

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II – Semester (Main & Backlog) Examination, May / June 2017

Sub: Groundwater Hydrology (Elective – III)

Time: 3 Hours

Max.Marks: 75

Note: Answer all questions from Part – A and any five questions from Part – B.

PART – A (25 Marks)

- 1 Discuss about the current trends in artificial recharge in respect of their technical feasibility and economic viability. 3
- 2 List out Dupuit's assumptions. 3
- 3 What is the nature of groundwater flow? State the law governing the flow with limitations if any. 3
- 4 Name few objectives of surface geophysical methods. Will this method help in determining the aquifer thickness? 3
- 5 Define velocity potential and stream function 3
- 6 Write a short note on groundwater exploration. 2
- 7 State methods to control seawater intrusion into coastal aquifers. 2
- 8 Write in brief about subsurface investigations. 2
- 9 Define permeability, transmissivity, specific yield and safe yield. 2
- 10 Describe Finite difference method. 2

PART – B (5x10 = 50 Marks)

- 11 a) What are the various requirements for assessing the suitability to carry out an artificial recharge project in a particular area? 5
 - b) Estimate the current trends in artificial recharge practices followed in various parts of the world. 5
- 12 Obtain the differential equation of the form $\frac{\partial^2 h}{\partial t} = \frac{S}{T} \frac{\partial h}{\partial t}$ governing unsteady groundwater flow in a homogeneous, isotropic confined aquifer using various compressibility parameters. 10
- 13 Derive and explain Ghyben-Hearzberg relation with the aid of neat sketch, discuss about the shape of the saltwater wedge and the equations related to it. 10
- 14 Explain the principle and working of viscous fluid models, membrane models and numerical modeling of groundwater in detail. 10

- 15 A fully penetrating well in a confined aquifer pumps at a constant rate of $3 \text{ m}^3/\text{min}$ and an observation well at a radial distance of 20 m records the following data. Estimate the aquifer parameters by Jacob's method. 10

| | | | | | | | | | |
|------------|-----|------|------|-----|-----|------|-----|------|-----|
| Time (min) | 5 | 12 | 16 | 30 | 40 | 60 | 90 | 120 | 150 |
| s(m) | 0.7 | 0.85 | 0.95 | 1.1 | 1.2 | 1.32 | 1.4 | 1.45 | 1.5 |

- 16 a) Discuss about the importance of groundwater in hydrologic cycle and its vertical distribution. 4

- b) From an alluvial basin having an area of 3000 km^2 in a year's time 200 Mm^3 of groundwater was pumped, resulting in a drop of groundwater table by 9 m. Estimate the specific yield of the aquifer. If there is no replenishment, calculate the porosity of the soil. Assume the specific retention as 10%. 6

- 17 a) Obtain the phreatic line equation in case of groundwater flow in 1-D. 5

- b) A 30 cm well fully penetrates a confined aquifer 30 m deep. After a long period of pumping at 1200 lpm. The drawdown in the wells at 20 m and 45 m from the pumped well are found to be 2.2 m and 1.8 m respectively. Determine the transmissibility of the aquifer and the drawdown in the pumped well. 5

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II – Semester (Main) Examination, May / June 2017

Sub: Finite Element Methods (Elective – III)

Time: 3 Hours

Max.Marks: 75

**Note: Answer all questions from Part – A and any five questions from Part – B.
Missing data if any, may suitably be assumed.**

PART – A (25 Marks)

- 1 Define the term 'Finite Element' and write the steps involved in the Finite Element Analysis. 3
- 2 Differentiate between Rayleigh-Ritz, and Galerkin methods. 3
- 3 State the principle of minimum potential energy. 2
- 4 Derive the shape functions for a quadratic one dimensional bar element in natural coordinates. 3
- 5 Define body forces and surface traction forces. 2
- 6 Write the compatibility conditions for 2-D elasticity problems. 3
- 7 Explain natural coordinates. 2
- 8 Write the strain displacement relationship for axi-symmetric problems. 2
- 9 Write the shape functions for 8 noded isoparametric element. 3
- 10 Which is the simplest 3-D element? Write any two 3-D elements that are used in Finite Element Analysis. 2

PART – B (5x10 = 50 Marks)

- 11 Find the nodal displacements and the stress in each material of the bar shown in Figure 1. An axial load $P = 200 \times 10^3 \text{ N}$ is applied as shown. 10

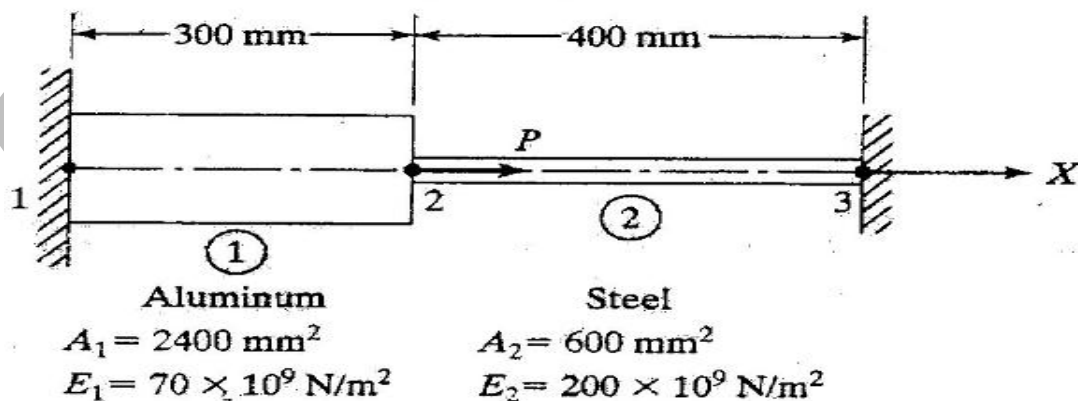


Figure 1.

- 12 Find the deflections, shear forces and bending moments for the beam shown in Figure 2. 10

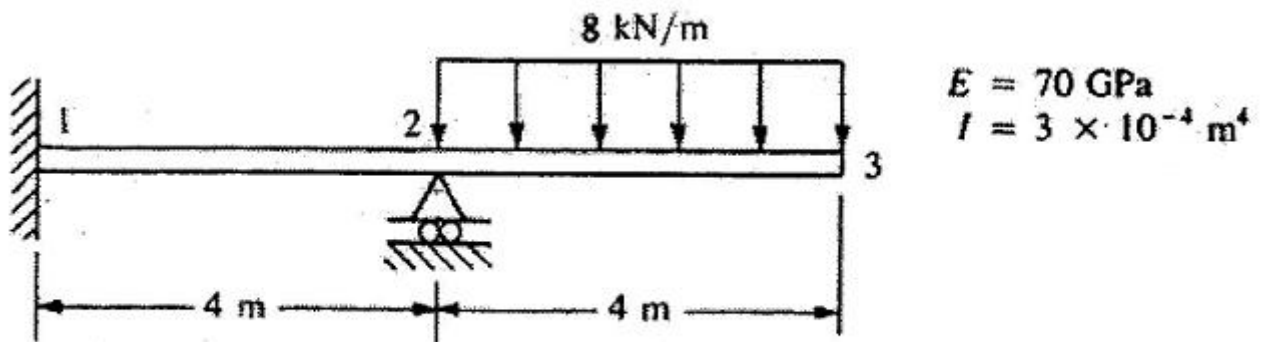


Figure 2.

- 13 a) Explain the plane stress and plane strain problems with examples and derive the elasticity matrix [D] for the plane stress problems. 6

- b) For a triangular element with nodes 1(1,1), 2(3,1.5) and 3(2.5,5) find the Jacobian and strain displacement matrix [B].

- 14 Derive the stiffness matrix for 4 noded quadrilateral element. 10

- 15 For the axisymmetric pressure loading shown in Figure 3, determine the equivalent point loads, F_1, F_2, F_3, F_4 . 10

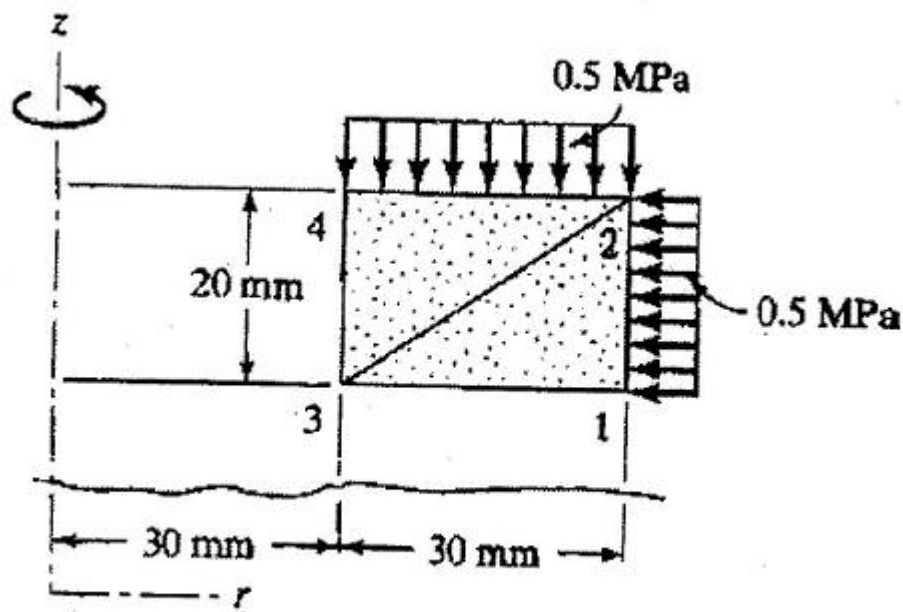


Figure 3.

- 16 a) What does discretization mean in the finite element method? 3
- b) For a rectangular element of dimensions 30 mm x 20 mm the nodal displacements are given by $u_1 = 0.0$, $v_1 = 0.0$, $u_2 = 0.005$, $v_2 = 0.0025$, $u_3 = 0.0025$, $v_3 = -0.0025$, $u_4 = 0.0$ and $v_4 = 0.0$. Assuming $E = 2 \times 10^5 \text{ N/mm}^2$ and $\mu = 0.20$, determine the element strains and stresses at the centroid of the element. 7
- 17 a) Using Rayleigh-Ritz method obtain an approximate solution of the following problem.
- $$\frac{d^2u}{dx^2} - u + x^2 = 0, 0 < x < 1$$
- With the boundary condition $u(0) = 0$, $u'(1) = 1$. 5
- b) The nodal coordinates of a 3-D 4 node tetrahedral element are 1(2,1,1), 2(0,0,1), 3(1,2,1) and 4(0,0,0). Find the shape functions at the centroid of the face 1-2-3. 5

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II-Semester (Main & Backlog) Examination, May / June 2017

Subject : Infrastructure Engineering (Elective – III)

Time : 3 hours

Max. Marks : 75

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

- | | | |
|----|---|---|
| 1 | What are the rural infrastructural facilities? | 2 |
| 2 | What are stages in the infrastructure projects? | 2 |
| 3 | What is the role of private sector in Infrastructure Development? | 2 |
| 4 | Mention the problems of Infrastructure Privatization. | 2 |
| 5 | What are demand risks in Infrastructure Planning? | 2 |
| 6 | What are the legal issues in Infrastructure Planning? | 3 |
| 7 | Mention the social impacts over project cycle. | 3 |
| 8 | Mention the environmental laws. | 3 |
| 9 | What are the PPP projects? | 3 |
| 10 | What is the concept of lifecycle? | 3 |

PART – B (50 Marks)

- 11 a) What are special economic zones?
b) Mention the role of organizations and players in the field of infrastructure.
- 12 Mention the benefits of Privatization of Infrastructure projects related to roads.
- 13 a) What are cultural risks in international infrastructure projects?
b) Mention the contractual risks in Infrastructure projects.
- 14 a) Briefly discuss the environmental and social impact on the assessment of infrastructure projects.
b) What are the advantages of BOT projects?
- 15 What do you understand about infrastructural engineering related to Civil Engineering projects?
- 16 a) Mention the challenges in the construction of Infrastructure Projects.
b) Discuss on urban infrastructure projects.
- 17 Write short notes on the following :
- Attributes in the field of Infrastructure
 - Environmental regulations
 - Political risks

FACULTY OF ENGINEERING

**B.E. 4/4 (EEE/Inst.) II-Semester (Main & Backlog) Examination,
May / June 2017**

Subject : Electrical Power Distribution Engineering (Elective – II)

Time : 3 hours

Max. Marks : 75

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

- | | | |
|----|--|---|
| 1 | Define average load and demand factor. | 2 |
| 2 | Compute average power loss, if power loss at peak load is 100 KW and loss fact is 0.3. | 3 |
| 3 | List out the rules to be followed for optimum location of substation. | 3 |
| 4 | What is meant by primary and secondary distribution? | 2 |
| 5 | What is Substation? List the components in substation. | 2 |
| 6 | Brief about secondary network. | 3 |
| 7 | What is the role of capacitors in electrical power distribution system? | 3 |
| 8 | What are consumer information services in distribution automation? | 3 |
| 9 | Mention advantages of distribution automation. | 2 |
| 10 | List out advantages and disadvantages of shunt compensation. | 2 |

PART – B (50 Marks)

- | | | |
|-------|---|-----|
| 11 a) | Explain about different types of distribution transformers. | 5 |
| b) | Explain in detail different rate structures in electrical distribution system. | 5 |
| 12 a) | How do you analyse a substation service area with “n” primary feeders? | 5 |
| b) | Draw and explain loop type, breaker and half bus scheme. | 5 |
| 13 a) | Draw and explain network type of primary system. | 5 |
| b) | Explain in detail secondary banking. | 5 |
| 14 | Consider that a three-phase 700-hp 50 Hz 4160v star connected induction motor has a full load efficiency of 80% a lagging power factor of 0.7, and is connected to feeder. It is desired to correct power factor of the load to a lagging, power of 0.9 by connecting three capacitors at the load, determine the following : | |
| a) | Rating of capacitor bank, in KVAR | |
| b) | the capacitance of each unit if the capacitors are connected in delta, in microfarads. | 10 |
| 15 a) | Explain in detail shunt compensation with phasor analysis. | 5 |
| b) | Explain about concept of customer billing and automatic meter reading. | 5 |
| 16 | Derive total annual cost equation with and without constraints. | 10 |
| 17 | Write a short note on : | 5+5 |
| a) | Project planning | |
| b) | Best capacitor location algorithm | |

FACULTY OF ENGINEERING

**B.E. 4/4 (CE/EEE/Inst./ECE/M/P/CSE) II-Semester (Main & Backlog) Examination,
May / June 2017**

Subject : Intellectual Property Rights (Elective – III)

Time : 3 hours

Max. Marks : 75

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

- 1 What are the various kinds of intellectual property rights?
- 2 What are the grounds for revocation of patent?
- 3 What are the different types of patents?
- 4 What are the inventions that are not patentable?
- 5 What is the nature and scope of copy rights?
- 6 What do you mean by infringement of trademarks?
- 7 What are the functions of WIPO?
- 8 What are the characteristics of an industrial design?
- 9 In which year the following acts came into force in India?
 - a) Patent Act
 - b) Design Act
 - c) Trade Marks Act
- 10 What is the effect of non registration of a Trade Mark?

PART – B (50 Marks)

- 11 a) Explain briefly about Patent Co-operation Treaty (PCT), 1970.
b) What are the functions and objectives of WTO?
- 12 a) Explain briefly the procedure followed in granting a patent.
b) What is meant by compulsory licensing and revocation?
- 13 a) Explain the importance of registration of designs.
b) What do you mean by piracy of registered designs? Explain.
- 14 a) Explain the purpose and registration of trade marks.
b) Write about passing off and infringement of trade marks.
- 15 a) Explain briefly assignment and transmission of copy right.
b) State the rights conferred by copy right publication.
- 16 a) Explain the role of GATT 1994 in IPR.
b) Write briefly the rights and obligations of patentee.
- 17 Short notes on
 - a) Role of UNESCO
 - b) Specifications of a patent
 - c) Infringement of copyright

FACULTY OF ENGINEERING**B.E. 4/4 (Inst.) II-Semester (Main & Backlog) Examination, May / June 2017****Subject : Advanced PLC Programming (Elective – II)****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- 1 Draw the three parts scanning cycle of a PLC system. 2
- 2 List some electrical devices connected to PLC output modules. 2
- 3 What is the difference between differentiating up and differentiating down input instruction? 3
- 4 Write a PLC program to perform spray paint operation for 25 second after an input coming out of source IN007. 3
- 5 Convert the word description : “For output H to be ON, input A must be ON and both inputs C and D must be OFF. In addition, one or more of inputs E, F and G must be OFF”, into equivalent Ladder diagram. 3
- 6 Write the classification of PLC Timer functions. 3
- 7 What is the use of coil in ADD and sub PLC function? 3
- 8 Write the syntax of skip function in typical PLC programming. 2
- 9 Write the use of PLC data MOVE function. 2
- 10 Why BCD to binary conversion is necessary while interfacing a thumbwheel to PLC? 2

PART – B (50 Marks)

- 11 a) Discuss the evolution of relay logic and computer evolution into the PLC. 5
b) Using a block diagram explain the architecture of PLC system. 5
- 12 Explain the general characteristics of registers used in PLC's. Give examples of timer functions in PLC programming. 10
- 13 Discuss about PLC arithmetic functions and PLC matrix functions. 10
- 14 What kind of number comparison can be made by a PLC? Using suitable example define 6 different types of compare instruction used in PLC programming. 10
- 15 a) Write a Ladder program to find how many parts are going past a certain Process Point in a Minute (PPM) using counter. 5
b) Construct a repetitive clock for using arithmetic instruction in a PLC programming. 5
- 16 Using a suitable block diagram and necessary calculation show how analog input signal is processed in input as well as in output side of PLC system. 10
- 17 Write short notes on :
a) PID control of continuous process
b) PLC data handling functions 5+5

FACULTY OF ENGINEERING**B.E. 4/4 (ECE) II-Semester (Main & Backlog) Examination, May / June 2017****Subject : Global Positioning System (Elective – III)****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- | | | |
|----|--|---|
| 1 | Compare VDOP and PDOP. | 2 |
| 2 | What is the principle involved in Trilateration? | 3 |
| 3 | Calculate the vertical ionospheric delay and slant factor for the satellite vehicle observed with an elevation angle of 30° and slant delay of 12.5m. | 3 |
| 4 | Explain the significance of UERE. | 2 |
| 5 | What do you mean by C/A and P-codes? | 2 |
| 6 | Why spread spectrum technology is used in GPS? | 3 |
| 7 | List out the salient features of LAAS. | 3 |
| 8 | What are the applications of WADGPS? | 2 |
| 9 | How GPS can be used in Marine applications? | 2 |
| 10 | Compare the orbital aspects of GLONASS and GALILEO. | 3 |

PART – B (50 Marks)

- | | | |
|----|---|---|
| 11 | a) Discuss in detail about the Keplerian elements with a neat diagram. | 6 |
| | b) Explain in detail about GPS and UTC time. | 4 |
| 12 | a) If the pseudorange measurements on the GPS frequencies $f_1 = 1575.45\text{MHz}$ and $f_2 = 1227.60\text{MHz}$ are $p_1 = 23525863.60400\text{m}$ and $p_2 = 23525871.73040\text{m}$ respectively, determine the ionospheric group delay on L_1 frequency. | 4 |
| | b) With a neat diagram explain ECI, ECEF and WGS-84 systems. | 6 |
| 13 | a) Why data formats are required with respect to GPS? Explain in detail about GPS navigation data format. | 6 |
| | b) Explain about the GPS signal structure. | 4 |
| 14 | a) What is the necessity of GAGAN system? Discuss the operation of GAGAN with a neat architectural diagram. | 7 |
| | b) Compare SBAS and GBAS. | 3 |
| 15 | a) Discuss in detail the applications of GPS/Pseudolite and GPS/cellular systems. | 5 |
| | b) Explain about the signal structure of GLONASS and GALILEO systems. | 5 |
| 16 | a) With a neat diagram explain the principle of operations of GPS. | 6 |
| | b) Illustrate the concept involved in spoofing. | 4 |
| 17 | Write short note on : | |
| | a) GPS in Military and Space application | 5 |
| | b) GPS orbits | 5 |

FACULTY OF ENGINEERING**B.E. 4/4 (ECE) II-Semester (Main & Backlog) Examination, May / June 2017****Subject : Neural Networks and Fuzzy Logic (Elective – III)****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- | | |
|--|---|
| 1 Describe various terminologies used in artificial neural networks. | 3 |
| 2 Define different types of layers used in neural networks. | 2 |
| 3 What is back propagation algorithm? | 3 |
| 4 Describe multi-layer perceptions. | 3 |
| 5 What is the purpose of Hopfield network? | 2 |
| 6 Give the applications of neural networks in robotics. | 2 |
| 7 What is fuzzy relations? | 3 |
| 8 List the considerations of fuzzy decision making. | 2 |
| 9 What are the draw backs of fuzzy logic controller? | 2 |
| 10 List the properties of fuzzy sets. | 3 |

PART – B (50 Marks)

- | | |
|---|----|
| 11 Discuss about the supervised and unsupervised algorithm. | 10 |
| 12 a) What are the salient features of Kohonen's self organizing learning algorithm? | 5 |
| b) Describe Kohonen algorithm. | 5 |
| 13 Explain Hopfield models of neural network and its applications. | 10 |
| 14 a) Describe the features of the membership functions. | 5 |
| b) Explain consideration of Bayesian fuzzy decision making. | 5 |
| 15 a) Explain the steps in designing a simple fuzzy control system with block diagram. | 5 |
| b) Describe any one application of fuzzy controller. | 5 |
| 16 a) Explain with neat diagram the algorithm of Adaline network. | 5 |
| b) Using DeMorgan's laws, determine the S-norm corresponding to the T-norm : Min (X, Y). | 5 |
| 17 Write short notes on the following : | |
| a) Radial basis function network algorithms | 4 |
| b) Properties of fuzzy sets | 3 |
| c) Bidirectional associative memory topology | 3 |

FACULTY OF ENGINEERING

B.E. 4/4 (Mech. /Prod.) II - Semester (Main & Backlog) Examination, May / June 2017

Subject : Machine Tools Design (Elective – II)

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

- 1 Give the classification of Machine Tools.
- 2 State the advantages and limitations of Numerical control of machine Tools.
- 3 What are kinematic Drives, classify them?
- 4 What are Ray Diagram and speed spectrum diagram?
- 5 Draw the different shapes of Guide ways.
- 6 What is overall compliance of Machine Tools?
- 7 What is the functionality of a spindle in machine tools, specify the materials used for spindles?
- 8 What is the effect of Bearing clearance on the rigidity of spindle?
- 9 What are the various hydraulic controls used in Machine tools?
- 10 What is Productivity Loss?

PART – B (50 Marks)

- 11 (a) Explain in detail about the mechanisms used for converting rotary to linear motion and intermittent motion.
(b) Give the Basic failures of Transfer machines in detail.
- 12 (a) Prove that $R_n = R_v R_d$ in standardization of speeds and feeds.
(b) What are the rules for the layout of Gear Box having sliding clusters?
- 13 (a) What are Feed Gear Boxes? Explain about Norton and meander type of Feed gear boxes.
(b) Explain the Design of Lattice Beds used in construction of machine tools.
- 14 (a) What are the various strengthening mechanisms used for machine tool beds and columns?
(b) Explain about the Hydrodynamic Action of Bearings.
- 15 (a) Explain in detail about the spindle Design.
(b) What are the factors to be considered in selection of Bearings?
- 16 (a) What are the various positive displacement pumps used in practice explain in detail?
(b) Explain about Hydro copying systems.
- 17 Write short notes on the following:
 - (a) Automatic screw cutting machine
 - (b) Power Pack
 - (c) Accumulators

FACULTY OF ENGINEERING

B.E. 4/4 (Mech. /Prod.) II - Semester (Main & Backlog) Examination, May / June 17

Subject : Power Plant Engineering (Elective – II)**Time : 3 Hours****Max. Marks: 75****Note: Answer all questions from Part-A and answer any five questions from Part-B.****PART – A (25 Marks)**

- 1 What are the major energy sources for India in power generation?
- 2 How dust collection system differs from ash collection?
- 3 What is meant by 'overfeed' and 'underfeed' principles of coal firing?
- 4 What do you mean by balanced draught and draw its layout?
- 5 How the run-off is measured in practice?
- 6 What are the factors considered for site selection for Hydro-electric power plants?
- 7 India has started the nuclear programme with "CANDU" type power plants at Rajasthan and Madras why?
- 8 Name the different methods for nuclear waste disposal.
- 9 Explain load duration curve.
- 10 Write the methods of determining the depreciation of electrical power plants.

PART – B (50 Marks)

- 11 Describe in detail the availability of primary commercial energy resources.
- 12 An open cycle gas turbine plant uses oil as fuel. The maximum pressure and temperature in the cycle are 5 bar and 650°C. The pressure and temperature of air entering into the compressor are 1 bar and 27°C. The exit pressure of the turbine is also 1 bar. Assuming isentropic efficiencies of compressor and turbine to be 80% and 85% respectively. Find the thermal efficiency of the cycle. The overall A : F ratio used is 60 : 1 ($C_p = 1 \text{ kJ/kg } ^\circ\text{C}$, $\gamma = 1.4$).
- 13 Explain the construction of flow duration curve and discuss its importance in comparing the power potentiality of different storage used in power generation.
- 14 Draw a neat diagram of nuclear reactor and explain the functions of different components?
- 15 A small plant capital cost is Rs. 40,000 and its salvage value is Rs. 4000 at the end of a useful life of 20 years. Find its value half way through its life based on (a) straight line depreciation method (b) reducing balance depreciation method.
- 16 Explain the different methods adopted to control the nuclear pollution.
- 17 What are the different arrangements of the components of thermal power plant when used as peak load plant? List out the specific features of each.

FACULTY OF ENGINEERING

B.E. 4/4 (AE) II - Semester (Main & Backlog) Examination, May / June 2017

Subject : Vehicle Body Engineering (Elective – II)

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1. Write the classification of car bodies.
2. What are the different forces and moments that act on a car body?
3. List out the uses of various FRP in vehicle body.
4. List out the body trim items.
5. How forward visibility of a vehicle can be improved
6. How the inclination of the steering column varies the force applied by the driver on steering?
7. Define active safety and passive safety as applied to vehicle.
8. Classify passenger busses based on distance travelled by the busses
9. What is the influence of floor height in the bus body lay out?
10. Sketch the various types of metal sections that are being used in the construction of bus body frame.

PART- B (50 Marks)

11. (a) Explain the various safety equipments that are in use in a vehicle
(b) Explain the classifications of passenger cars with neat sketches.
12. (a) What are visibility regulations?
(b) Explain how forward visibility can be measured in a laboratory
13. (a) Explain various body optimizing techniques for a minimum drag
(b) Explain the effects and control of lift, pitching moment, and yawing moment of a Vehicle
14. (a) Mention different steps involved in the construction procedure of bus body
(b) What are the factors that are considered in driver's seat design?
15. (a) Explain the constructional details of a tanker body.
(b) List out the advantages and disadvantages of an integral bus
16. Explain the modern painting process for a car that are in use with relevant sketches.
17. (a) Write a note on floor height, engine and exit location.
(b) Explain the classification of bus bodies with neat sketches.

FACULTY OF ENGINEERING & INFORMATICS**B.E. 4/4 (CSE / IT) II – Semester (Main) Examination, May / June 2017****Subject: Information Retrieval System (Elective – III & IV)****Time: 3 Hours****Max.Marks: 75****Note: Answer all questions from Part A and any five questions from Part B.****PART – A (25 Marks)**

- | | |
|---|---|
| 1 Differentiate Browsing Vs Searching. | 2 |
| 2 Define Boolean model and advantages of Boolean model. | 3 |
| 3 What is cystic fibrosis collection? | 3 |
| 4 What are context queries? | 3 |
| 5 What is multimedia? | 2 |
| 6 What are different markup languages? | 3 |
| 7 What is inverted file? Give an example. | 3 |
| 8 What is stemming? | 2 |
| 9 What is parallel IR? | 2 |
| 10 Define phrases and proximity. | 2 |

PART – B (50 Marks)

- | | |
|---|----|
| 11 Explain the Taxonomy of Information Retrieval Models with diagram. | 10 |
| 12 What are reference collections? Explain about CACM and ISI collections. | 10 |
| 13 a) What is Keyword-based querying? Explain in detail about single-word queries and context queries. | 5 |
| b) What are structural queries? Explain in detail about fixed structure and hypertext structure. | 5 |
| 14 What is Multimedia? What are the file formats and standard languages for multimedia applications? Explain briefly. | 10 |
| 15 What is Document Preprocessing? Explain the Text Operations in the Document Preprocessing. | 10 |
| 16 a) What are the steps involved in query processing in distributed IR? | 5 |
| b) Explain about structural queries. | 5 |
| 17 Write short notes on the following: | |
| a) Collection partitioning | 5 |
| b) Source selection | 3 |
| c) Web issues. | 2 |

FACULTY OF ENGINEERING**B.E. 4/4 (CSE) II – Semester (Main) Examination, May / June 2017****Subject: Advanced Databases (Elective – III)****Time: 3 Hours****Max.Marks: 75****Note: Answer all questions from Part A and any five questions from Part B.****PART – A (25 Marks)**

- 1 What is Directory Systems? (3)
- 2 Explain FLWOR Expression in XML. (3)
- 3 What is Commit Protocol? (2)
- 4 Define the ODMG ODL. (2)
- 5 Give the difference between XML DTD and XML schema? (3)
- 6 What are N-ray Associations? (2)
- 7 What are Integrity constraints in data definition Languages? (3)
- 8 What is Semi-Join? (2)
- 9 What are the two most common forms of Data Positioning in a Parallel database Environment? (3)
- 10 Define call-level-interface. (2)

PART – B (5x10 = 50 Marks)

- 11 a) How Attribute-Defined Specialization Represented in E-R Model? Explain with a Diagram (5)
b) How Multiple Inheritances is Represented in E-R Model? Explain with a Diagram. (5)
- 12 Explain the Following Associations in UML. (10)
a) Navigability Associations
b) Aggregation Associations
c) Composition Associations.
- 13 How Inserting, Deleting & Updating data takes place in data manipulation Language. Explain with SQL Script. (10)
- 14 a) Briefly Discuss the major Components of ODMG Standard. (5)
b) Explain the usage of Table hierarchies in SQL Standard. (5)
- 15 Give the differences between Intra & Inter-Query Parallelism. Also write about Fragmentation Transparency, Replication Transparency, & Location Transparency. (10)
- 16 Explain Spatial & Temporal Data & about Mobility. (10)
- 17 What are the reasons for building distributed database systems. (10)
