 0 & 1 & 1 \\ 3 & 1 & 0 & 2 \\ 1 & 1 & -2 & 0 \end{bmatrix},$$

(g) If u is a homogeneous function of x, y, z of order n, then

$$x^2\frac{\partial^2 u}{\partial x^2}+2xy\frac{\partial^2 u}{\partial x\partial y}+y^2\frac{\partial^2 u}{\partial y^2}=?$$

PART –II

Q. No.2 (a) For what values of k the equations $x + y + z = 1$, $2x + y + 4z = k$, $4x + y + 10z = k^2$ have a solution. Solve them in each case.

(b) Diagonalize the matrix $A = \begin{bmatrix} 2 & 1 & -1 \\ 3 & 2 & -3 \\ 3 & 1 & -2 \end{bmatrix}$ and use the result to find A^5.

OR

Q. No.2 (a) Find the characteristic polynomial, eigenvalues, and eigenvectors of the matrix

$$A = \begin{bmatrix} 0 & 0 & 1 & 1 \\ -1 & 2 & 0 & 1 \\ -1 & 0 & 2 & 1 \\ 1 & 0 & -1 & 0 \end{bmatrix}$$

(b) Using Cayley-Hamilton theorem, find the inverse of $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$.

Q. No.3(a) Discuss the convergence of the series

$$\sum_{1}^{\infty} \frac{1}{x^n + x^{-n}}, \quad x > 0$$

(b) Discuss the convergence of the series

$$\sum_{n=1}^{\infty} \frac{1}{(n+1)\log(n+1)}$$

OR

Q. No 3(a) Discuss the convergence of the series

$$1 + \frac{a+1}{b+1} + \frac{(a+1)(2a+1)}{(b+1)(2b+1)} + \frac{(a+1)(2a+1)(3a+1)}{(b+1)(2b+1)(3b+1)} + \cdots$$

(b) Discuss the convergence of the series

$$\sum_{1}^{\infty} \frac{(-1)^{n+1}}{n^p}, \quad p > 0$$

Q. No.4 (a) Find the area common to the cardioids $r = a(1 + cos\theta)$ and $r = a(1 - cos\theta)$.

(b) Find the asymptodes of the curve $x^3 + 3x^2y - 4y^3 - x + y + 3 = 0$.

OR

Q. No .4 (a) Find the volume formed by the revolution of loop of the curve $y^2(a + x) = x^2(3a - x)$, about the x-axis.

(b)Prove that

$$\int_0^1 \frac{x^2}{\sqrt{(1-x^4)}} dx \times \int_0^1 \frac{1}{\sqrt{(1+x^4)}} dx = \frac{\pi}{4\sqrt{2}}$$

Q. No.5(a) If $x+y+z=u$, $y+z=uv$ and $z=uvw$. Show that, $\frac{\partial(x,y,z)}{\partial(u,v,w)} = u^2v$.

(b) Find the volume of the greatest rectangular parallelepiped that can be inscribed in the ellipsoid

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1.$$

OR

Q. No.5(a) Evaluate

$$\int_0^a \frac{\log(1+ax)}{1+x^2} dx$$

And hence show that

$$\int_0^1 \frac{\log(1+x)}{1+x^2} dx = \frac{\pi}{8} log2.$$

(b) Show that the function $f(x,y) = x^3 + y^3 - 63(x+y) + 12xy$ is maximum at (-7, -7) and minimum at (3, 3).

Central University of Haryana
Term End Examination June 2023
B.Tech. Programmes

Branch: Civil/CSE/PPT/Electrical Engineering **Session: 2022-23**
Semester: Fourth **Max. Time: 3 Hrs**
Course Title: Environmental pollution and human health **Max Marks: 70**
Course Code: EPHH19022022

Instructions: .
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q. No.1 (a) Define the air quality index in details?
(b) Define the relationship of BOD:DO and contributing factors?
(c) What are the criteria of pollutants in respect to air pollution?
(d) Give the names of heavy metals from the environmental point of view and their specific diseases?
(e) What is bioaccumulation and biotransformation?
(f) What is radioactivity, Radioactive decay and half-life of pollutants?
(g) Define the marine ecosystem and its positive impacts on environment?

PART –II
Q. No.2 What is water pollution, given the detailed account of the factors, sources and health impact?
OR
Q. No.2 What is thermal water pollution sources, factors impact and remedial measures?

Q. No.3 What is air pollution, given the detailed account of the factors, sources and health impact?

OR
Q. No 3 What is ground water pollution, water quality criteria as per CPCB. Give the detail account on pollutants that contaminants ground water and their impact on ecosystem?

Q. No.4 What is noise pollution, given the detailed account of the factors, sources and health impact?

OR
Q. No .4 Define about the trickling filter, oxidation pond, and fluidized bed reactor their positive and negative feedback in details?

Q. No.5 What is soil pollution, given the detailed account of the factors, sources and health impact?

OR
Q. No.5 Define the sewage water treatment plant with sketch and each process in details?

Central University of Haryana
Even Semester Term End Examination June 2023
B. Tech. Programme
Branch: Electrical/ Civil/PPT

Course Code: BT MAT 120B
Course Title: Mathematics-II

Max Time: 3 Hours
Max Marks: 70

Instructions:
Question Number **one (PART-I)** is compulsory and carries a total of 14 marks (Each sub-Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q 1.

a) Find $\int_1^{\ln 8} \int_0^{\ln y} e^{x+y}\, dx\, dy$?

b) Solve the differential equation $e^y dx + (xe^y + 2y)dy = 0$

c) Evaluate the integral $\int_0^{2\pi} \int_{a\,Sin\theta}^{a} r\, dr\, d\theta$.

d) Find the integrating factor for $y(2x^2 - xy + 1)dx + (x - y)dy = 0$

e) Solve $(x + 2y)dx + (2x + y)dy = 0$

f) Find the directional derivative of $f(x, y, z) = 4e^{2x-y+z}$ at the point (1,1,-1) in the direction toward the point (-3,5,6).

g) Find the orders of all zeros of the function $z \sin z$.

PART –II

Q 2.

a) Find the volume of the region bounded by the elliptic paraboloids $z = x^2 + 9y^2$ and $z = 18 - x^2 - 9y^2$.

b) Find the integral $\int_0^2 \int_1^{e^x} dy\, dx$

OR

Q 2.

a) Find the area bounded by the curves $y^2 = x^3$ and $x^2 = y^3$.

b) Evaluate $\iint_R (x + y)^2 dx\, dy$ where R is the region bounded by the parallelogram $x + y = 0, x + y = 2, 3x - 2y = 0, 3x - 2y = 3$.

Q3.

a) Solve the differential equation $(D^2 - 4D + 3)y = e^x \cos 2x + \cos 3x$

b) Solve the differential equation $y' = 4y + 2x - 4x^2$

OR

Q 3.

a) Solve the ordinary differential equation $(D^2 + 2)y = x^3 + x^2 + e^{-2x} + \cos 3x$

b) Solve the differential equation $x^2y'' - 3xy' + 3y = 0$ with $y(1) = 0, y'(1) = -2$

Q 4.

a) I) Evaluate divergence of $(2x^2z\,\bar{\imath} - xy^2z\bar{\jmath} + 3yz^2\bar{k}$ at the point (1,1,1).

II) Find ∇f if $f = \ln(x^2 + y^2 + z^2)$.

b) Prove that $\bar{A} = (6xy + z^3)i + (3x^2 - z)j + (3xz^2 - y)k$ is irrotational. Find a scalar function $f(x, y, z)$ such that $\bar{A} = \nabla f$.

OR

Q 4.

a) I) Evaluate the line integral $\int_c x^{-1}(y + z)ds$ where c the arc of circle $x^2 + y^2 = 4, z = 0$ from (2,0,0) to $(\sqrt{2}, \sqrt{2}, 0)$ in the counterclockwise direction.

b) Find the surface area of the plane $x + 2y + 2z = 12$ cut off by $x = 0, y = 0$, and $x^2 + y^2 = 16$.

Q 5.

a) Determine where the Cauchy Riemann equations are satisfied for the given functions. Determine the region of analyticity.

(i) $f(z) = e^z$ (ii)$f(z) = (x - y)^2 + 2i(x + y)$

b) Determine and classify the singularities (i) $\frac{z}{(e^z-1)}$ (ii) $\frac{1}{(2\sin z-1)^2}$

OR

Q 5.

a) Show that for $f(z) = \begin{cases} \frac{2xy(x+iy)}{x^2+y^2} \; if \; z \neq 0 \\ 0 \; if \; z = 0 \end{cases}$

The C-R equations are satisfied at the origin but the derivative of $f(z)$ at the origin does not exist.

b) Evaluate the integral $I = \oint_c \frac{dz}{z-2}$ around

(i) Circle $|z - 2| = 4$ (ii) Circle $|z - 1| = 5$ (iii) Rectangle with vertices at $3 \pm 2i, -2 \pm 2i$ (iv) Triangle with vertices at (0,0), (1,0), (0,1).

Central University of Haryana
Term End Examination July, 2023
B.Tech. Programmes

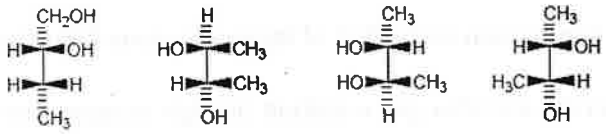
Branch: CE and CSE
Course Code: BT CH 102A **Max Time: 03:00 Hrs**
Course Title: Chemistry **Max Marks: 70**

Instructions:
Question Number **one (PART-I)** is compulsory and carries total 14 marks (Each sub Question carries two Marks).
Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

PART -I

Q 1.

a. Which of the following alkane exhibit optical activity?
Neopentane b) Isopentane c) 3–Methylpentane d) 3–Methylhexane
b. How many kinds of protons are in CH_3-CCl=CH_2?
c. Calculate the bond order of NO^+ molecule using molecular energy level diagram?
d. How you will differentiate between π to π* and n to π* transitions in acetone in UV spectroscopy?
e. In extrinsic semiconductors, the conduction is due to the addition of ..... and ....., whereby conductivity can be increased .....times.
f. When does a real gas obey the ideal gas equation closely?
g. Which compound (I-IV) is a meso compound? (7×2=14)



I II III IV

PART –II

Q 2.

a. What do you mean by the angular probability distribution of d orbitals? Give the pictorial presentation.
b. Calculate the number of unpaired e^- and CFSE value in the following complexes:
I. $[Fe(CN)_6]^{-4}$ ion and II. $[Co(NH_3)_6]^{+3}$ ion
c. What is meant by "Effective nuclear charge"? Calculate Z_{eff} experienced by a 3p electron in the Cr atom? 5, 5, 4

Or

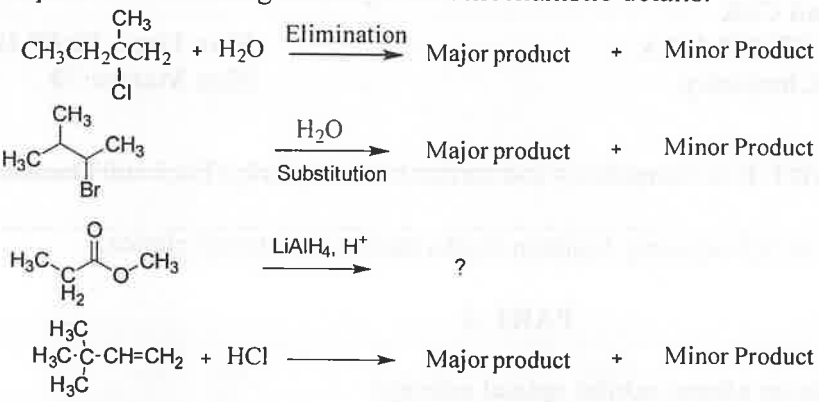
a. How many unpaired electrons are there in a strong field iron(II) octahedral complex?
b. Calculate the wavelength of a ball of mass 5×10^{-2} kg moving as 120 miles per hour.
c. Construct the π-molecular orbitals of benzene in increasing energy order. Designate HOMO and LUMO orbitals in benzene. 4, 5,5

Q 3.

a. What is stereoisomers? Differentiate between enantiomers and diastereomers giving examples.
b. Give the pictorial presentation of conformational analysis in butane considering rotation about C2-C3 bond? Also mention the relative stabilization energies for different conformations.
c. Give stereoisomerism in tartaric acid. Explain that chiral centre is not the necessary condition for a molecule to be chiral. 5,5,4

Or

a. Complete the following reactions with mechanistic details. 3.5×4=14



Q 4.

a. What is the cell reaction and the cell emf at 298 K of the cell 5, 4, 5
$Zn \mid Zn^{2+}$ (a = 1) $\parallel Pb^{2+}$ (a = 1) $\mid Pb$?
Given $E^0_{Zn^{2+}/Zn}$ = -0.762 V and $E^0_{Pb^{2+}/Pb}$ = -0.126 V. Calculate ΔG^0 for the reaction. Will zinc precipitate lead from a solution in which the activity of lead ion is unity?

b. Which of the following processes are reversible?
i) Diffusion of a gas into another gas at constant temperature and pressure.
ii) Vaporization of a liquid at its boiling point.
iii) Dissolution of solid chloride in water at room temperature
iv) Expansion of a gas in vacuum

c. What is Nernst Equation? Describe the application and effect of temperature on Nernst equation?

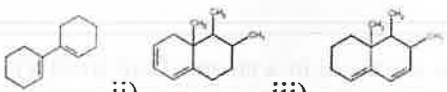
Or

a. Explain ideal gas equation and describe the idea gas equation at high temperature and low pressure.
b. What do you mean by "Dry and Wet corrosion"? How will you prevent the process of corrosion?
c. What is Ellingham Diagram? Discuss its silent features, application and limitations. 5, 4, 5

Q 5.

a. i) Convert the wavelengths: 12.5 μ and 285 nm in terms of wave-number in cm^{-1}.
ii) The wavelength associated with a ultra-violet radiation is 285 nm. Determine the energy associated with it in kcal $mole^{-1}$.

b. Calculate the absorption maxima value for the following compounds:



i) ii) iii)

c. How will you differentiate between CH_3CH_2CHO and CH_2=CH-CH_2OH compounds using Infra-red spectra? 5,6, 3

Or

a) Write brief notes on the following:
i) Chemical Shift ii) Spin-spin coupling iii) Coupling constant

b) Which of the following atoms do not exhibit nuclear magnetic resonance?
C^{12}, O^{16}, N^{14}, N^{15}, H^2, F^{19}, C^{13} and P^{31}, also describe some important applications of nuclear magnetic resonance.

c) What is surface characterization techniques? Explain one technique in detail? 6,4,4

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations- July, 2023

Programme: B. Ed. **Session: 2022-23**

Semester: II **Max. Time: 3 Hours**

Course Title: Pedagogy of English **Max. Marks: 70**

Course Code: SOE020205DCEC3104 **Regular/Reappear**

Instructions:

1. Question no. 1 has seven parts and students are required to answer any **four**. Each part carries three and a half marks.

2. Question no. 2, 3, 4 and 5 have three parts and student are required to **answer any two**. Each part carries seven marks.

Q. 1. Write a short note on the following. (4X3.5=14)

a) Word formation in English.

b) Functions of Language according to Roman Jakobson.

c) Lexical approach for teaching of English as a second language.

d) Role-play method for language teaching.

e) Stimulus variation Skill.

f) Teaching of poetry.

g) Process and importance of Action Research.

Q. 2. Attempt any two questions. (2X7=14)

a) Describe the processes of word formation in English language with suitable examples.

b) What measures a teacher can adopt to develop speaking skills among students? How is assessment of speaking skill similar or different from writing skill? (4+3=7)

c) Explain suitable techniques to develop the vocabulary of the students?

Q. 3. Attempt any two questions. (2X7=14)

a) Explain the theoretical underpinnings of Constructivist approach and its application in the Classroom through 7Es model.

b) How is Direct method of teaching English different from Grammar-Translation method? Critically analyse strengths and weaknesses of both the methods. (4+3=7)

c) Explain the principles, guidelines, Sapir Whorf Hypothesis and implications of Conceptual relativism.

Q. 4. Attempt any two questions. (2X7=14)

a) Explain in detail the components of Probing questions and Classroom Management with examples.

b) Prepare a lesson plan on Herbartian approach for any topic of English.

c) Explain the different levels of writing instructional objectives along Cognitive, Affective and Psychomotor domains of behaviour according to revised Bloom's Taxonomy?

Q. 5. Attempt any two questions. (2X7=14)

a) Which are the 3 segments of assessment under 360° holistic assessment of National Education policy, 2020? What does NEP, 2020 recommend about Formative and Summative assessment? How it can be implemented? (4+3=7)

b) What is the concept and applications of Remedial Teaching in a language classroom?

c) Suggest the strategies for assessment of Listening skill. What are the Challenges in the assessment of Listening Skill? (4+3=7)

CENTRAL UNIVERSITY OF HARYANA

Term End Examination June 2023

Programme: M.Ed. **Session: 2022-24**

Semester: I1 **Max. Time: 3 Hours**

Course Title: Sociological Foundations of Education **Course Code:** SOE 01 02 07 C3104

Max. Marks: 70

Instructions:

1. Question no. 1 has eight sub parts and students need to answer any four. Each sub part carries three and half Marks.

2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.

Question No1. **(4X3.5=14)**

1. What is the cultural effect on Education?
2. Differentiate sociology of education and educational sociology.
3. Describe the main characteristics of social group.
4. What is the educational significance of group dynamics?
5. Write the concept and meaning of socialization.
6. Discuss briefly the role of education in cultural changes.
7. Explain the types of social mobility.
8. Write the concept of social stratification

Question No.2 **(2X7=14)**

a) 'Education has its root in society'. Justify the statement by discussing the social foundation of education.

b) Discuss in detail the relationship between Sociology and education.

c) Critically analyze education as socially contrived system influenced by social and political.

Question No.3 **(2X7=14)**

a) What are the responsibilities of school towards society? Suggest means to bring society and school close to each other.

b) Explain the relationship of society and school in detail. What are the roles of society and school in imparting education?

c) Explain the concept and types of social Institutions.

Question No.4 **(2X7=14)**

a) What is the impact of education on cultural change? Discuss by taking examples from Indian society.

b) What are the various agencies of socialization? Explain the functions of home as an agency of socialization in details.

c) Analyze how community play an important role in the socialization of an individual?

Question No.5 **(2X7=14)**

a) What do you understand by social change? Discuss various constraints to social change in India.

b) What is the relationship between mobility and education? Write your answer by citing the examples of vertical and horizontal mobility in India.

c)Write detail notes on the following:

1) Problem of Inequality and role of education in its solution.

2) Role of education in the promotion of democracy.

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations, July. 2023

Programme: B.Ed. **Session: 2022-24**

Semester: II **Max. Time: 3 Hours**

Course Title: Value & Peace Education **Max. Marks: 70**

Course Code: SOE020209C3104

Instructions:

1. Question No. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.

2. Question No. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.

Question No. 1. (4X3.5=14)

a) What are the different sources of values?
b) Explain any three values inherent in the Preamble of the Indian Constitution.
c) Discuss about Stress as a challenge to Peace.
d) Write a short note on Rabindranath Tagore's concept on peace.
e) Write the need of Peace Education for contemporary society.
f) Explain the game and sports as a technique of teaching human values.
g) Write any two ways of inculcating human values at school level.

Question No. 2. (2X7=14)

a) What are the sources of values? Explain the Educational Institution as source of values.
b) Explain about the values prevalent in the contemporary society.
c) How could a teacher inculcate values in students?

Question No. 3. (2X7=14)

a) Critically analyse the importance of value based education in the present scenario.
b) Discuss Shri Prakasha committee's suggestions on value education at different levels of school.
c) Write the steps in detail of the consideration model of Value Education.

Question No. 4. (2X7=14)

a) Explain the concept of peace education in reference to its need and importance in Contemporary society.
b) Discuss about the views of J. Krishanamurthy on peace.
c) Explain the role of UNESCO to promote peace education.

Question No. 5. (2X7=14)

a) What is the direct approach for value and peace education? Write the importance of value based story telling approach in developing the values.
b) What do you mean by co-curricular activities? How can you organize the co-curricular activities in your school for developing Peace? Explain with suitable examples.
c) Explain the role of guidance and counseling to promote value and peace.

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations, July. 2023

Programme: B.Ed. **Session: 2022-24**

Semester: II **Max. Time: 3 Hours**

Course Title: Value & Peace Education **Max. Marks: 70**

Course Code: SOE020209C3104

Instructions:

1. Question No. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.

2. Question No. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.

Question No. 1. (4X3.5=14)

a) What are the different sources of values?
b) Explain any three values inherent in the Preamble of the Indian Constitution.
c) Discuss about Stress as a challenge to Peace.
d) Write a short note on Rabindranath Tagore's concept on peace.
e) Write the need of Peace Education for contemporary society.
f) Explain the game and sports as a technique of teaching human values.
g) Write any two ways of inculcating human values at school level.

Question No. 2. (2X7=14)

a) What are the sources of values? Explain the Educational Institution as source of values.
b) Explain about the values prevalent in the contemporary society.
c) How could a teacher inculcate values in students?

Question No. 3. (2X7=14)

a) Critically analyse the importance of value based education in the present scenario.
b) Discuss Shri Prakasha committee's suggestions on value education at different levels of school.
c) Write the steps in detail of the consideration model of Value Education.

Question No. 4. (2X7=14)

a) Explain the concept of peace education in reference to its need and importance in Contemporary society.
b) Discuss about the views of J. Krishanamurthy on peace.
c) Explain the role of UNESCO to promote peace education.

Question No. 5. (2X7=14)

a) What is the direct approach for value and peace education? Write the importance of value based story telling approach in developing the values.
b) What do you mean by co-curricular activities? How can you organize the co-curricular activities in your school for developing Peace? Explain with suitable examples.
c) Explain the role of guidance and counseling to promote value and peace.

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations July. 2023

Programme: B.Ed. **Session: 2022-2023**

Semester: II **Max. Time: 3 Hours**

Course Title: Pedagogy of Commerce **Max. Marks: 70**

Course Code: SOE020211C3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Explain the Project Method.

b) Characteristics of Commerce teacher.

c) Explain 360^0 Holistic Assessment.

d) Importance of lesson plan.

e) What is teaching aids in commerce.

f) RCEM Approach.

g) Limitation of bloom taxonomy.

Q 2. (2X7=14)

a) Discus briefly the concept, nature and scope of commerce.?

b) What do you mean by commerce teaching? Explain the Aims & objectives teaching of commerce?

c) Explain the place of commerce in school curriculum at different stage?

Q3. (2X7=14)

a) Describe the concept of Miller Approach? Differentiate between RCEM and Miller Approach ?0

b) What do you mean by Instructional objectives? Discuss the cognitive objectives given by Bloom?

c) What is text book? Explain the characteristics of a good text book?

Q 4. (2X7=14)

a) Prepare a Lesson Plan for class XI students on any topics of Commerce?

b) Define Micro Teaching? Explain the skill of Introduction.?

c) What do you know about Lesson Plan? Explain the qualities of good lesson plan.?

Q 5. (2X7=14)

a) What do you mean by Essay types test? Explain the advantages of essay types Test?

b) State the merits and demerits of objective-types tests in commerce?

c) Define the assessment? Explain the Difference between formative and summative assessment?

CENTRAL UNIVERSITY OF HARYANA

Term/End Semester Examinations, June 2023

Programme: B.Ed. **Session:** 2022-23

Semester: II **Max. Time:** 3 Hours

Course Title: Pedagogy of Life Science **Max. Marks:** 70

Course Code: SOE 02 02 08 DCEC 3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and student need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

1) State instructional objectives on any topic of life science using RCEM approach.
2) Elucidate the contribution of **"Charak"** and **"Susruta"**
3) Importance of using reinforcement skill
4) Collaborative learning
5) OLABs
6) Benefits of community resources
7) Assessment of project work

Q 2. **(2X7=14)**

a) What do you understand by integration of knowledge? Establish the link of life science knowledge with economics, sociology and art knowledge with suitable examples. (2+5)

b) Define instructional objectives. What are the characteristics of instructional objectives and explain the RCEM approach in detail. (2+2+3)

c) Discuss the life science as a subject. State the objectives of science at secondary and senior secondary level recommended by NCFSE 2023 (2+5)

Q3. **(2X7=14)**

a) What do you meant by "Hands-on experience learning"? Discuss the various methods that give the learners opportunities of learning by experiences. (3+4)

b) Discuss the relevance of the blended learning and flipped learning in terms of life science teaching in present scenario. (3.5+3.5)

c) Define constructivist approach? Also, explain the 5 Es model with suitable examples. (2+5)

Q 4. **(2X7=14)**

a) Elucidate the importance of teaching aids in life science. How can demonstration of teaching aids be made effective while using them in classroom instruction. (3.5+3.5)

b) How laboratory and experimentation are associated with each other. Explain with suitable examples the need of laboratory method in life science. (3.5+3.5)

c) Discuss the role of ICT in teaching of life science.

Q 5. Write note on any two. (2X7=14)

a) Assessment of learning

b) Assessment for learning

c) Tools and techniques of assessment

CENTRAL UNIVERSITY OF HARYANA

Second Semester Term End Examinations June/July 2023

Programme: B.Ed. **Session: 2022-23**

Semester: II **Max. Time: 3 Hours**

Course Title: Creating an Inclusive School **Max. Marks: 70**

Course Code: SOE020208 C3104

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and student arerequired to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Medical model of inclusion

b) Role of peers in inclusive education

c) Concept of CWSN

d) Characteristics of Autism Spectrum Disorder children

e) Salamanca Statement and Framework of Action, 1994

f) Role of sign language tutor

g) School readiness with special reference to infrastructure

Q 2. (2X7=14)

a) What do you understand by the term inclusive education? Discuss the nature of inclusive education.

b) Trace the transition in education of children with disabilities from segregation to inclusive.

c) Why the role of regular teacher is so important in making inclusion a success?

Q3. (2X7=14)

a) Discuss the special educational programmes required for hearing impairment children with suitable examples.

b) Explain the characteristics of the visual impaired children. What educational programmes would you suggest for such kind of children?

c) Which remedial provisions will be organized for the learning-disabled children?

Q 4. (2X7=14)

a) Describe in detail, the main features of RCI Act, 1992 in terms of inclusive education.

b) Enlists the types of disabilities identified as per the The Right of Persons with Disabilities Act, 2016.

c) Highlight the different measures and provisions suggested by PWD Act (1995) for the education of the children with disabilities.

Q 5. (2X7=14)

a) Describe the uses of information communication technology in facilitating inclusion education.

b) Explain the various pedagogical strategies of inclusive teaching for classroom learning with suitable examples.

c) Discuss the role of braille instructor with special reference to visual impaired children in inclusive setups.

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations June 2023

Programme: B.Ed. | **Session: 2022-23**
Semester: II | **Max. Time: 2 Hours**
Course Title: Performing and Visual Arts | **Max.Marks:35**
Course Code: SOE020204GEC2024

Instructions:

(i) Question No.1 consists of four short answer type questions out of which the candidates are required to attempt any two questions. Each question carries 3.5 marks.

(ii) Question No. 2 to 3 have Three Sub-questions out of which the Candidates are required to attempt any two questions. Each question carries 07 marks.

Q1. Write shirt note any two of following: **(2X3.5=7)**
निम्नलिखित में से कोई भी दो प्रश्न लिखिए

a) Explain the importance of aesthetics in art Education.
कला शिक्षा में सौंदर्यशास्त्र के महत्व की व्याख्या कीजिए।

b) What is Drama Art? Discuss its various elements.
नाट्य कला क्या है? इसके विभिन्न तत्वों की चर्चा कीजिए।

c) What do you mean by performing art? How is it different from visual arts?
प्रदर्शन कला से आपका क्या तात्पर्य है? यह दृश्य कलाओं से किस प्रकार भिन्न है?

d) What do you mean by folk art? Explain the characteristics of Kalamkari Painting.
लोक कला से आप क्या समझते हैं? कलमकारी चित्रकला की विशेषताओं की व्याख्या कीजिए।

Q2. Attempt any two Questions of the following: **(2X7=14)**
निम्नलिखित में से कोई भी दो प्रश्न लिखिए

a) What do you understand by the concept of advertisement? Define the meaning of advertisement with suitable examples.
विज्ञापन की अवधारणा से आप क्या समझते हैं? उपयुक्त उदाहरण के साथ विज्ञापन का अर्थ परिभाषित करें।

b) What do you mean by art? How are its different dimensions benefiting us?
कला से आप क्या समझते हैं? इसके विभिन्न आयाम किस प्रकार हमें लाभान्वित कर रहे हैं?

c) What is the importance of colors in our daily life? Explain the utility of colors in education and society.
हमारे दैनिक जीवन में रंगों का क्या महत्व है? शिक्षा और समाज में रंगों की उपयोगिता समझाइए।

Q3. Attempt any two Questions of the following: **(2X7=14)**
निम्नलिखित में से कोई भी दो प्रश्न लिखिए

a) Discuss the classical dances. How it is useful in developing skills among the students? Explain it in detail.
शास्त्रीय नृत्यों की चर्चा कीजिए। छात्रों में कौशल विकसित करने में यह किस प्रकार उपयोगी है? इसे विस्तार से समझाइए।

b) What are the different elements of art? Discuss in Detail with suitable Example.
कला के विभिन्न तत्व क्या हैं? उपयुक्त उदाहरण सहित विस्तार से चर्चा कीजिए।

c) What do you understand by tribal art? Explain in detail any one tribal art of India.
जनजातीय कला से आप क्या समझते हैं? भारत की किसी एक जनजातीय कला का विस्तार से वर्णन कीजिए।

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations June 2023

Programme: B.Ed. **Session: 2021-23**

Semester: IV **Max. Time: 2 Hours**

Course Title: Guidance and Counselling **Max. Marks: 35**

Course Code: SOE 02 04 12 DCEC 3104

Instructions:

1. Question no. 1 has four parts and students are required to answer any two. Each part carries three and half Marks.

2. Question no. 2 and 3 have three parts and students are required to answer any two parts of each question. Each part carries seven marks.

Q 1. **Short Notes** (2X3.5=7)

a) Types of necessary guidance services

b) Need of Educational Guidance

c) Dimensions of Counselling

d) Professional ethics of counsellor

Q 2. (2X7=14)

a) Explain in detail the concept and principles of guidance.

b) Elaborate the different types of guidance mentioned in your syllabus with suitable examples.

c) How teachers and parents can play an important guidance provider for adolescents? Describe critically.

Q3. (2X7=14)

a) Discuss the functions and characteristics of counsellor.

b) Enlist different counselling skills and how many types of counselling can be used for different type of problems? Explain the types with the help of examples.

c) Being a counsellor/ teacher how would you organize counselling service for a learning challenged adolescent at school?

CENTRAL UNIVERSITY OF HARYANA

Even Semester Term End Examinations June 2023

Programme:	**B.Ed.**	**Session: 2022-23**
Semester:	**IV**	**Max. Time: 3 Hours**
Course Title:	**Web Technologies in Education**	**Max. Marks: 70**

Course Code: SOE 02 04 15 DCEC 3104

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and student are required to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) What are the importance of using web technology based online learning platforms in the field of education?

b) Highlight the main constraints on the privacy issues in using web based learning platforms.

c) How are SWAYAM courses proving themselves as boon in revolutionizing online education?

d) Elaborate the idea of Blogging is one of the important way of expressing one's ideas and views with the help of an example.

e) Describe the essential institutional requirements for connecting students through online learning platforms.

f) Briefly explain the idea behind launching DIKSHA as e-repository for school education.

g) What are the uses of discussion forum in any online course?

Q 2. (2X7=14)

a) Elaborate the major objectives of introducing web technology enabled teaching learning process in higher education system

b) What do you mean by National Programme on Technology Enhanced Learning (NPTEL)? How does it contribute in delivering quality education?

c) Explain about the difficulties in dealing with the students' summative assessment through online learning mode.

Q3. (2X7=14)

a) How You Tube is proving its worth as one of the best online learning platform for preparing for any competitive examination?

b) Elaborate the major emotional imbalances caused among Youth due to over exposure to social media platforms.

c) Describe about three online interactive teaching learning tools that enhances the effectiveness of teaching.

Q 4. (2X7=14)

a) Descriptive bulletin boards can be used as an effective platform for expressing the creative ideas of students. Give argument in support of this statement.

b) e-pathshala is a small size app with big potential. Explain its usability with the help of examples.

c) Describe about the three major digital initiatives taken by National Mission of Education through ICT.

Q 5. (2X7=14)

a) What is Coursera? How it has become the best online learning platform worldwide in such a short span of time.

b) How can the teaching capabilities of prospective teachers be enhanced by exposing them to different online learning platforms?

c) Elaborate the three major forms of Web Technologies with their importance in different fields.

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations, June 2023

Programme: B.Ed. **Session: 2022-23**

Semester: IV **Max. Time: 3 Hours**

Course Title: Education for Mental Health **Max. Marks: 70**

Course Code: SOE020417DCEC3104

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and students are required to answer any two parts of each question. Each part carries seven marks.

Question No. 1. (4X3.5=14)

a) Causes of bad mental health
b) Principles of guidance and counseling for mental hygiene
c) Scope of mental hygiene
d) Perspective for adjustment
e) Adjustment mechanism
f) Mood disorder
g) Types of stress

Question No. 2.

a) What is mental health? Discuss in detail characteristics of a mentally healthy person.
b) Why the role of parents is so important for developing proper mental health of their children?
c) Highlight the various factors which affect mental health of an individual.

Question No. 3.

a) What do you understand by the term mental hygiene? Discuss the principles of mental hygiene.

b) What is the relationship between mental health and mental hygiene? Describe functions of mental hygiene.

c) Enlist the need and importance of mental hygiene for an individual.

Question No. 4

a) Describe the concept of maladjustment and its effects on student's mental health.

b) What do mean by adjustment? Discuss the various methods of adjustment.

c) Show your acquaintance with the main causes of maladjustment. Explain with examples.

Question No. 5

a) Describe the various ways for assessment of mental health status.

b) Elaborate the main causes of mental disorder with suitable examples.

c) What is stress? Throw a light on the preventive measures of stress management.

CENTRAL UNIVERSITY OF HARYANA

Even Semester Term End Examinations June 2023

Programme: B.Ed. Session: 2021-23

Semester: IV Max. Time: 3 Hours

Course Title: Gender, School and Society Max. Marks: 70

Course Code: SOE 02 04 14 C3104

Instructions:

1. Question No. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts each and students are required to answer any two parts of each question. Each part carries seven marks.

Q 1. Short note on- **(4X3.5=14)**

a) Concept of Gender Identity.

b) Differences between Gender and Sex.

c) Bullying as a gender issue in schools.

d) School Dropouts as gender bias.

e) Dowry as an issue related to women.

f) Contemporary role model- Dipa Karmakar

g) Role of electronic media in gender stereotyping.

Q 2. **(2X7=14)**

a) What do you understand by Gender and how it is differentiate from Sex? Explain with examples.

b) Explain the gender roles in detail through family and society with suitable example.

c) Describe the gender related concepts Sexuality and Feminism, their types with justifiable examples.

Q3. **(2X7=14)**

a) Discuss in detail the gender issues- eve teasing and sexual abuse happening in schools.

b) What do you understand by curriculum? How hidden curriculum can participate in gender construction?

c) Write down the concept of gender sensitive pedagogy? Explain in detail with the help of your any one pedagogy subject.

Q 4. **(2X7=14)**

a) Explain the concept of patriarchy and matriarchy. Which one is best for good society, explain with example.

b) Discuss the women related issues honour killing, property rights and divorce in reference to women.

c) Describe the role of Ruma Devi and Chavi Rajawat as contemporary role model for women.

Q 5. **(2X7=14)**

a) Discuss the role of electronic and new media to promoting and removing gender stereotyping with suitable examples.

b) Discuss the main provisions of Supreme Court's Verdict about Transgender community 2018.

c) Elaborate the role of National Policy for Empowerment of Women 2001 in developing gender parity.

CENTRAL UNIVERSITY OF HARYANA

Term End Semester Examinations June 2023

Programme: B.Ed. **Session:** 2022-23

Semester: Fourth **Max. Time:** 2 Hours

Course Title: Environmental Education **Max. Marks:** 35

Course Code: SOE 02 04 18 C2002

Instructions:

1. Question no. 1 has four parts and students need to answer any two. Each part carries three and half Marks.

2. Question no. 2 to 3 have three parts and student need to answer any two parts of each question. Each part carries seven marks.

Q 1.This is a short answer type question having four parts. Students need to **answer any two.** **(2X3.5=07)**

a) Project Elephant.

b) Ozone depletion.

c) Elucidate the education of environment?

d) Physical Environment.

Q 2. This long answer type question has three parts and students need to **answer any two parts.** **(2X7=14)**

a) Define environment? Critically analyze the significance of environment for present and future.

b) Define ecosystem. Explain the structure and function of ecosystem with suitable examples..

c) Discuss the important role of education and teacher in conservation of environment.

Q 3. This long answer type question has three parts and students need to answer **any two parts.** **(2X7=14)**

a) What are the threats to the soil and air? What are the causes of threats? Explain them in details

b) "Trees or forest are called Lungs of the Planet". Throw the light on this statement and explain it.

c) Write note on any two.

(i) Project Tiger

(ii) Biodiversity Conservation

(iii) Wild life conservation

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations June 2023

Programme: B.Ed **Session: 2022-24**

Semester: II **Max. Time: 3 Hours**

Course Title: PEDAGOGY OF MATHEMATICS **Max. Marks: 70**

Course Code: SOE 02 02 07 DCEC 3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and students need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Write the Meaning and nature of the mathematics?

b) Explain the Need and Significance of Mathematics?

c) What are the Aims and Objectives of Teaching Mathematics

d) What is micro teaching? How it useful to teacher-trainee?

e) Write about Inductive Method along with one example

f) Differentiate between Herbert and Constructive Approaches?

g) What is the importance of UNIT PLAN in Teaching Mathematics?

Q 2. (2X7=14)

a) How the knowledge regarding the nature of mathematics can be made useful in the adoption of various teaching methods?

b) Explain briefly, how it is helpful history of mathematics in classroom teaching learning process to mathematics teacher?

c) What is our Indian Mathematicians significant contribution in development of mathematics?

Q3. (2X7=14)

a) Discuss about Error's analysis and related of Learning and Teaching mathematics

b) Write the general objectives of teaching mathematics at secondary level

c) Briefly explain Revised Blooms taxonomy of writing instructional objectives in behavioral terms in Teaching mathematics

Q 4. (2X7=14)

a) Which methods are suitable for Constructivist approach to teach school Mathematics? Explain with proper reasons.

b) Write Instructional objectives in Behavioral terms for the Topic of "**Triangles**" from 7^{th} class Mathematics.

c) What is the role of Teaching Resources (TLMs) in teaching of school mathematics and what are they?

Q 5. (2X7=14)

a) Choosc any topic from 9th class mathematics and write a lesson plan of Herbert/Constructive 5E model.

b) Make a systematic the Yearly plan for 9^{th} class Mathematics for your dreamed school.

c) Take one topic from 8^{th} class mathematics and construct an Achievement Test with Blue Print.

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations June, 2023

Programme: B.Ed. **Session: 2022-23**
Semester: 4th **Max. Time: 3 Hours**
Course Title: Assessment for Learning **Max. Marks: 70**
Course Code: SOE020415C3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and students need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Comparison between test and examination
b) Purposes of diagnostic and summative evaluation
c) Merits and shortcomings of written and oral test
d) Tools for assessing affective domain performance
e) Menace of coaching
f) Pros and cons of open book examination
g) Explain any 5 properties of NPC.

Q 2. (2X7=14)

a) Briefly describe the purposes of evaluation in teaching-learning process? Through light on the differences between diagnostic and formative evaluation and how both types help students to overcome their learning difficulties. (2+5=7)
b) Explain with examples how 'assessment for learning' and 'assessment of learning" are related to each other. Also, explain how both assist the teachers and learners to bring qualitative improvement in their performance. (3.5+3.5)
c) Describe the various steps and tools of assessment that as a teacher you will employ for ensuring 360^0 assessment of students' performance for their holistic development as envisioned by NEP 2020.

Q3. (2X7=14)

a) Make a comparative analysis between 'Assignment' and 'Project' as assessment tools with special reference to their objectives, significance and process.
b) "If a test is valid, it must be reliable". Comment on it by stating the concept of reliability and validity and relationship and differences between reliability and validity of a test.

c) What is an Achievement Test? Which aspects will you consider while preparing an Achievement Test? Explain with a Blueprint. (1.5+5.5)

Q 4. (2X7=14)

a) Illustrate with appropriate examples how feedback mechanism assesses students' learning outcomes and to what extent it contributes towards improving the entire teaching-learning process.

b) Describe with appropriate examples the range of evaluative purposes that a Cumulative Record Card serves as trend of assessing and reporting students' performance and how it is beneficial for the students and teachers.

c) Critically analyze the significance of marking vs. grading system. Which system do you advocate as more appropriate and why? (3.5+3.5)

Q 5. (2X7=14)

a) Answer the following:

(i) Explain the concept of Skewness and Kurtosis

(ii) Calculate Standard Deviation for the following set of scores-

9, 14, 8, 16, 10, 12, 10, 11, 10, 15

b) Answer the following

(i) State the concept, uses and limitations of measures of variability

(ii) State with examples how statistical interpretations of students' results help the teachers.

c) Differentiate between percentile and percentile rank. Compute P_{72} and PR of 20 and also interpret the result. (1+3+3)

Scores	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30
Frequency	1	1	3	9	8	6	5	4	3

CENTRAL UNIVERSITY OF HARYANA

End Semester Examination, June 2023

(for Reappear)

Programme: B.Ed. **Session: 2022-23**
Semester: 4th **Max. Time: 3 Hours**
Course Title: Assessment for Learning **Max. Marks: 70**
Course Code: SOE020415C3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and students need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Purpose of formative assessment
b) Merits of Online examination
c) Categories of affective domain
d) Importance of Choice based Credit System
e) Techniques of measures of dispersion
f) Significance of practical work
g) Limitations of semester system

Q 2. (2X7=14)

a) Write the significance of evaluation in the field of education. Differentiate between formative and summative by citing appropriate examples. (2.5+4.5)
b) State with examples the points of difference between measurement and evaluation.
c) State the need of continuous and comprehensive evaluation? Explain the various aspects that are evaluated in the process of CCE. (2.5+4.5=7)

Q3. (2X7=14)

a) Explain the categories of educational objectives of cognitive domain as given in revised Bloom's taxonomy.
b) Make a comparative analysis between Oral and Written test
c) Explain with appropriate examples the characteristics of a good test.

Q 4. (2X7=14)

a) Why there is need of reformation of examination system? Semester system is helpful in removing the defects of traditional examination system. Comment. (2+5)
b) Describe the purpose of feedback mechanism.
c) What is a cumulative record card and how it is maintained? Also, describe the how a cumulative card is useful reporting students' performance. . (3.5+3.5)

Q 5. (2X7=14)

a) What is a normal curve? Point out the essential characteristics of a normal probability curve. (1.5+5.5=7)

b) Uses and limitations of various techniques of measures of central tendency.

c) Calculate Mean and Median from the following frequency distribution table. Also, write at least two uses of them. (3.5+3.5)

Scores	44-47	40-43	36-39	32-35	28-31	24-27	20-23	16-19
Frequency	2	5	7	9	12	10	8	3

N=56

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations June 2023

Programme: B.Ed. **Session: 2021-23**

Semester: IV **Max. Time: 3 Hours**

Course Title: Human Rights in Education **Max. Marks: 70**

Course Code: SOE020416DCEC3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student needs to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Briefly explain the importance of Human Rights Education in present context.
b) Sociological perspective of Human Rights Education.
c) Write a short note on Inclusion and Exclusion.
d) Discuss the Individual versus Collective rights.
e) Briefly explain the Human Right Perspective and school ethos & culture.
f) Discuss about the Role of Family and Self in promotion of Human Rights.
g) Write a short note on Cross-cultural rights traditions.

Q 2. (2X7=14)

a) Write the concept of Human Rights. Explain the importance of Human Rights in present scenario.
b) Discuss in the detail about the philosophical and psychological perspective of Human Rights Education.
c) What are the approaches of Human Rights? Elaborate the Western political liberalism and Socialism approaches of human rights.

Q 3. (2X7=14)

a) Explain any two methods of Human Rights research that you consider most effective to understand the human rights issues.
b) "Human rights are the natural rights of human beings". Critically examine democracy in the context of human rights.
c) Critically analyze the Human Rights discourse with special reference to Rights versus Human rights and Legal versus Ethical demands.

Q 4. (2X7=14)

a) Describe the plans of action about the human rights perspective in assessment.

b) "All human beings are born free and equal in dignity and rights"? Justify the statement highlighting the significance of teaching learning from Human Rights perspective.

c) What do mean by human rights? Describe the Human Rights perspective in curriculum.

Q 5. (2X7=14)

a) Explain the Role of Government, Non-Government organizations and Education in promotion of Human Rights

b) Critically analyze the human rights issues with specific reference to dalits, differently abled and homosexuals.

c) Critically review the Indian Constitution with reference to Human Rights.

CENTRAL UNIVERSITY OF HARYANA

Even Semester Term End Examinations July 2023

Programme: B. Ed. | **Session: 2022-23**

Semester: II | **Max. Time: 2 Hours**

Course Title: Language across the Curriculum | **Max. Marks: 35**

Course Code: SOE020210C2002 | **Regular/Reappear**

Instructions:

1. In the question no. 1, answer any two parts.
2. In the question no. 2 and 3, answer any two parts of each question.

1. Write a short note on two of the following. (2X3.5=07)

   a) Functions of language according to Geoffrey Leech.
   b) Origin of LAC approach, concept of BICS and CALP.
   c) Role of language in classroom transaction.
   d) Challenges of language diversity.

2. Attempt any two questions. (2X7=14)

   a) Explain the concept and nature of language.
   b) What are the roles of a language teacher and subject-teacher in the language teaching? How can teachers' language use affect the meaning-making process of the students?
   c) What are the goals and benefits in LAC approach? Analyse the difficulties in its implementation.

3. Attempt any two questions. (2X7=14)

   a) How multilingualism a resource or a challenge? What are the constitutional provisions with regard to language in India? (3+4=7)
   b) "Language is a symbol of aspiration of Indian people". Give your arguments in favour or against this statement.
   c) Write a detailed note on Three-language formula, its development and need in India.

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations June-July 2023

Programme: B.Ed. **Session: 2022-23**

Semester: II **Max. Time: 3 Hours**

Course Title: Pedagogy of Social Science **Max. Marks: 70**

Course Code: SOE020206DCEC3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student needs to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Briefly explain the needs of Social Science Teaching.
b) Relationship of Social science with Science and technology.
c) Write the importance of pedagogical analysis.
d) Discuss about the steps of project method.
e) Briefly explain the needs and importance of social science Resource center.
f) Discuss about the 'Check List' as an evaluation tool in education.
g) Write a short note on Remedial teaching.

Q 2. (2X7=14)

a) Write the concept of Social Science and explain the nature and scope of social science.
b) Discuss about importance and objectives of Social science teaching in detail.
c) Elaborate the relationship of Social science with other school subjects.

Q 3. (2X7=14)

a) What do you mean by teaching skills? Explain the components of Introduction and reinforcement skills and prepare a lesson plan for each skill.
b) What do you mean by teaching methods? Explain the steps of Problem solving method and its importance in teaching social science.
c) What is Lesson Planning in teaching? Explain the approaches of Lesson planning.

Q 4. (2X7=14)

a) Describe the characteristics and principles of a good curriculum of social science.
b) What do you mean by instructional aids in teaching? Explain the importance and use of instructional aids in teaching social science.
c) Explain the characteristics and qualities of social science teacher.

Q 5. (2X7=14)

a) What is test? Explain the various types of tests with suitable examples.
b) What is Evaluation? Describe the needs of evaluation in education.
c) What is Diagnostic teaching? Explain the needs and importance of Diagnostic teaching in teaching social science.

CENTRAL UNIVERSITY OF HARYANA

Second Semester Term End Examinations July 2023

Programme: B.Ed. **Session:** 2022-23

Semester: II **Max. Time:** 3 Hours

Course Title: Pedagogy of Physical Science **Max. Marks:** 70

Course Code: SOE 02 02 09 DCEC 3104

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and student are required to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Concept of Physical Science

b) Role of Physical Science teacher as a facilitator

c) Discuss the components of Skill of Probing Questioning

d) Brain Storming as a teaching strategy

e) Importance of field trip

f) Concept of improvisation of apparatus with example

g) Merits and demerits of using virtual laboratories

Q 2. (2X7=14)

a) Discuss in detail the nature and significance of physical science as a school subject.

b) How physical science is correlated with the other school subjects- Mathematics and Health & Physical Education. Explain with the help of suitable examples.

c) Discuss in detail the contribution of A.P.J. Abdul Kalam and Isaac Newton in the field of science.

Q3. (2X7=14)

a) How objectives of teaching physical science at secondary level are different from aims.

b) Write down B. S. Bloom's revised taxonomy of educational objectives in detail.

c) Elaborate the RCEM approach of writing objectives in behavioral terms by selecting any topic of NCERT science textbook from class 6^{th} to 10^{th} (from revised syllabus of NCERT)

Q 4. (2X7=14)

a) Who propounded the constructivist approach of teaching and how it is beneficial in modern era? Explain with the help of example.

b) Discuss the concept of Pedagogical Analysis and explain it with the help of any topic of NCERT science textbook from class 6^{th} to 10^{th}.

c) Elucidate the concept of CCE, types of evaluation and the qualities of a good test.

Q 5. (2X7=14)

a) Explain the importance of instructional aids with example. Which type of instructional aids can be used by a teacher during online teaching, explain with examples?

b) What should be the qualities of a good science text book and being a science teacher how would you critically analyze a science text book?

c) How action research can be significant for a class room problem? Explain with it's steps with help of one example.

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations July. 2023

Programme: B.Ed. **Session: 2022-2023**

Semester: II **Max. Time: 3 Hours**

Course Title: Pedagogy of Economics **Max. Marks: 70**

Course Code: SOE020210DCEC3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.

2. Question no. 2 to 5 have three parts and student need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Explain the problem solving method.

b) Characteristics of Economics teacher.

c) Explain the aims of teaching at secondary level.

d) Characteristics of text book.

e) Economics as a discipline.

f) Challenges in teaching Economics.

g) Purpose of Evaluation

Q 2. (2X7=14)

a) Discus briefly the concept, nature and scope of economics?

b) What do you mean by Instructional objectives? Discuss the cognitive objectives given by Bloom?

c) Discus briefly the aims and objectives of teaching economics at senior secondary level?

Q3. (2X7=14)

a) Describe the meaning steps and importance of project method?

b) Describe the meaning steps and importance of lecture method?

c) Describe the meaning steps and importance of problem solving method?

Q 4. (2X7=14)

a) Define Micro Teaching? Explain the skill of Explanation?

b) Prepare a lesson plan for class XI students on any topics of economics?

c) What is the importance of Text Book from economics teacher? What criteria should be kept in mind while selecting a good Text Book?

Q 5. (2X7=14)

a) What do you mean by Achievement Test? What steps will you follow while constructing an Achievement Test?

b) What do you mean by evaluation? Explain the need and nature of evaluation?

c) Define the Summative and Diagnostic assessment? Explain the Difference between formative and summative assessment?

CENTRAL UNIVERSITY OF HARYANA

Term End Examination, June-July 2023

Programme: B.Ed. **Session: 2022-23**
Semester: 2nd **Max. Time: 3 Hours**
Course Title: Foundation of Education **Max. Marks: 70**
Course Code: SOE020207C3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and students need to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Nature of learner centred education
b) Democratic aim of education
c) Salient features of education during Vedic period
d) Features of Macaulay's Minute
e) Relevance of idealism in the current era of value crisis
f) Family as unit of socialization
g) Forms of Naturalism

Q 2. (2X7=14)

a) What are the various characteristics of today's learner and why teachers must have knowledge of those characteristics?
b) Describe the functions of education in the context of the current social scenario.
c) As a teacher, what kind co-curricular activities would you organize in to foster democratic qualities and holistic development of your students?

Q3. (2X7=14)

a) Critically review the nature of education during Islamic period with specific reference to its salient features.
b) Compare the Vedic and Buddhist system of education with special reference to their relevance in the current era.
c) Critically appraise the major recommendations of Wood's Dispatch.

Q 4. (2X7=14)

a) "Philosophy points out the way to be followed by education". In the light of this statement, explain with examples how philosophy and education are complementary to each other.

a) "Everything is good as it comes from nature and it degenerates in the hands of men". Comment on it with specific reference to Rousseau's idea of negative education.

b) Discuss with suitable examples some educational practices that owe their origins from idealistic and pragmatic philosophy.

Q 5. (2X7=14)

a) Explain the nature Educational Sociology. Also, throw light on the relationship between education and sociology. ` (3+4=7)

b) Explain the role of society in education and socialization of children.

c) "Education is a vital indicator of social mobility'. Comment on the statement.

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations (June, 2023)

Programme: M.Ed. **Semester: IV**

Course Title: Environmental Education **Course Code: SOE 01 04 20 C2002**

Time: 2 Hours **Max. Marks: 35**

Note: (i) Candidates are required to attempt **All the three Questions**.

(ii) **Question No. 1** consists of **Four parts of Short Answer Type Questions** out of which the candidates are required to attempt any **two questions**. Each question carries **3.5 marks.**

(3.5x2=07 Marks)

(iii) **Questions Nos. 2 and 3** have **two questions** out of which the candidates are required to attempt any **Four one.** Each question carries **07 marks**. **(07x4=28Marks)**

Q1. Attempt any TWO questions out of the following

(3.5x2=07Marks)

(i) What are the principles and significance of environmental education

(ii) Discuss guiding principles of sustainable development goals.

(iii) Give the characteristics and functions of environmental management

(iv) Discuss field visit and observation as teaching learning strategies for environmental education.

Q2. Attempt any two question out of the following **(07x2=14 Marks)**

I. Discuss the effect of pollution and global warming on human health with relevant examples.

II. Describe recommendations of NCF, 2005 and NCFTE, 2009 for environmental education. How NCFTE recommendations can ne inculcated in present B.Ed. curriculum?

III. What are SDGs? How SDG 15 is significant in inclusion of environmental education in curriculum?

Q.3. **Attempt any two question out of the following** **(07x2=14 Marks)**

I. How group discussions and dramatization teaching strategies can be used in classroom? With suitable illustrations justify your answer.

II. Discuss ecological and psychological perspectives of relationship between human and environment. What strategies can be used to enhance the positive relationship between man and environment?

III. How Self-reporting techniques (attitude scale, interview and questionnaire) can be used effectively for evaluation of environmental education? Critically analyze your answer with suitable examples.

अनुदेश:

(i) छात्र को सभी तीन प्रश्नों का उत्तर करना आवश्यक है।

(ii) प्रश्न संख्या 1 में लघु उत्तरीय प्रश्नों के चार भाग हैं, जिनमें से छात्र को कोई भी दो प्रश्न करने हैं। प्रत्येक प्रश्न 3.5 अंक का होता है। (3.5x2=07 अंक)

(iii) प्रश्न संख्या 2 और 3 में 3 प्रश्न हैं जिनमें से छात्र को किन्हीं दो का उत्तर देना है। प्रत्येक प्रश्न 07 अंक का है। (07x4=28 अंक)

Q1। निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर दीजिए (3.5x2=07 अंक)

(i) पर्यावरण शिक्षा के सिद्धांत और महत्व क्या हैं

(ii) धारणीय विकास लक्ष्यों (SDG) के मार्गदर्शक सिद्धांतों की चर्चा कीजिए।

(iii) पर्यावरण प्रबंधन की विशेषताएँ एवं कार्य बताइए

(iv) पर्यावरण शिक्षा के लिए शिक्षण अधिगम कार्यनीतियों के रूप में क्षेत्र भ्रमण और प्रेक्षण की चर्चा कीजिए। **Q2 निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर दीजिए (07x2=14 अंक)**

I. प्रासंगिक उदाहरणों के साथ मानव स्वास्थ्य पर प्रदूषण और ग्लोबल वार्मिंग के प्रभाव पर चर्चा करें।

II. पर्यावरण शिक्षा के लिए NCF, 2005 और NCFTE, 2009 की सिफारिशों का वर्णन करें। वर्तमान बी.एड. पाठ्यक्रम में एनसीएफटीई की सिफारिशों को कैसे शामिल किया जा सकता है।?

III. एसडीजी क्या हैं? एसडीजी 15 पर्यावरण शिक्षा को पाठ्यक्रम में शामिल करने में कैसे महत्वपूर्ण है?

प्रश्न 3. निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर दीजिए (07x2=14 अंक)

I. कक्षा में समूह चर्चा और नाट्यकरण शिक्षण रणनीतियों का उपयोग कैसे किया जा सकता है? उपयुक्त उदाहरणों की सहायता से अपने उत्तर की पुष्टि कीजिए।

II. मानव और पर्यावरण के बीच संबंधों के पारिस्थितिक और मनोवैज्ञानिक दृष्टिकोणों पर चर्चा करें। मनुष्य और पर्यावरण के बीच सकारात्मक संबंध बढ़ाने के लिए किन रणनीतियों का उपयोग किया जा सकता है?

III. पर्यावरण शिक्षा के मूल्यांकन के लिए स्व-रिपोर्टिंग तकनीकों (दृष्टिकोण पैमाने, साक्षात्कार और प्रश्नावली) का प्रभावी ढंग से उपयोग कैसे किया जा सकता है? उपयुक्त उदाहरणों के साथ अपने उत्तर का समालोचनात्मक विश्लेषण कीजिए।

CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations June 2023

Programme: B.Ed. **Session: 2021-23**

Semester: IV **Max. Time: 3 Hours**

Course Title: Curriculum Transaction **Max. Marks: 70**

Course Code: SOE020416C3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student needs to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Briefly explain the significance of curriculum development.

b) Recommendations of NCF-2005 on Curriculum.

c) Write a short note on psychological foundation of curriculum.

d) Write a Short note about Academic approach of Curriculum.

e) Briefly explain the Sources of Curriculum Evaluation.

f) Discuss about the Role of Teachers in curriculum transaction.

g) Write a short note on Importance of Curriculum Evaluation.

Q 2. (2X7=14)

a) What is the concept of curriculum? Explain the principles of curriculum development.
b) Discuss in the detail about philosophical and sociological foundation of curriculum.
c) Discuss about the Types of Curriculums with special reference to Child-centered and Subject centered curriculum.

Q 3. (2X7=14)

a) What do you mean by curriculum framework? Explain the recommendations of NCFTE-2009.
b) What is the needs of curriculum development Models. Explain the steps and importance of Tylor's Model of curriculum development.
c) Explain the Recommendations of NEP-2020 on curriculum of school Education.

Q 4. (2X7=14)

a. What do you understand by selection of content? Describe the importance of content selection for curriculum organization.
b. Write the concept of curriculum development and explain the process of Curriculum development.
c. What is the importance of learning experiences in curriculum development? What experiences would you include in curriculum development and why?

Q 5. (2X7=14)

a) What do you understand by curriculum Transaction? Describe the online and offline modes of Curriculum Transaction.
b) What is the curriculum Evaluation? Formative and Summative types of Curriculum Evaluation.
c) Write the concept of Curriculum Implementation and explain its Organizational-Development Model.

CENTRAL UNIVERSITY OF HARYANA

Even Semester Term End Examinations June 2023

Programme:	**B.Ed.**	**Session: 2022-23**
Semester:	**IV**	**Max.Time: 3 Hours**
Course Title:	**Life Skills Education**	**Max. Marks: 70**
Course Code:	**SOE 02 04 14 DCEC 3104**	

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 has three parts and students are required to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

a) Discuss about the significance of Life Skills in present scenario.

b) Discuss the International genesis of the concept of Life Skills.

c) Explain the factors influencing the skill of Problem Solving.

d) How does Decision Making skill contribute in making our life successful?

e) Explain the term Emotion with its different types.

f) Identify the stressors of social life.

g) What is Empathy? Explain with the help of an example?

Q 2. (2X7=14)

a) Explain the concept and components of Life Skills.

b) How the knowledge of Life Skills help an individual in attaining well balanced life?

c) Discuss the role of teacher in inculcating the Life Skills in the students.

Q3. (2X7=14)

a) Explain the concept and steps of creative thinking.

b) What is critical thinking? Elaborate the components to develop it.

c) What is problem solving skill? Discuss the steps of problem solving skills with the help of an academic problem.

Q 4. (2X7=14)

a) Discuss classroom discussion and brain storming as strategies of coping with emotions.

b) Discuss the concept of Stress. Explain the general adaptive syndrome model of stress.

c) Discuss the role of healthy emotions in developing any progressive society in this world.

Q 5. (2X7=14)

a) Define the term inter-personal relationship. Explain the factors affecting relationship.

b) What do you mean by the term Effective Communication? Explain the role of Co-curricular activities in developing such an important skill among students.

c) What is self-awareness? Explain Johari window as a technique of self-awareness.