

FACULTY OF ENGINEERING
B. E. (CSE/IT) VIII – Semester (CBCS) (Main) Examination, September 2020

Subject: Cloud Computing (Elective –V)

Time: 2 hours

Max. Marks: 70

PART – A

Note: Answer any five questions.

(5x2 = 10 Marks)

1. List the benefits of cloud computing.
2. Interpret the cloud Middleware support for Virtualization.
3. Define load balancing in Cloud Computing.
4. Apply scaling in cloud.
5. Demonstrate Multi-tenant Software in cloud.
6. Differentiate between database and Cloud.
7. Describe the portability issues of cloud.
8. Examine the Popular Cloud services.
9. Construct the cloud enterprises architecture.
10. Distinguish analytics from search in cloud.

PART – B

Note: Answer any four questions.

(4x15 = 60 Marks)

11. (a) What is cloud? Explain feature services and deployment model.
 (b) What is Virtualization? Describe the benefits and mechanisms used for Virtualization.
12. (a) Is database is better than a file system? If so justify with your answer.
 (b) How the data is stored inside the cloud and explain with one scenario?
13. (a) What are internal security breaches in cloud computing and implement the steps to reduce cloud computing breaches?
 (b) How cloud security is different from IT infrastructure hosted within an organization and retake them with respect to the security?
14. (a) Construct the different cloud service models.
 (b) What is cloud management? Identify the interoperability issue in cloud computing.
15. (a) What is SOA and develop enterprise architecture?
 (b) Construct workflow and business process of any organization using cloud computing.
16. (a) Demonstrate the basic components of cloud computing.
 (b) Discuss the service provided by AWS.
17. (a) Experiment different cloud deployment models.
 (b) How the cloud differs from grid? Explain the evolution of cloud computing.

FACULTY OF ENGINEERING
B. E. (CSE/IT) VIII – Semester (CBCS) (Main) Examination, September 2020

Subject: Human Computer Interaction (E – V)

Time: 2 hours

Max. Marks: 70

PART – A

Note: Answer any five questions.

(5x2 = 10 Marks)

1. List the interaction paradigms.
2. Define interaction framework.
3. Distinguish physical design with conceptual design.
4. Discuss iterative design.
5. List different phases of usability test.
6. Explain the usability goals.
7. Examine the possible problems that may occur with colors.
8. Describe the purpose of icons.
9. Analyze the human issues concerning text.
10. Analyze the technical issues concerning haptics.

PART – B

Note: Answer any four questions.

(4x15 = 60 Marks)

11. (a) Describe interaction styles in detail.
(b) Discuss the human considerations in design.
12. (a) Examine the pros and cons of using card sorting sessions in conceptual design.
(b) Experiment the pros and cons of using semantic network sessions in conceptual design.
13. (a) Differentiate between practical measures and objective measures of usability.
(b) Investigate the different kinds of windows.
14. (a) What is an icon and list out the characteristics of icon?
(b) Investigate the different techniques of color pallet specifications.
15. (a) Formulate the different types of text.
(b) Evaluate the touch and movement in human perceptual system.
16. (a) Interpset the problem space and conceptual model in interaction design.
(b) Evaluate the different stages of life cycle model of HCI.
17. (a) Describe interaction design models.
(b) Differentiate conceptual design and physical design.

FACULTY OF ENGINEERING
B.E. (CBCS) (EEE) VIII - Semester (Main) Examination, September 2020

Subject : Special Electrical Machines

Time: 2 hours

Max. Marks: 70

PART – A

Note: Answer any five questions.

(5x2 = 10 Marks)

1. Define Step Angle. What is total rotor angle?
2. The step angles are as small as _____ or as large as _____ and stepper motors develop torques ranging from _____ up to _____.
3. Differentiate "Switched" and "Variable" reluctance motors.
4. What is magnetic co-energy?
5. What is remanence and hysteresis?
6. What are the different configurations of PMSM? Draw the schematic for each.
7. Discuss the principle of trapezoidal motor?
8. What are the applications of BLDCM?
9. What are the down sides of Linear Motor?
10. Define
 - a) Synchronous speed of a linear motor
 - b) Slip of a linear synchronous motor.

PART – B

Note: Answer any four questions.

(4x15 = 60 Marks)

11. Explain the construction and operation of Variable Reluctance (VR) stepping motor neat schematic.
12. Discuss briefly the modes of excitation of hybrid step motors with neat schematics and truth tables for each.
13. Explain the Torque-speed characteristics of Switched Reluctance Motors.
14. Analyze the Power Converters for SR Motor with neat schematics.
15. Explore the various Permanent magnets and their characteristics with neat Schematics.
16. Evaluate the closed loop operations of BLDCM with neat schematics.
17. Discuss the construction and principle of Linear Synchronous Motor with neat Schematic.

FACULTY OF ENGINEERING
B.E. VIII-Semester (EEE) (CBCS) (Main) Examination, September 2020

Subject : Power Electronic Applications to Renewable Energy

Time: 2 hours

Max. Marks: 70

PART – A

Note: Answer any five questions.**(5x2 = 10 Marks)**

1. Draw the P-V & I-V characteristics of solar PV system?
2. Explain today's world energy scenario?
3. Explain about fly back converter?
4. Explain about multi input converter?
5. Explain about parallel power processing in inverters?
6. Draw the block diagram of a PLL?
7. Explain islanding concept in a grid connected inverters?
8. Draw the P-V characteristics of a wind power plant?
9. Explain different types of batteries used in solar power plant
10. Write down the potential benefits of a Micro Grid?

PART – B

Note: Answer any four questions.**(4x15 = 60 Marks)**

11. a) What is MPPT? Give the flow chart of a P & O MPPT algorithm?
b) Why do we need a bypass diode and blocking diode in a PV Module explain clearly?
12. a) Explain clearly about boost interleaved converter?
b) Write down about DC-DC bidirectional converter?
13. Derive the equation for input side reflected impedance of Buck, Boost and Buck-Boost converter?
14. How P-V and I-V characteristics change with wind speed and blade pitch angle changes?
15. Explain the operation of Synchronous generator with back to back controlled/ uncontrolled converter for wind Power Generation.
16. a) Explain MPP Techniques for wind power plant?
b) Explain the buck – boost converter and derive the relationship between the input and output voltage.
- 17 a) What is islanding in PV system and why it is undesirable?
b) Write down about HERIC and H6 topology.

FACULTY OF ENGINEERING
B.E. (CBCS) (EEE) VIII - Semester (Main) Examination, September 2020

Subject : Electrical Substation Design and Equipment (E - V)

Time: 2 hours

Max. Marks: 70

PART – A

Note: Answer any five questions.**(5x2 = 10 Marks)**

1. List the characteristics of Air Insulated substation?
2. Write the components of Gas Insulated Substation (GIS)?
3. Why SF6 is replaced by Mixture of N₂&SF₆ in GIL?
4. Draw Main and Transfer bus arrangement?
5. What is insulation coordination and specify its methods?
6. Write the formula for Reflection and Refraction of waves on transmission?
7. Write the disadvantages of providing too large or too small sag on a line?
8. Write the definitions of apparatus strength, the BIL and the BSL?
9. What is the need of Shielding Masts?
10. What is substation automation?

PART – B

Note: Answer any four questions.**(4x15 = 60 Marks)**

- 11.a) List factors influence the selection of the proper type of substation?
b) Write the merits and Demerits of Air insulated and Gas insulated substation?
12. Describe major components of Gas insulated substation?
- 13.a) Derive an expression for sag in overhead lines when supports are at Unequal levels?
b) A transmission line conductor having a dia of 19.5 mm weights 0.85 kg/m. The span is 275 meters. The wind pressure is 39kg/m² of projected area with ice coating of 13 mm. The ultimate strength of the conductor is 8000kg. Calculate the maximum sag if the factor of safety is 2 and ice weighs 910kg/m³.
14. Write the procedure for design of substation grounding?
- 15.a) Define (i) Ground Potential Rise (GPR), (ii) Mesh Voltage, (iii) Step Voltage, (iv) Touch Voltage, (v) Transferred Voltage.
b) List the steps involved in selection of the strength of the insulation?
16. Why is reactive power compensation needed and explain the methods to improve reactive power compensation?
- 17.a) Explain methods for substation lightning protection?
b) Explain the two methods of insulation coordination?

FACULTY OF ENGINEERING
B.E. 4/4 (Civil) II-Semester (Backlog) Examination, September 2020

Subject : Ground Water Hydrology (Elective – III)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 Write the general equation of ground water flow and explain the terms.
- 2 State the Dupuit's assumption used while deriving steady ready flow equations.
- 3 List out about the subsurface investigations and what is meant by well logging.
- 4 Briefly mention the uses of surface geophysical techniques.
- 5 Explain Ghyben-Herzberg equation and how it is useful.
- 6 What do you understand by Dowsing?
- 7 State the working principle of viscous flow models.
- 8 With the help of line sketch, state the scope of freshwater saltwater interference.
- 9 What do you understand by conjunctive use and how it is useful?
- 10 State the concept of Finite difference method applied to Ground water.

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

- 11 (a) What are the different characteristics of ground water formation? Discuss them with due emphasis on the occurrence and distribution of aquifers.
 (b) In order to determine the permeability of an aquifer, a tracer is introduced in an observation well and it is traced in another downstream well 78 m away from the first after 46.5 hrs. If the elevation of water levels in the two wells differ by 2.90m and the porosity of the aquifer is 28%. Calculate the coefficient of permeability of the aquifer.
- 12 (a) The following information is obtained on a 30 cm production well
 $T = 500\text{m}^3 / \text{day} / \text{meter}$
 $S = 0.15$
 $Q = 2600 \text{ lpm}$
 $t = 2 \text{ days}$
 Determine the radius of cone of depression assuming a drawdown of 0.003m.
 (b) Explain the assumptions made in Theis equation.
- 13 (a) Explain the following in respect of geophysical exploration methods by electrical resistivity method.
 (i) Wenner and Schlumberger configuration of electrodes
 (ii) Profiling and vertical electrical sounding
 (iii) Describe magnetic and geologic methods
 (b) Describe magnetic and geologic methods.

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- 14 (a) When actually seawater intrusion takes place? How would you locate the freshwater – seawater interface. Also discuss about the various methods which are used to control seawater intrusion.
(b) Define artificial recharge and explain the necessity of adopting the technique of artificial recharge.
- 15 (a) State the objectives of model studies also mention about the classification of models.
(b) Discuss in detail about the working of sand model, and electric analog models.
- 16 (a) State and derive equation for steady flow with uniform recharge.
(b) A well with a radius of 0.15m completely penetrates in unconfined aquifer of thickness 50m and permeability of 30m/day. The well is pumped so that the water level in the well remains at 40m above the bottom of the aquifer. Assuming that the pumping has no effect on water table at a distance of 500 from the well what is the steady state discharge.
- 17 Write short notes on the following:
(a) Multiple well systems
(b) Seismic well systems
(c) Steady radial flow in leaky artesian aquifer

FACULTY OF ENGINEERING
BE 4/4 (Civil) II-Semester (Old) Examination, September 2020

Subject: Finite Element Methods (Elective - III)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 Define the term 'Finite Element' and write the steps involved in the Finite Element Analysis.
- 2 Explain about the Galerkin's method.
- 3 Write about an axisymmetric problem and what are the stress components that we derive in it.
- 4 Derive the strain-displacement matrix B for a 1-D 2-node bar element.
- 5 Define body forces and surface traction forces.
- 6 For 1-D bar shown in Fig.1. Evaluate N_1 , N_2 at point P, If $q_1 = 0.01$ mm and $q_2 = 0.02$ mm, find the displacement q at point P.

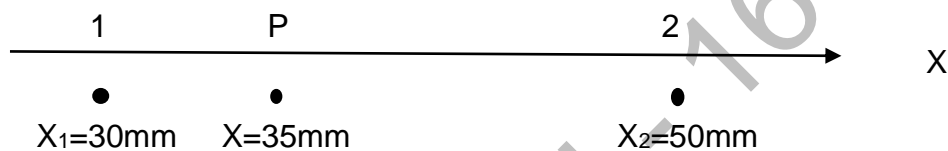


Fig 1.

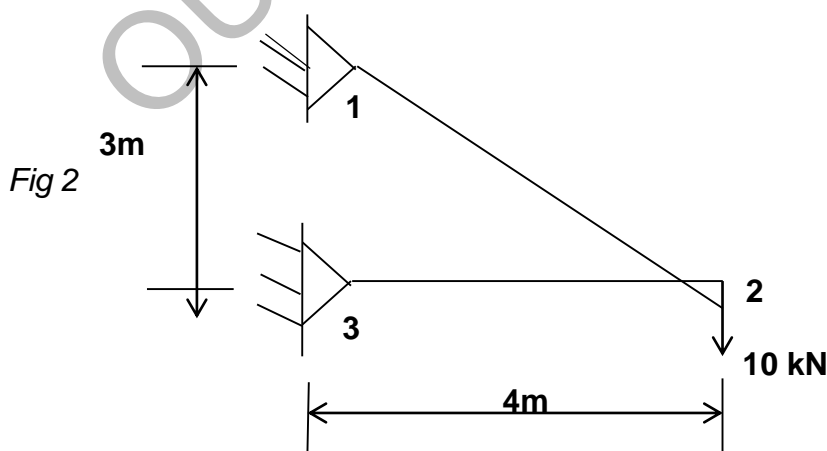
- 7 Using one-point Gauss quadrature technique, evaluate the integral $I = \int_{-1}^1 e^x \cos x \, dx$ from limits -1 to 1. Compare the results with exact solution.
- 8 Distinguish between iso-parametric elements, sub-parametric elements and super parametric elements.
- 9 What is the utility of natural coordinates in finite element analysis? Explain in brief.
- 10 Explain the uses of a Jacobian in finite element analysis.

PART – B

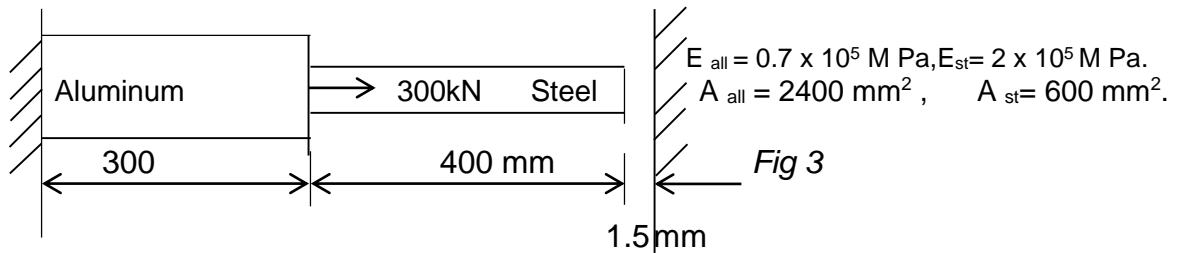
Note: Answer any three questions.

(3x18 = 54 Marks)

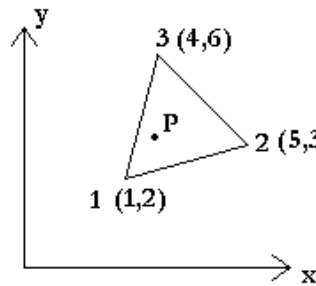
- 11 Determine the nodal displacements, stresses in elements and reaction forces for pin jointed truss shown in Fig 2. Take $E = 200$ G Pa, Area of Cross section = 1200 mm^2 for all members.]



- 12 For the two noded stepped bar shown *Fig 3*, determine the nodal displacements, element stresses and reaction forces.



- 13 Explain the plane stress and plane strain problems with examples and derive the elasticity matrix $[D]$ for the plane stress and strain problems.
- 14 The nodal coordinates of a triangular element are shown in *Fig 4*. At the interior point P, the x coordinate is 3.3 cm and y coordinate is 5 cm, determine the shape functions N_1 , N_2 & N_3 .



- 15 Derive Jacobian matrix for a 2-D 4-node quadrilateral element in terms of natural coordinates.
- 16 Derive the strain-displacement matrix B for an axi-symmetric element.
- 17 Answer short notes on the following:
- Derive the equilibrium equations for 3-D continua subjected to body forces.
 - Explain about the CST element.
 - Briefly explain about the volume coordinates.

FACULTY OF ENGINEERING
BE 4/4 (Civil) II-Semester (Backlog) Examination, September 2020

Subject: Infrastructure Engineering (E-III)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 Mention organizations involved in infrastructure projects?
- 2 What are the objectives of SEZ Act?
- 3 What is the role of the government in BOT?
- 4 What is PPP? Give an example?
- 5 Write about the design and consents in construction risks.
- 6 Explain currency exchange risk.
- 7 Explain BOT and BOOT Projects with an example.
- 8 Classify the environmental parameters?
- 9 What is the role of government in infrastructure implementation?
- 10 Write about planning and co-ordination in administration framework.

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

- 11 a) Explain in detail about the players in an infrastructure project.
b) Give an overview of infrastructure projects in power sector
- 12 a) What are the benefits of infrastructure privatization?
b) Explain in detail the challenges in privatization of road transportation in India.
- 13 a) Explain about the mapping and facing the landscape of risks in infrastructure projects.
b) Explain the different types of risks in infrastructure projects.
- 14 a) Explain attributes of environmental and social impacts.
b) Explain in detail about the environmental impacts on soil and ground water with an example.
- 15 a) Explain risk management process.
b) What are the benefits of infrastructure management systems?
- 16 Write in detail about government incentives and other forms of supports.
- 17 Write short notes on.
 - a) Spectrum of PPP.
 - b) Infrastructure integrity.
 - c) Risk profile of power sector.
 - d) Salient features of EIA

FACULTY OF ENGINEERING
B.E. 4/4 (EEE) II-Semester. (Backlog) Examination, September 2020

Subject : Electrical Power Distribution Engineering (Elective-III)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

1. Classify types of transformers, used in distribution of power
2. What are the characteristics of loads, in a distribution system?
3. How is a substation located, optimally?
4. What are the three considerations for the design of a secondary system?
5. How is a percentage voltage drop calculated?
6. What does the General total Annual cost refer to, in a distribution system?
7. What is the necessity for the application of capacitors in a distribution system?
8. How is the best location of a capacitor, in a distribution system, identified?
9. Draw the phasor diagram for a three phase transformer, with neat labelling
10. Sketch a single line diagram for a distribution system with radial feeders.

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

11. In a town of 2500 power connections, is a mix of domestic, industrial and entertainment industries. Discuss the types of energy charge rate structure which are applicable
12. In a small scale unit having 2 lathe machines, of 1.5kw each, 3 grinding machines of 0.50kw each, one plate bending machine of 1kw rating, a general load of 1.25 KVA @ 0.65pf, sketch the load duration curve, if the lathe machines run for 6 hours From 9am to 2 pm, grinding machines for 4 hours from 12noon to 4pm, plate bending Machine for 5 hours from 11am to 4 pm, and the general load for 10 hours from 8am to 6pm. Calculate the various factors applicable.
13. What is a primary system? What are the design considerations with respect to Radial and loop type of primary systems?
14. What is meant by general total annual Cost? Derive the expression for the same, with constraints.
15. How does the poor power factor effect the energy charges levied by the utility? What are the industrial practices for improving power factors?
16. What is meant by Distributed automation? How is project planning communication facilitated by SCADA?
17. Write short notes on:
 - a. Economic justification of use of capacitors
 - b. Substation application Curves

FACULTY OF ENGINEERING
B.E. 4/4 (Inst.) II-Semester (Backlog) Examination, September 2020

Subject: Advanced PLC Programming (Elective-II)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 List the various types of input instructions to program a PLC.
- 2 List some electrical devices connected to PLC output modules.
- 3 Why normally close contact instruction is also called as Examine OFF?
- 4 Write a PLC program to perform wood sawing operation for 4.6 second after an input coming out of source IN002.
- 5 Convert the word description. "For output H to be ON, input A must be ON and both input C and D must be OFF. In addition, one or more of inputs E,F, an G must be OFF", into equivalent relay logic.
- 6 Write the types of PLC Timer and counter function.
- 7 Write the syntax of SKIP function in a PLC programming.
- 8 Write a program for Repetitive Clock
- 9 Write the use of PLC matrix function.
- 10 Identify the types of Analog PLC modules.

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

- 11 Using a block diagram explain the architecture of PLC system
- 12 Design any big process problem using the 9 steps planning sequence.
- 13 a) List and define the various number comparison functions used in PLC programming.
 b) Explain how PLC handles overflow and negative numbers for the ADD and SUBSTRACT functions.
- 14 Describe the type of PLC Jump functions using suitable flow diagram.
- 15 a) Write a Ladder program to find how many parts are going past a certain process point in a minute (PPM) using Counter.
 b) Explain the need of repetitive clock used for arithmetic instruction in a PLC programming.
- 16 In your word describe the 5 levels of industrial control and their interrelationship
- 17 Write short notes on :
 a) PID control of continuous process
 b) PLC data Handling functions.

FACULTY OF ENGINEERING
B. E. 4/4 (ECE) II – Semester (Old) Examination, September 2020

Subject: Global Positioning Systems (Elective - III)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

1. What do you understand by the term 'Trilateration'?
2. Give the significance of GPS time.
3. Compare Geoid and Ellipsoid.
4. Explain briefly about 'UERE'.
5. How does spoofing affects the GPS user position?
6. What is the need of GPS RINEX data format?
7. List out the silent features of LADGPS.
8. Give the need of GPS Argumentation.
9. What are the services offered by 'Galileo' system?
10. What is the application of GPS in 'Marine'?

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

11. With a neat diagram, explain the
 - a) Operation of GPS Control Segment.
 - b) Explain how satellite position is determined.
12. With a neat diagram explain
 - a) about ECEF Coordinate system.
 - b) Discuss in detail about Ionospheric time delay error.
13. With a neat diagram, explain in detail about the GPS Signal Structure.
14. Draw the architectural diagram of 'GAGAN' and explain its operation, advantages and limitations.
15. Discuss the detail the applications of GPS in
 - a) Air and Land Navigation
 - b) Military
16. a) Explain in detail about WGS – 84.
b) Discuss about GPS orbits and GDOP.
17. Write short notes on
 - a) WADGPS
 - b) Position estimation using pseudorange measurements.

FACULTY OF ENGINEERING
BE 4/4 (Mech./Prod.) II-Semester (Backlog) Examination, September 2020

Subject: Machine Tool Design (Elective – II)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 State the features of Transfer Devices systems.
- 2 In NC programming of continuous path-using APT language. What are the categories of APT language words?
- 3 Sketch a structure of 4 speed gearbox with 2 staged gear in (i) cross-4
- 4 What is the selection criteria for designing low cost gear box?
- 5 State how with sketch as to how wedge operated mechanism removes table feeds backlash in milling operation.
- 6 What are methods to increase rigidity in machine tools structures?
- 7 State the factors considered in pre-loading of ball bearing.
- 8 State function of anti-friction bearing.
- 9 In what situations, the flow direction change values are used?
- 10 What are functions of pressure relief values?

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

- 11 (a) Classify explain the curve motions produced by the machine tool.
 (b) State NC tape format in ISO code as per EIA 273 standard in a block.
- 12 (a) Explain the productivity loss analysis in stepped drive of machine tools.
 (b) Explain the kinematic advantages of GP series in general.
- 13 (a) Derive the Overall compliance of machine tool – Lathe.
 (b) Sketch the schematic feed drive for universal milling machine.
- 14 (a) Derive the hydrodynamic design of journal bearing in (a) radial pressure distribution.
 (b) Write short notes on recirculating ball screws used in machine tools.
- 15 (a) Explain the tracer controlled hydraulic circuits with 4 edge working with sketch.
 (b) State the features of hydraulic drives (i) radial piston pump, (ii) vane pump
- 16 (a) Sketch and explain the working of Geneva mechanism in automatic screw cutting machines.
 (b) Sketch all R-T motion drives and derives the input-output relation
 (i) slider-crank (ii) crank-rocker
- 17 (a) Sketch the feed gear trains for cutting with worth threads using Norton set with multipliers.
 (b) Sketch the throttling circuit with throttle in the forward pressure line with its performance characteristics.

FACULTY OF ENGINEERING
BE 4/4 (Mech./Prod.) II-Semester (Backlog) Examination, September 2020

Subject: Power Plant Engineering (Elective – II)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.**(7x3 = 21 Marks)**

- 1 What are the major sources of power generation in India?
- 2 What are the characteristics of good ash handling plants?
- 3 What is a draught? What are the advantages of Mechanical Draught?
- 4 Enumerate various methods of feed water treatment.
- 5 List the parts of Hydro-electric power plant? What is a catchment area?
- 6 What is a Hydrograph? List the factors which effect run-off.
- 7 What is a moderator and also explain its desirable properties in a reactor?
- 8 Why is shielding of reactor necessary? What do you understand by thermal shielding?
- 9 Define Demand factor and Diversity factor?
- 10 Explain the impact of effluents from power plants on the environment.

PART – B

Note: Answer any three questions.**(3x18 = 54 Marks)**

- 11 (a) Enumerate and explain the steps involved in handling of the coal.
(b) Briefly explain the different sources of energy.
- 12 (a) With neat sketch explain overfeed and under feed mechanism of burning of coal.
(b) With a neat labeled diagram explain the operation of a Cyclone Furnace. Mention its advantages & Disadvantages.
- 13 What is a dam? How are dams classified? Briefly describe a few important types of dams. How would you select the site and the type of the dam?
- 14 (a) Sketch and explain gas cooled reactor and also list its advantages.
(b) Write short notes on disposal of radioactive wastes.
- 15 (a) Define peak load, average load, load factor and plant use factor.
(b) What are the various costs involved in power plant? Discuss briefly.
- 16 (a) What you mean by storage and pondage? Why are they required?
(b) Describe the effluents from steam, hydro and nuclear power plants and their characteristics.
- 17 Write short notes on:
 - (a) Pulverized fuel burning system.
 - (b) Fast breeder reactor.

FACULTY OF ENGINEERING
B.E. 4/4 (CSE) II – Semester (Backlog) Examination, September 2020

Subject: Information Retrieval Systems (Elective – III)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

1. Define Information Retrieval System.
2. Differentiate between data retrieval and Information retrieval.
3. Define query expansion.
4. Define Document Clustering.
5. What is Distributed IR?
6. What are the different types of Structural queries?
7. What are Boolean queries? Give an example.
8. Give a document containing the terms A,B,C with frequencies 3,2,1 respectively. Assume the collection contains 10,000 documents with frequencies 50, 1300, 250 for the terms A,B,C. Find the term frequency (tf) and Inverse document frequency (idf) of each of the terms.
9. What is belief network model?
10. What are the different models for browsing?

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

11. Explain in detail about Information Retrieval Process.
12. Explain about keyword-based querying.
13. What is the most popular query re-formulation strategy? Explain query expansion for vector model and probabilistic model.
14. What is text compression? Explain the statistical and dictionary based compression strategies.
15. Explain Boyer-Moore algorithm with an example.
16. Explain the MIMD Architecture of parallel IR.
17. Write short notes on:
 - a) Multimedia.
 - b) Retrieval Performance Evaluation.
 - c) Inverted Files.

FACULTY OF ENGINEERING
B.E. 4/4 (CSE) II-Semester (Backlog) Examination, September 2020

Subject : Advanced Databases (Elective-III)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 What is table inheritance? Write the syntax and give an example.
- 2 Distinguish between Array and Multiset Types in SQL.
- 3 Explain FLWOR expression in XML.
- 4 List out the basic steps in Query Processing.
- 5 What is Semi-join? Explain with example.
- 6 List out equivalence rules that are used to transform a relation expression.
- 7 Define Homogeneous and Heterogeneous Databases.
- 8 What is interoperation parallelism?
- 9 Explain Multimedia data formats.
- 10 Define Materialized Views.

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

- 11 (a) Explain about Persistent programming Language.
(b) Distinguish between Object oriented versus Object relational databases.
- 12 Explain in detail about XML document schema with suitable example.
- 13 Explain about the join operation in query processing.
- 14 (a) Give the differences between Inter-query and Intra-query parallelism.
(b) Write about different types of transparencies.
- 15 Explain about Spatial and Temporal data and Mobility.
- 16 Explain in detail about data storage in Distributed databases.
- 17 Write short notes on any **two** of the following:
 - (a) Structured Types
 - (b) Fragmentation
 - (c) Query Optimization

FACULTY OF ENGINEERING
BE 4/4 (I.T.) II-Semester (Backlog) Examination, September 2020

Subject: Information Retrieval Systems (Elective – IV)

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 What is Information Retrieval System?
- 2 Define Boolean Model and its advantages.
- 3 Define Recall and Precision with example.
- 4 What are the Context Queries?
- 5 What is Relevance Feedback explain with examples?
- 6 What is Multimedia?
- 7 What is Thesauri?
- 8 What is inverted file? Give an example.
- 9 Describe Distributed IR with parallel IR.
- 10 Define Compression Ratio.

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

- 11 Explain in detail about Retrieval Process of an Information Retrieval System with diagram.
- 12 What are Reference Collections? Explain about CACM and ISI Collections.
- 13 What is Pattern matching? Explain the most used types of Patterns.
- 14 What is Mark-up language? Explain different Mark-up languages with suitable example.
- 15 (a) Define Text Compression. Explain Text Compression using Huffman Coding.
(b) What is Document Clustering? Explain about the procedure of document clustering with example.
- 16 (a) What are the steps involved in Query Processing in the Distributed IR?
(b) Explain in detail about Structural queries with examples.
- 17 What is Parallel IR? Explain about MIMD Architecture and SIMD Architecture with neat diagrams.
