FACULTY OF ENGINEERING
B. E. (Civil) VI – Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Design of Hydraulic Structures
Professional Elective – I

Time: 3 hours   Max. Marks: 70

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions.   **(10 x 2 = 20 Marks)**

1. What do you understand by Reservoir Sedimentation?
2. List out various forces acting on gravity dam.
3. Classify Dams according to their storage and use.
4. Write about Zoned embankment dams.
5. The compressive strength of a concrete dam is 2800 kN/m² and G = 2.3. Compute maximum limiting height of low height dam?
6. List out different types of gates adopted for Spillways.
7. Define Hydraulic Jump.
8. State the functions of Flow net.
9. What is canal escape? List different types of canal escapes.
10. What are the different types of cross drainage works that are necessary on a canal alignment?

PART – B

Note: Answer any five questions.   **(5 x 10 = 50 Marks)**

11 (a) Discuss in detail different types of dams along with advantages and disadvantages of each.
   (b) Discuss in detail about the causes of failure of a Gravity dam.

12 (a) Explain the Practical profile of a gravity dam.
   (b) Define Spillway. Discuss in detail about Ogee spillway with neat sketch.

13 Design a vertical drop weir using Bligh's theory and check the thickness of floor of flood Discharge = 3000 m³/s, HFL before constriction = 200 mts. Full supply level = 100 m, Bed level of river = 193 mts, Lareys' silt factor = 1 coefficient of crap=10, minimum downstream water level = 193 m, Afflux = 1 mt.

14 (a) What are Energy dissipators. List out their functions.
   (b) Write about necessity and functioning of Head regulator and Cross regulator in a canal project.

15 (a) Calculate the discharge over an Ogee spillway with coefficient of discharge, C = 2.4 at a head of 2.5m. The length of the spillway is 120m, the spillway crust is 10m above the bottom of the approach channel having the same width as that of spillway for the following criterion (a) By neglecting the approach velocity and (b) By considering approach velocity.
   (b) Briefly explain Phreatic line in Earth Dam.

..2

16 (a) Differentiate between Aqueduct and Syphon Aqueduct.

(b) Write the design procedure of Trapezoidal notch fall.

17 Write short notes on any two of the following:

(a) Types of filters

(b) Syphon Spillway

(c) Uplift Pressure in Gravity Dam.

* * *

FACULTY OF ENGINEERING

BE (Civil) VI - Semester (AICTE) (Backlog) Examination, March / April 2022
SUBJECT: Structural Analysis - II
Professional Elective - I

Time: 3 Hours   **Max. Marks: 70**

(Missing data, if any may be suitably assumed)

PART – A

Note: **Answer all questions**.   **(10 x 2 = 20 Marks)**

1. State any four properties of a flexibility matrix.

2. Define Kinematic Indeterminacy, find the same for Fixed beam.

3. Explain member stiffness and joint stiffness.

4. What is meant by lack of fit in a truss?

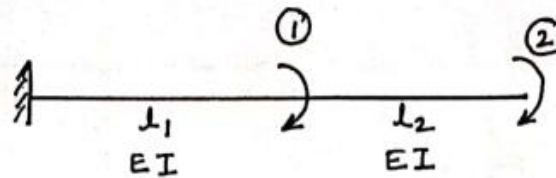5. Develop the stiffness matrix for the beam shown in figure 1

figure 1.

6. Why do we perform approximate analysis of a framed structure?

7. State the advantages of direct element method.

8. What is the assumption made in the substitute frame analysis?

9. Explain variational methods in FEM

10. What are the software's used in Finite element techniques?

PART - B

Note: Answers any five questions.   **(5 x 10 = 50 Marks)**

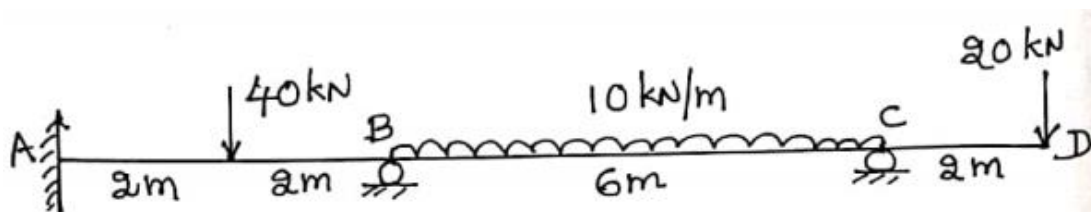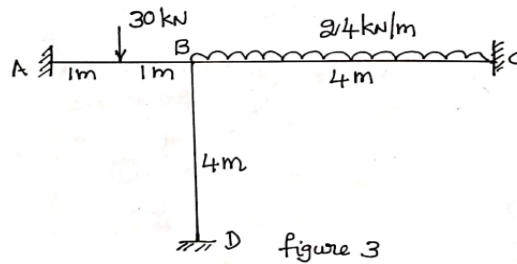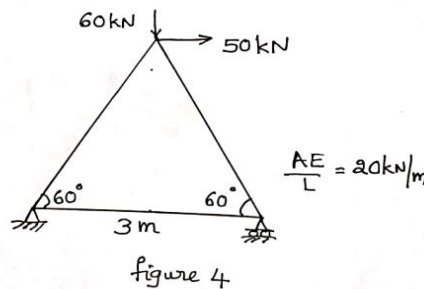11. Analyse the continuous beam shown in Fig. 2 by flexibility method.

figure . 2
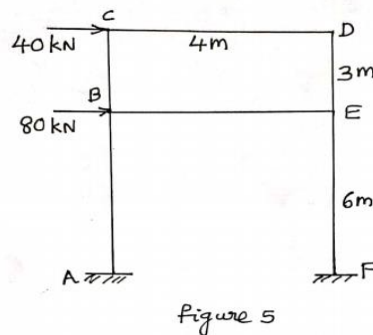
12. Analyse the frame shown in figure 3 by stiffness method.

figure 3

13. Obtain Stiffness matrix for the truss shown in figure 4 using Direct element method.


figure 4

14. Using Cantilever method of analysis, analyse and draw BMD for the frame shown in figure 5

figure 5

15. A step bar is subjected to axial load of 200kN at the plane of change of cross section and material as shown in figure 6. Find nodal displacement and stresses in each material.
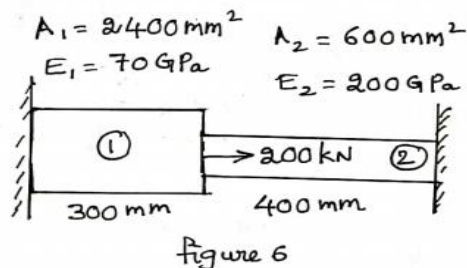
figure 6

16. Analyse the continuous beam as shown in figure 7 by flexibility or stiffness method.

figure 7
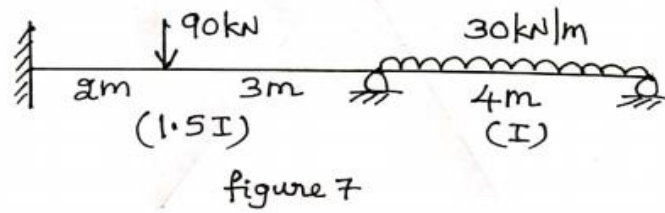
17. Write short notes any THREE of the following:
   a) Static indeterminacy with examples.
   b) Advantages of matrix method of structural analysis.
   c) Assumptions involved in the substitute frame method of approximate analysis for building frames.
   d) Rayleigh-Ritz Method.

****

FACULTY OF ENGINEERING
B. E. (Civil) VI – Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Foundation Engineering
Professional Elective – I

Time: 3 Hours   **Max. Marks: 70**

(Missing data, if any may be suitably assumed)

PART – A

Note: **Answer all questions**.   **(10 x 2 = 20 Marks)**

1. Define Pressure bulb. How it is related to significant depth.

2. What are the assumptions of Boussinesq's theory?

3. In a given case, the SBC was 280kpa and safe pressure based on allowable settlement was 150kpa. Determine allowable bearing capacity.

4. Differentiate between general shear failure and local shear failure.

5. What do you understand by Pile groups?

6. Write about Pneumatic caisson.

7. The capacity of friction pile is 100 kN. Estimate the capacity if its diameter is doubled and length is halved. Consider all other parameters remain unchanged.

8. Classify Piles on Mode of transfer of loads?

9. List out applications of Geosynthetics.

10. Mention importance of Geotechnical investigations.

PART - B

Note: Answers any five questions.   **(5 x 10 = 50 Marks)**

11 (a) A Rectangular Area of 3.0m x 5.0 m carries a UDL of 100 kN/m2 on the surface. Estimate the vertical stress at a depth of 5m vertically below the Corner of the loaded area.

(b) Bring out the differences between Boussinesq's theory and Westergaard's theory of stress distribution.

12 (a) Determine the ultimate bearing capacity of a strip footing, 1.5m wide with its base at a depth of 1.0m from GL. Resting on sand stratum and if the ground water table is at a depth of 0.50m below the base of the footing. Take $\gamma d =$ 17 kN/m^3, ϕ' = 38, c' = 0, γsat = 20kN/m^3, Nq = 60 and Nγ = 75 (Use Terzaghi's Theory).

(b) Write short notes on Newmark's Influence diagram.

13 (a) Explain the various types and classifications of Piles.

(b) Differentiate between Deep and Shallow foundations.

..2

14 (a) A concrete pile of 30cm diameter is driven in a medium dense sand of $\phi = 35°$, $\gamma = 21kN/m^3$, $\delta = 30$, $k = 1$, $Nq = 600$, $F = 2.5$. Determine the safe load carrying capacity for a depth of 8m and the water table is at 2m below ground level. Critical depth may be taken as 3.6m.

(b) Write a note on Collection, Transportation and storage of soil samples.

15 (a) Draw the various components of Well foundations with a neat sketch and discuss their functions in detail.

(b) Describe a Pneumatic caisson with the help of a neat sketch and explain the construction procedure.

16 (a) Explain the process of underpinning and discuss the Methods of underpinning.

(b) Describe in detail the dewatering techniques along with merits and demerits of each.

17 Write short notes on any two of the following:

(a) Differential settlements

(b) Negative skin friction

(c) Bore – Log.

* * *

FACULTY OF ENGINEERING
B. E. (Civil) VI – Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Railway and Airport Engineering
Professional Elective – I

Time: 3 Hours   **Max. Marks: 70**

(Missing data, if any may be suitably assumed)

PART – A

Note: **Answer all questions**.   **(10 x 2 = 20 Marks)**

1. Using sleeper density of N+5, determine the number of sleepers required for the construction of a 1800 m B.G. track.
2. What is creep of rails.
3. What are functions of Ballast.
4. Enumerate the necessities of "Curves"?
5. What are the requirements of good Rail?
6. Write the requirements for selecting a good Alignment.
7. What is necessity of Points and Crossings.
8. Explain the importance of master planning.
9. What is meant by zoning laws.
10. Differentiate between runway and taxiway.

PART - B

Note: Answers any five questions.   **(5 x 10 = 50 Marks)**

11 (a) What are the different types of sleepers used on Indian Railways track? What are the requirements of a good sleeper?
    (b) With a neat sketch explain the structure of Permanent way? Also write the functions of each component?

12 (a) Describe the necessity of Points and Crossings? Also draw Right hand turnout with components.
    (b) Define signaling and draw various types of signals used in Indian Railways.

13 Find out the length of transition curve for a BG curve of 5° having a cant of 15 cm. Max. permissible speed on the curve is 75kmph and allowable cant deficiency is 80 mm.

14 Calculate the super elevation and max. permissible speed for a 3° BG transitioned curve on a high-speed route with a max. sanctioned speed of 120 kmph. The speed for calculating the equilibrium super elevation as designed by the chief engineer is 90 kmph and booked speed of goods train is 60 kmph.

15 (a) Describe briefly what do you understand from the master plan of an airport.
    (b) Explain the procedure of determining the actual runway length required length required at a particular site.

16 (a) Discuss in brief the various factors to be considered in the design of airfield pavements.
    (b) Draw a neat cross-section of a main taxiway for an international airport.

17 Write short notes on any two of the following: (a) Wind rose diagram
    (b) Cant Deficiency   (c) Airport Drainage.

* * *

FACULTY OF ENGINEERING
B.E. (EEE) VI - Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Utilization of Electrical Energy

Time: 3 Hours   **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)
PART – A

Note: Answer all questions.   **(10 x 2 = 20 Marks)**

1. What properties are considered for selecting material for heating material?
2. What are the advantages of Dynamo?
3. Explain the two ways of how glare is produced and how it can be avoided?
4. Differentiate between Ordinary Switch and Limit Switch? What are their applications?
5. What are the desirable characteristics of Traction Motors?
6. Define Luminous Flux and Luminous Intensity?
7. What are the applications of Lead Acid Battery?
8. How does a overload relay function to trip.
9. What is the relationship between Lux & Lumens/m^2?
10. Compare AC & DC Welding?

PART – B

Note: Answer any five questions.   **(5 x 10 = 50 Marks)**

11. (i). Explain Ajax Watt type induction furnace in detail with neat schematic diagram?
    (ii). A 30KW, 3 phase 400V, resistance oven is to employ Nickel-Chrome strip 0.025cm thick for a 3-phase star connected heating elements. If the wire temperature is to be 1100^{0}C and that of charge is to be 700^{0}C, estimate a suitable width of the strip. Assume radiating efficiency of 0.6 and emissivity as 0.9. The specific resistance of the nichrome-alloy is 1.03x10^{-6}Ω-m. State any assumption made?

12. (i). Explain two supply sources of 3-phase induction motor with that control circuit?
    (ii). What do you understand by Push button Control Stations?

13. (i). Explain Inverse Square law and Cosine Law in detail?
    (ii) A room measuring 20m✗15m is to be illuminated by 10 lamps and the average illumination is to be 75 lux. Determine the MSCP of each lamp if the utilization and depreciation factors are 0.5 and 0.8 respectively.

14. Explain Mechanics of Train movement and Tractive effort in detail?

15. (i). State and explain trapezoidal curves in electric traction?
    (ii). Compare the performance of D.C Series motor with A.C Series motor?

16. Discuss in detail the construction, maintenance and advantages of SMF Batteries?
    (i). Explain the Systems of Train Lighting?
    (ii). What do you mean by Single battery system in Train Lighting?

**

FACULTY OF ENGINEERING
B.E. (EIE) VI - Semester (AICTE) (Backlog) Examination, March / April 2022
Subject: Process Control

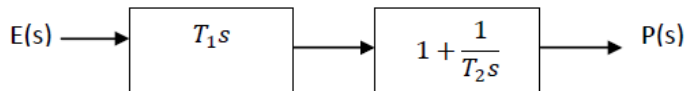**Time: 3 Hours**   **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)
PART – A

Note: Answer all questions.   **(10 x 2 = 20 Marks)**

1. What are the elements of process dynamics?
2. What is Interacting system?
3. Explain the block diagram of an ideal Automatic controller
4. Identify the control action for controller represented as shown in figure

5. What are the effects of Proportional controller on the single time constant process?
6. Define Stabilization time
7. What is the necessity of an Actuator?
8. Mention different types of control valves
9. Explain the role of Timers in PLC programming
10. Draw the ladder diagram for OR gate

PART – B

Note: Answer any five questions.   **(5 x 10 = 50 Marks)**

11. (a) Describe dead time process with all relevant analytical expressions
    (b) With a neat diagram, Explain the flow control system indicating all the elements of process control loop

12. Explain P+D controller operation. Write all the relevant equations and graphical interpretations and also obtain OP-AMP Realization

13. Find the response of P+I controller with $K_p = 5, K_I = 1s^{-1}, P_I(0) = 20\%$ for the error as shown in figure.
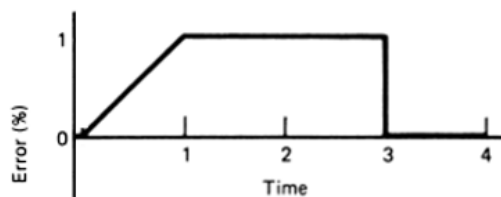
14. Explain clearly about open-loop transient response method

15. (a) Explain control valve sizing and selection
    (b) Explain in detail about characteristics of control valve

16. (a) Describe various parts of PLC with a block diagram
    (b) What is the Ladder diagram? Explain elements of ladder diagram

17. Write short notes on
    (a) Gibb's Phase rule
    (b) ON-OFF controller
    (c) Solenoid valve

**

FACULTY OF ENGINEERING
B.E. (ECE) VI - Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Data Communications and Computer Networking

Time: 3 Hours   **Max. Marks: 70**
(Missing data, if any, may be suitably assumed)
PART – A
Note: Answer all questions.   **(10 x 2 = 20 Marks)**

1 What are the network topologies?
2 Describe a data communication network in brief.
3 Define the term "bitrate".
4 Find the CRC code for P=1100011 and M=11100011 (P-Divisor and M-Message).
5 Distinguish between TCP and UDP.
6 List the design goals of the Network layer.
7 What do you mean by framing?
8 What is the ATM AAL layer protocol?
9 Define important aspect of security.
10 Differentiate between virtual circuit and datagram subnets.

PART – B
Note: Answer any five questions.   **(5 x 10 = 50 Marks)**

11 (a) Explain the OSI modal in detail.
    (b) Describe the X.25 protocol.

12 (a) Explain the architecture of IEEE 802.3 with its frame structure.
    (b) Compare circuit Switching and Packet switching.

13 (a) Explain symmetric key algorithm.
    (b) What is IPV6? Explain its advantages over IPV4, explain frame format.

14 (a) Explain the elements of Transport protocol.
    (b) Explain authentication protocol in detail.

15 Write a short note on any two of the following:
    (a) Bluetooth   (b) HDLC   (c) WWW.

16 (a) Describe ATM networks.
    (b) Explain the architecture of DNS.

17 (a) With the help of block diagram explain the basic idea of Cryptography.
    (b) Explain distance vector routing algorithm.

****

FACULTY OF ENGINEERING

B.E (MECH/PROD) VI Semester (AICTE) (Backlog) Examination, March / April 2022
Subject: Finite Element Analysis

Time: 3 hours   **Max Marks: 70**

(Missing data, if any, may be suitably assumed)

## PART-A

Note: Answer all questions   **(10 x 2 = 20 Marks)**

1. List the steps used in FE Analysis.
2. Determine the shape functions for a four node quadrilateral element.
3. In a plane stress problem σ_x=100MPa, ϵ_y=0.001, E=200GPa and v=0.25 .Calculate ϵ_z.
4. Mention software used for Analysis.
5. Write the stiffness matrix of Frame.
6. Determine the Jacobian matrix at a point for a linear triangle element for isoparametric element.
7. What is plane stress? Write D Matrix.
8. What are Convergence requirements? Explain.
9. State the boundary condition in case of one dimensional heat transfer in fin
10. State the properties of Eigen vectors.

PART – B

Note: Answer any five questions   **(5 x 10 = 50 Marks)**

11. Find the nodal displacements and stresses for the stepped bar shown in the figure, E=200GPa,P=50 KN. Given point load is at a distance of 500mm from the fixed end and Area A as 500 mm^2 can be taken.
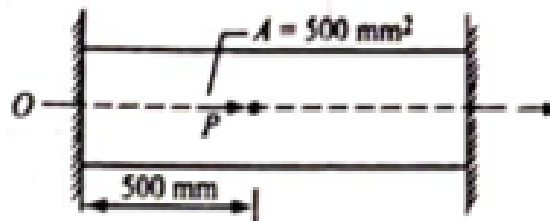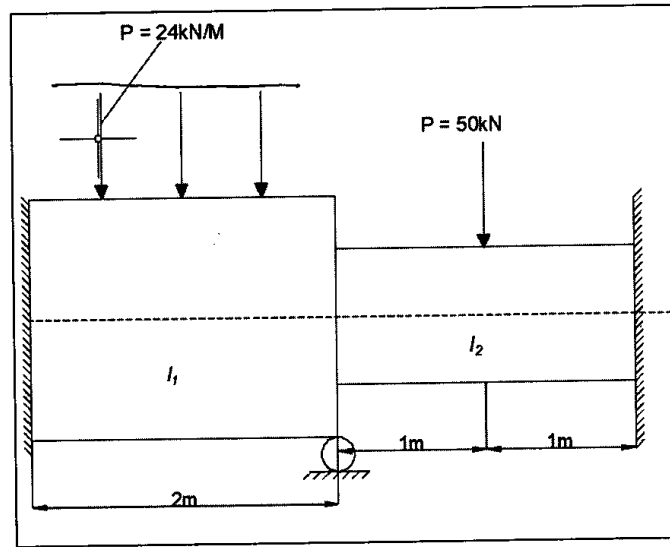

12. Calculate Nodal displacement and Element stresses for the truss shown in the figure.E=70GPa.Cross Sectional area A= 2cm^2 for all truss members. Load P=50 KN is acting at an angle of 30^0.
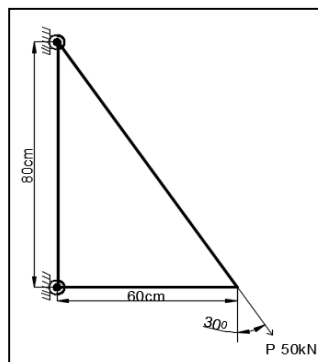
13. Determine the deflection and slope under the Loads for the beam shown in figure.

14. Find the nodal temperature in a composite wall shown in the fig below. The wall is maintained at 100^0C at the left face and convection mode of heat transfer occurs between the right face and existing fluid thermal conduction $K_1 = 0.06W/cm^0C$, $K_2 = 0.2$ W/cm^0C .Convection coefficient of heat transfer between walls and fluid h=0.1 $W/cm^{20}C$ and $\Phi_f = 25^0C$, Area = 1 cm^2 perpendicular to the direction of heat flow.
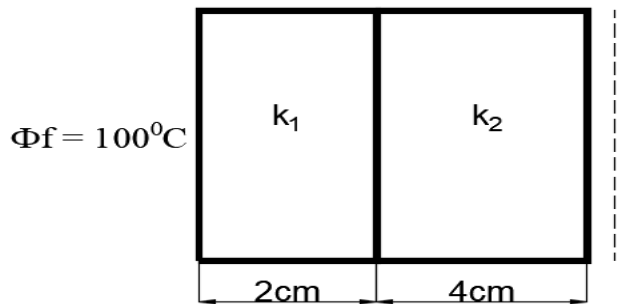
15. Formulate the material property matrix [D] and load vector for the triangle element shown in the figure Using Plane strain condition.
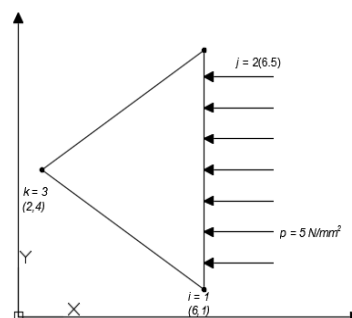
16. A four node quadrilateral is shown in the figure. The coordinates of each node are given in cm indicated in figure .The element displacement vector is given as

4 (5,16)   3 (12,18)

1 (3,8)   2 (10,5)
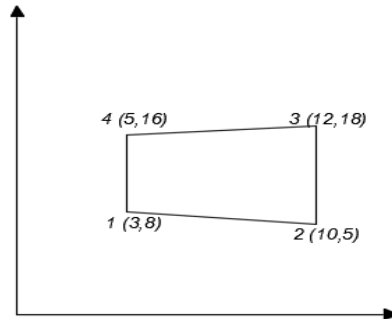
{q}= [0   0   0.20   0   0.15   0.10   0   0.05]^T. Find

i) The x,y coordinates of a point P whose location are given by ξ = 0.5 and η=0.5

ii) The u,v displacement of point P

iii) Jacobian [J] at ξ=η=1/2.

17. Find the approximate first two natural frequencies of simply supported beam using one Element.

*****

FACULTY OF ENGINEERING
BE (AE) VI - Semester (AICTE) (Backlog) Examination, March / April 2022
Subject: Production Technology

Time: 3 Hours   Max. Marks: 70
(Missing data, if any, may be suitably assumed)
PART – A
Note: Answer all questions.   **(10 x 2 = 20 Marks)**

1 What are expendable patterns and why they are used?
2 Describe repair methods used for casting.
3 Write short note on explosive welding.
4 What is soldering process?
5 What is angle of bite? What is value of bite angle for various materials in rolling operations?
6 Write any three differences between forward and backward hot extrusion process.
7 What are the standard angles of cutting tools? Describe them.
8 How does the rake angle affect the life of the cutting tool?
9 Write a short note on mandrels used as a lathe accessory.
10 Write any three differences between honing and lapping.

PART – B
Note: Answer any five questions.   **(5 x 10 = 50 Marks)**

11 (a) Explain the working principle of shell mould casting, hot chamber and cold chamber die casting process.
   (b) What are the common allowances provided on patterns? Why and how they are provided? Give suitable examples.
12 (a) Write difference between Arc welding and forge welding.
   (b) What are the various methods of brazing? Describe them in brief.
13 (a) What are the main characteristics of hot working as compared with cold working processes?
   (b) Briefly explain the working principle of injection molding process.
14 (a) How is metal removed in metal cutting? Explain the process by giving any simple model for metal removal.
   (b) Draw Merchant's Circle Diagram and derive expressions to show the relationship among the different forces acting on a cutting tool and different parameters involved in metal cutting.
15 (a) Write any four operations that can be performed on a lathe machine with diagrams.
   (b) Explain briefly the lapping process. Give the examples of lapping work.
16 (a) What are the advantages and limitations of Shell Molding and pressure die casting process?
   (b) With the help of a neat sketch of welding torch explain the oxy acetylene process of welding.
17 (a) What are the various forms of wear found in cutting tools? Show with a neat sketch.
   (b) What is the difference between face milling and end milling? Explain.

*****

FACULTY OF ENGINEERING
B.E. (CSE) VI - Semester (AICTE) (Backlog) Examination, March / April 2022
Subject: Design & Analysis of Algorithms

Time: 3 hours   **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)
PART – A

Note: Answer all questions   **(10 x 2 = 20 Marks)**

1 What do you analyze in an algorithm? What is the basis of analysis?
2 Derive the time worst case complexity of merge sort.
3 Write the difference between divide and conquer and greedy method.
4 Explain feasible solution, optimal solution and objective functions with example.
5 Derive the best complexity of Merge Sort.
6 Write about principle of optimality in shortest path problem.
7 What is pruning in backtracking?
8 What is Depth First Search? Give an example.
9 Distinguish between deterministic and non-deterministic algorithms.
10 Write model in parallel computing.

PART – B

Note: Answer any five questions   **(5 x 10 = 50 Marks)**

11 a) Differentiate performance measurement and performance estimation of Algorithms.
   b) Explain UNION and FIND, Write algorithms and examples.

12 a) Discuss how quick sort works to sort an array and trace the dataset 65, 70, 75, 80, 85 60, 55, 50 45. Draw the trees of recursive calls made.
   b) Write in detail with an example the Dijkstra's algorithm for shortest path in a graph.

13 a) Apply dynamic programming to obtain optimal binary search tree for the identifier set (a_1, a_2, a_3, a_4)=(cin, for, int, while) with (p_1, p_2, p_3, p_4)=(1, 4, 2, 1), $(q_0, q_1, q_2, q_3, q_4)$=(4, 2, 4, 1, 1) and also write algorithm for its construction.
   b) Write the algorithm for general interactive backtracking method and explain various factors that define the efficiency of backtracking.

14 a) Explain Directed Acyclic Graph using example.
   b) Write in detail about Search Engine Indexing.

15 a) Explain P, NP, NP-Complete and NP-Hard Problems with two examples for each class of problems.
   b) Construct a system with multiple devices connected parallel in three stages. The costs of the devices are 25, 10 and 15 respectively. The cost of the system is to be no more than 100. The realiability of each device type is 0.8, 0.7 and 0.4 respectively.

16 a) Write the backtracking algorithm for the sum of subsets problem using the state space tree corresponding to m=35, w=(20,18,15,12,10,7,5).

   b) How to insert more number of jobs in feasible solution set J={} to maximize the profit using greedy method? Explain algorithm.

17 a) What are greedy algorithms? What are their characteristics? Explain any greedy algorithm with example.

   b) Give the formulation of modified knapsack problem using branch and bound and find the optimal solution using least cost branch and bound with n=4, m=15, (p1…p4)=(15 15 17 23), (w1…w4)=(3 5 6 9).

*****

FACULTY OF ENGINEERING

B.E. (IT) VI - Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Data Mining
Professional Elective - II

Time: 3 Hours   **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)
PART – A

Note: Answer all questions.   **(10 x 2 = 20 Marks)**

1. What is data cleaning?
2. List the various forms of data preprocessing.
3. Define confidence of an association rule.
4. Give an example for maximal frequent item sets.
5. Define gain ratio of an attribute.
6. Differentiate between eager learners and lazy learners.
7. What are the objectives of clustering?
8. What is an outlier?
9. List the Complex data types for Data Mining.
10. Define text mining.

PART – B

Note: Answer any five questions.   **(5 x 10 = 50 Marks)**

11. Describe computation of the following measures for similarity/ dissimilarity among data:
    (a) Cosine measure
    (b) Euclidean distance
    (c) Manhattan measure.

12. (a) How are association rules generated form frequent item sets? Illustrate.
    (b) Discuss the limitations of apriori algorithm.

13. Explain Decision tree induction algorithm for classification. Discuss the usage of information gain in this.

14. What is the main objective of clustering? Give the categorization of clustering approaches. Briefly discuss them.

15. Discuss about the various Data Mining applications

16. What are typical requirements of clustering in data mining? Explain.

17. Write short notes on

    (a) Statistical Data Mining

    (b) Foundations of Data Mining

    (c) Visual and audio Data Mining

**

FACULTY OF ENGINEERING
B.E. (IT) VI - Semester (AICTE) (Backlog) Examination, March / April 2022
Subject: Compiler Construction
Professional Elective –II

Time: 3 Hours   **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)
PART – A
Note: Answer all questions.   **(10 x 2 = 20 Marks)**

1. Give general format of Lex program.
2. Differentiate between pass and phase.
3. What do you mean by predictive parsing?
4. What is left recursion and right recursion in LL1 grammar?
5. What do you mean by an ambiguous grammar?
6. Write the three address code and quadruples for A=b*c+b*c/d
7. Define dependency graph and DAG.
8. What is Heap management?
9. What is an activation record?
10. What is basic block? How is it recognized?

PART – B
Note: Answer any five questions.   **(5 x 10 = 50 Marks)**

11. Explain major data structures in compilers.

12. a) Explain issues of compiler structures.

   b) Write about specification of tokens.

13. a) Explain about bootstrapping and porting in detail.

   b) Explain algorithm for recursive decent parsing.

14. Consider the grammar S→ CC   C→ aC/d perform Canonical parsing on the given grammar and parse the input string aadd.

15. Write notes on

   a) Type checking.

   b) Type declaration.

16. a) Discuss about various storage allocation strategies.

   b) Explain about stack based runtime environment.

17. a) What is code generation for function and procedure calls? Explain.

   b) Explain Peephole optimization.

**

FACULTY OF ENGINEERING
B.E. (IT) VI - Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Distributed Systems
Professional Elective - II

Time: 3 Hours   **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)
PART – A

Note: Answer all questions.   **(10 x 2 = 20 Marks)**

1. Define Distributed System.

2. Mention the challenges in Distributed System.

3. What is meant by Client Server Communication?

4. What are threads in distributed systems?

5. What Is Name Space?

6. Define Clock synchronization.

7. What are the uses of replication?

8. What are the types of failures?

9. What is distributed multimedia system?

10. What is the need of virtualization in distributed systems?

PART – B

Note: Answer any five questions.   **(5 x 10 = 50 Marks)**

11. (a) Discuss in brief about architectural models of distributed systems.
    (b) Explain the layered architecture for distributed systems?

12. (a) Explain the concept of code migration.
    (b) Discuss Remote Procedure Call concept, Thereby explain its basic operation.

13. (a) Explain in detail structured naming concept.
    (b) What are Election algorithms? Explain about bully algorithm?

14. (a) Discuss briefly about the Data centric consistency models.
    (b) Discuss in brief about Reliable group communications.

15. (a) Explain about SUN network file system.
    (b) Discuss briefly the characteristics of multimedia data.

16. (a) Explain the concept of Middleware, Thereby list its Features.
    (b) Write about consistency protocols in distributed systems.

17. Write short notes on
    (a) Bit Torrent
    (b) Logical clocks

**