FACULTY OF ENGINEERING
B.E. 4/4 (Civil) I Semester (Backlog) Examination, December 2019

Subject : Water Resources Engineering - II

Time: 3 Hours   **Max Marks: 75**

Note: Answer all questions from Part –A & any five questions from Part-B

PART – A (25 Marks)

1. Define surcharge storage and dead storage. (2)
2. Define flood routing. (3)
3. Distinguish clearly between rigid and non - rigid dams. (2)
4. With the help of a neat sketch show all the dimensions of practical profile of gravity dam. (3)
5. Define phreatic line. (2)
6. State the various measures to control seepage through earth dams and their foundations. (3)
7. Differentiate between free over fall and over flow spillway. (2)
8. Compute the discharge over an ogee spillway with coefficient of discharge equal to 2.4 at a head of 2 m. The length of the spillway is 100 m. (3)
9. Differentiate between storage plants and pumped storage plants. (2)
10. Define load factor and utilisation factor. (3)

PART – B (50 Marks)

11. a) Describe in brief various investigations required for reservoir planning. (5)
    b) What do you understand by mass inflow curve and how it is prepared? (5)

12. a) What are the different ways by which a concrete gravity dam may fail, and how will you ensure its safety against each type of failure? (5)
    b) A gravity dam 30m high is trapezoidal section with top width of 3m and bottom width of 20m. the face exposed to water has a batter of 1 in 20. Test the stability of dam for reservoir full condition by considering self weight, water pressure and uplift only, take G = 2.24, specific weight of water as 1000 kg (f) / cubic.m . Take permissible shear stress at joint as 14 kg (f) / Sq. cm. Assume no free board. (5)

13. a) What is meant by pore water pressure and what is its significance in the design of earthen dams? (4)
    b) Enumerate and explain by neat sketches the different ways by which the earthen dams may fail. Also suggest suitable precautions that should be under taken to avoid each type of failure. (6)

14. Discuss the various types of energy dissipation devices used below the spillways in relation to the position of tail water curve and jump height curve. (10)

15. a) State in detail the functions of the following in a hydroelectric installation. (6)
       i) Surge tank   ii) Intake structure and   iii) Draft tube
    b) Write a brief note on use and types of turbines in a hydroelectric scheme. (4)

16. a) State the various methods of construction adopted for the earthen dams. (5)
    b) A run-off river plant is installed on a river having a minimum flow of 15.75 cumec. If the plant is used as a peak load plant operating only for 6 hours a day, determine the firm capacity of the plant a) with pondage b) without pondage, but allowing 10% of water to be lost in evaporation and other losses. Head at plant is 20 m and the plant efficiency may be assumed as 80%. (5)

17. Write short notes on the following:
    a) Merits and demerits of various types of dams. (5)
    b) Reservoir sediment control. (5)

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FACULTY OF ENGINEERING
B.E. 4/4 (Inst.) I – Semester (Backlog) Examination, December 2019

Subject: Opto – Electronic Instrumentation

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. Mention characteristics of Q-Switching.
2. Give the properties of Laser generation.
3. Explain about beam modulation Telemetry.
4. Mention different biomedical applications of Laser.
5. What are the advantages of step index fibres and graded index fibres?
6. What are the major losses in optical fibre?
7. Give classification of fibre optic sensors.
8. Classify optical fibre.
9. Mention the special features of LCD.
10. Calculate the efficiency of a PIN diode if the responsivity is 0.58 A/W at 900 nm.

PART – B (50 Marks)

11. (a) With Energy level diagrams explain solid, liquid & gas lasers.   (5)
    (b) Explain with suitable diagram the working & construction features of Argon lasers.   (5)

12. (a) With its constructional diagram explain different modes of operation of Laser Strain gauges.   (5)
    (b) Explain with neat diagram pulse echo technique.   (5)

13. (a) Explain Holographic Technique of reconstructing a 2-D image.   (5)
    (b) What is procedure of fibre fabrication and manufacturing? Explain any one fabrication technique in detail with suitable diagram.   (5)

14. (a) With necessary diagram explain how fibre optic sensors are classified.   (5)
    (b) Explain how pressure is measured using optical fibres.   (5)

15. (a) Describe the working and operation of Opto diodes. How they are useful in an electrical circuit.   (5)
    (b) Write short notes on Photocouplers and mention the applications.   (5)

16. (a) Explain measurement of voltage and fluid level optical fibres.   (5)
    (b) What are major applications of LASERS in medicine?   (5)

17. Explain the following with relevant diagrams.   (10)
    (a) LED.
    (b) Solar cells.

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FACULTY OF ENGINEERING
B.E. 4/4 (ECE) I Semester (Backlog) Examination, December 2019

Subject: Industrial Administration and Financial Management

Time: 3 Hours   Max. Marks: 75

Note: Answer all questions from PART - A and answer any five questions from PART – B

PART – A (10 x 2.5 = 25 Marks)

1 Define the term Management and state its functions.

2 List out the merits and demerits of Product Layout.

3 List out the types of ratings used in time study and describe any one of them.

4 What do you understand by standard time? How you will calculate it?

5 State the types & objectives of Inspection.

6 What are the principles of SQC?

7 Differentiate between CPM and PERT.

8 What are the duties of purchase manager?

9 State the assumptions in break even analysis.

10 Explain nature of Financial Management.

PART – B (5 x 10 = 50 Marks)

11. Define the term plant layout. What factors influence the design of the layout? State the different types of layout and explain any one with the help of sketch, stating its advantages and limitations.   (10)

12. (a) Explain briefly wage payment plan.   (5)
    (b) An operator works for eight hours a day. A work sampling study shows that he was idle 15% of the day and that he worked for the remaining day at an average performance index of 110%. The record shows that he turned out 420 pieces of acceptable quality during the day. Find the standard time per piece. Assume 15% allowances.   (5)

13. (a) Explain how control charts are helpful to the process industry and state various control limits for both variables and attributes.   (5)
    (b) Explain the operating characteristics curve used in Inspection.   (5)

14. (a) Derive the simple EOQ and state their assumptions.   (5)
    (b) Find the minimum value of $Z = 4x_1 + 2x_2$ by graphical method subject to the constraints:
       $x_1 + 2x_2$ 2
       $3x_1 + x_2$ 3
       $4x_1 + 3x_2$ 6 and
        x_1, x_2 0   (5)

15. The following table gives a list of activities and their duration. (10)

Activity	1-2	2-5	1-3	1-4	3-5	4-6	5-6
Duration in days	8	10	4	6	6	8	4

You required to draw the network diagram:
1) Find EST, EFT, LST, LFT and float.
2) Identify critical path.
3) Calculate project completion time.

16. (a) A machine is brought for Rs.1, 00,000/- and is estimated to have a life
of 8 years and scrap value of Rs. 20,000/- at the end of life. Calculate (5)
1) Annual depreciation rate.
2) Total depreciation up to the end of 5 years.
3) Book value at the end of 5 years. Assume interest rate of 5%. Use straight
line method for calculating depreciation.
(b) What is meant by depreciation state the causes of it and mention any four
methods of calculating depreciation fund. (5)

17. Write short notes on (10)
a) Financial leverage.
b) Techniques of capital budgeting and methods.
c) Different types of Indirect cost with examples.

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FACULTY OF ENGINEERING

B.E. 4/4 (M/P) I-Semester (Backlog) Examination, December 2019

Subject : Finite Element Analysis

**Time : 3 Hours**   **Max. Marks: 75**

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

Part-A (10x2$^{1/2}$ = 25 Marks)

1. Explain Galerkin's approach applied to FE formulation.

2. Write the differential operator for axial, truss, and beam elements. If the nodal displacements in quadratic line element is $q_1 = 0.05$ mm. $q_2 = 0.15$ mm, $q_3 = 0.25$mm, then find the element displacement $\varsigma = 0.05$.

3. Write the stiffness matrix of a frame element (A line element with nodes, each node 3 dof of 2 translations in x and y and rotation about z axis)

4. Obtain the elasticity matrix 'D' for a plane strain situation in terms of Young Modulus 'E' and Poisson's ratio 'ν'

5. What is a Jacobian Matrix

6. Determine the shape functions at a point P inside the triangular element shown in Figure1.

Fig. 1
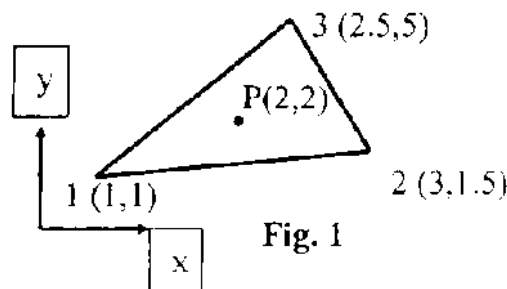
7. Explain the difference between consistant mass matrix and lumped mass matrix

8. Determine the capacitance matrix for a rod of length 'L' Area 'A' and density 'P' and specific heat 'C'.

9. Find the twist at node2 if node 1 twist if 0.05 of torsion element of line with two nodes of a circular shaft of dia -0.01m, Length 2m, and rigidity modulus 80GPa subjected to a torque of 100 N-M.

10. What do you mean by convergence? Explain.

PART- B (5x10=50 Marks)

11. a) Define Potential Energy Approach and Virtual Work Principle used in FEM.
    b) Write the state of stress and strain at a point for plane stress, plane strain and axisymmetric problem.
    c) Differentiate between elimination and penalty approach for treating the boundary conditions. What are multi point constraints and explain their use in FEA solutions

…2

12 For the plane truss shown in Fig2… Determine
  a) The displacement at node 3.
  b) The strain and stresses in elements 1 & 2
  c) The reaction forces. Take A=10^{-8} m^2, E=200 GPa, The thermal load of Δ T=1000C, Co-efficient of thermal expansion of 1x$10^{-6/0}$C.
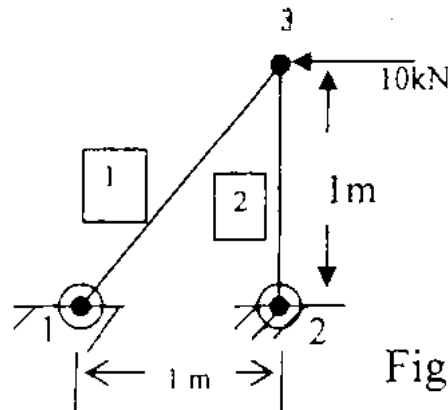

Fig. 2

13 For the bean shown in Fig 3, Determine (i) the equivalent load vector and (ii) the deflection at node2. Take EI=10^6N-m$^{2.}$

10,000 N / m

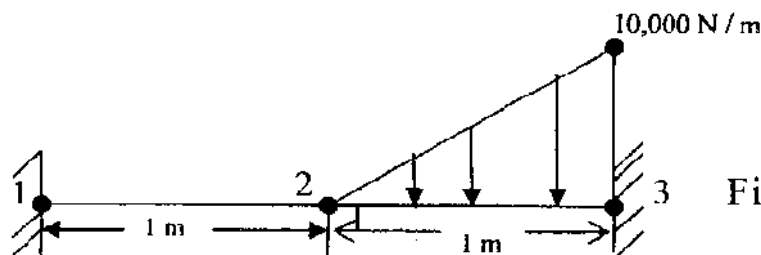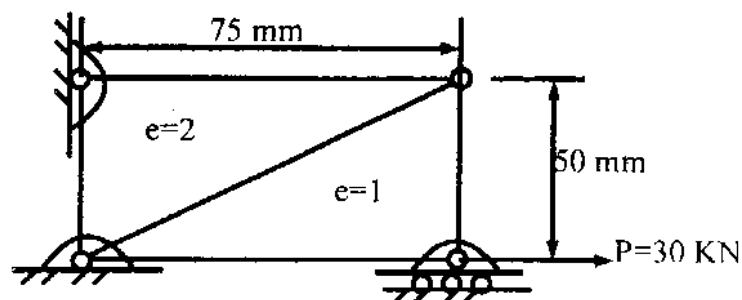Fig. 3

14 Determine the global stiffness matrix for the two dimensional formulation of a plate show in Fig.4, use plane stress condition No.of elements=2, Plate thickness=20mm, E=150 GPa, =0.25

75 mm
e=2
e=1
50 mm
P=30 KN

15 a) Integrate numerically I=$\int_{-1}^{1}\left(3x^2-3x+5\right)dx$ and compare the solution by Gaussian Quadrature if n = 1, $x_1=0.0, w_1=2,$ for n = 2 $x_1=x_2=\pm0.577, w_1=w_2=1.0$.

  b) Determine the shape functions in 4 nodded quadrilateral elements
  c) Write the state of strain and state of stress in axisymmetric elements.

16 For the fin shown in Fig5, determine the temperature distribution due to heat generation, heat flux and convection through out of the rod, Q=4000 W/m^3, and heat flux of 2500 W/m^2 and h=200 W/m2 ^{0}C and T∞=1000 ^{0}C and thermal conductivity = 50 W/m ^{0}C (use two elements)

…3

Fig 5
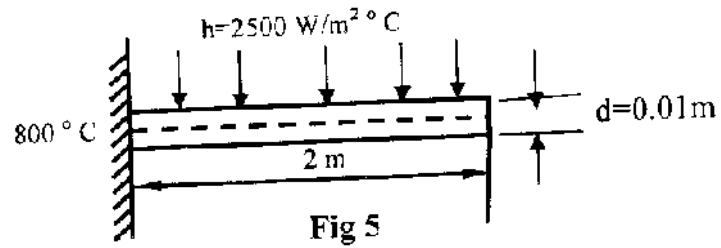
17 a) Use finite element formulation for 3D finite elements

b) Formulate transient het flow in a rod by FE formulation

c) For the stepped bar shown in Fig6, determine the natural frequencies and mode shapes for the bar shown figure6. Take $2A_1=A_2=10^{-8}$ m^2, $p_1 = p_2=1000$ Kg/m3, $E_1=E_2=200$ GPa.

Fig6

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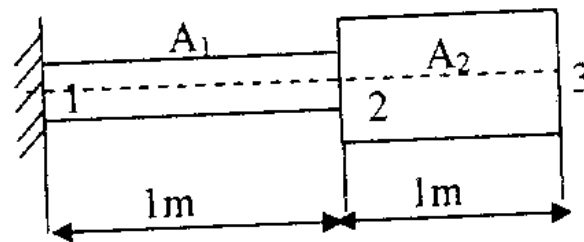
FACULTY OF ENGINEERING

B.E. 4/4 (AE) I – Semester (Backlog) Examination, December 2019

Subject: Vehicle Maintenance

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. Distinguish between preventive and breakdown maintenance.
2. Clearly demarcate overhauling and re-conditioning.
3. What do you mean by servicing as well as tuning of an engine?
4. What is a circlip? How can it be removed and fixed?
5. Define clutch drag and clutch slip.
6. How is the toe-in of wheels checked and adjusted?
7. What are the different tests conducted to check the DC generator?
8. List the basic troubles of the spark plug.
9. Why a thermostat is required in a vehicle cooling system?
10. List the body repair tools.

PART – B (50 Marks)

11. (a) Explain general servicing that are carried out during first servicing of a car.
    (b) Explain scheduled maintenance along with its documents.

12. (a) List various steps to be followed in the tune-up of an engine.
    (b) Explain visual and dimensional inspection of cylinder, piston and connecting rod.

13. (a) What is meant by bleeding of hydraulic brakes? How it is done?
    (b) What are the reasons for gear slipping?

14. (a) Discuss the gearbox troubles and remedies.
    (b) What are the possible clutch troubles and their main causes?

15. Explain the maintenance procedure and the various tests to be conducted on a lead acid battery of a vehicle.

16. What is meant by calibration of fuel injection pump? Explain calibration of FIP and tuning of engine for optimum fuel supply.

17. (a) Briefly explain overhauling of cooling system of a car.
    (b) Briefly explain overhauling of lubrication system of a car.

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FACULTY OF ENGINEERING
B.E. 4/4 (CSE/IT) I Sem. (Backlog) Examination, December 2019

Subject: Information Security

Time: 3 Hours   Max. Marks:75

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

PART – A(25 Marks)

1. List the functions the CISO performs?   2
2. State the roles involved in Risk Management.   2
3. What is the difference between a threat agent and a threat?   3
4. Distinguish between Confidentiality and Integrity with an example.   3
5. What is SSL? Name any two browsers making use of SSL.   2
6. What are Port Scanners?   2
7. Encrypt the text "CHANGE IN PLAN MEET ME AT DAWN" using ceaser cipher.   3
8. What are the three types of VPN technologies defined by VPNC?   3
9. Explain the blue print of security.   2
10. How are risk identified, classified and prioritized.   3

PART – B (50 Marks)

11. a) Write about any five categories of threats with examples.   5
    b) Explain about the role played by ethics in information security.   5

12. Explain the NSTISSC security model and the Top-Down approach to security
    implementation.   10

13. Given a value of Prime numbers p = 3, q = 11. Use RSA algorithm to determine the
    values of public key (N,E) and Private Key (N,D). Write down the steps used in RSA
    algorithm to encrypt and decrypt a message.   10

14. a) What is a threat and what is a vulnerability.   2
    b) How are threats and vulnerabilities are identified during the process of risk
       identification.   8

15. Write a short notes on:
    a) Intrusion Detection system.   5
    b) Firewalls   5

16. a) Explain about the different types of access controls used in information systems. 5
    b) List and describe four general forms of authentications.   5

17. Write in detail about
    a) Packet sniffers.   5
    b) Anomaly Detection   5

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FACULTY OF ENGINEERING

B. E. (Civil) (CBCS) VII – Semester (Main) Examination, December 2019
Subject: Prestressed Concrete

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

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

PART – A (20 Marks)

1. What is the basic concept of prestressed concerete?

2. Discuss the need for estimating losses of prestress.

3. What are the advantages of prestressed concrete members?

4. Explain the principle of Post-tensionig.

5. A prestressed concrete beam of 8m span is subjected to an udl of 50kN/s. Ig is prestressed with parabolic cable with 2000 kN prestressing force. Find the maximum eccentricity to balance the load.

6. List the advantages of continuous members in prestressed concrete structures.

7. Explain concordant cable profile.

8. What are the Is – specification for the design of shear reinforcement in prestressed concrete members.

9. How do you identify short term and long-term deflection?

10. Write a note on end zone reinforcement in end block.

PART – B (50 Marks)

11. Discuss in detail about pre-tensioning and post-tensioning systems with suitable sketches.

12. A post tensioned cable of beam 10m long is initially tensioned to a stress of 1000 N/mm^2 at one end. If the tendons are curved so that the slope is 1 in 24 at each end with an area of $600mm^2$, calculate the loss of prestress due to friction given the following data:
Coefficient of friction between duct and cable = 0.55,
Friction coefficient for wave effect = 0.0015 per meter.
During anchoring, if there is a slip of 3mm at the jacking end, calculate the final force in the cable and percentage loss of prestress due to friction and slip, $E_s = 210$ kN/mm^2.

13. A prestresses concrete beam of section 120mm wide by 300mm deep is used over an effective span of 6m to support a uniformly distributed load of 4kN/m, which includes the self-weight of the beam. The beam is prestressed by a straight cable carrying a force of 180 KN and located at an eccentricity of 50mm. Determine the location of the thrust line in the beam and plot its position at quarter and central span sections.

14. A rectangular Prestressed concrete beam of span 12m is subjected to an UDL of 20 kN/m excluding its self-weight. Design the beam if permissible stress in concrete at transfer is 15 N/mm^2 & stress in steel is 1200 N/mm^2. Use 8 mm φ tendons, weight of concrete is 24 kN/m^3.

15. A prestressed I-section has the following properties:
    Area = (55×10^3) mm^2
    Second moment of area = (189×10^7) mm^4
    Statical moment about the centroid = (468×10^4) mm^3
    Thickness of web = 50 mm
    It is prestressed horizontally by 24 wires of 5 mm diameter and vertically by similar wires at 150 mm centres. All the wires carry a tensile stress of 900 n/mm^2. Calculate the principal stresses at the centroid when a shearing force of 80 kN acts upon this section.

16. A prestressed concrete beam of span 10m is of rectangular section, 120 mm wide and 300 mm deep and is prestressed by a parabolic cable, the initial prestressing force being 280kN. The eccentricity of the cable at the centre iss 50 mm and the cable is concentric at the ends. The beam carries a live load of 2.20 kN/m. Calculate the short time deflection at the centre of the span. Take Ec = 40 kN/mm^2 and creep coefficient φ = 2.0. Loss of prestress = 20% of the initial stress after a duration of 6 months. Find the long-time deflection at the centre. Assume that the beam is subjected to dead load and live load simultaneously when the prestress is applied.

17. The end block of a pre-stressed concrete beam rectangular in section is 120 mm wide and 300 mm deep. The pre-stressing force of 250kN is transmitted to concrete by a distribution plate, 120 mm wide and 75 mm deep, concentrically located at the ends. Calculate the position and magnitude of the maximum tensile stress and bursting tension on the horizontal section through the centre of the end block using Guyon's method. Design the reinforcement for the end block for the maximum transverse tension. Yield stress in steel is 260 N/mm^2.

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FACULTY OF ENGINEERING

BE VII Semester (CBCS) (ECE) (Main) Examination, December 2019

Subject: Industrial Administration and Financial Management

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

Note: Answer all questions from Part – A, & any five questions from Part – B
PART – A (10 x 2 = 20 Marks)

1 Define the term Management and state its functions.

2 List out the merits and demerits of Product layout.

3 List out the types of ratings used in time study and describe any one of them.

4 Define the term 'Work Study'.

5 State the types & objectives of Inspection.

6 What is importance of 'Quality Circles'?

7 Differentiate between CPM and PERT.

8 State the objectives of Materials Management.

9 State the assumptions in break-even analysis.

10 What are the elements of costs?

PART – B (5 x 10 = 50 Marks)

11 Discuss the principle factors in selecting a location for an Industry, citing suitable example.

12 (a) State the principles of Motion Economy related Human body.
    (b) Explain briefly wage payment plan.

13 (a) Explain how control charts are helpful to the process industry and state various control limits for both variables and attributes.
    (b) Explain briefly introduction to ISO.

14 Four machines namely A, B, C, and D are to be repaired by four maintenance operator who can perform all the jobs but differ in their efficiency and the task differ in their intrinsic difficulty. The estimates of the times each man would take to perform each are given below in the matrix.

Machine Operator	A	B	C	D
Sandeep	8	24	17	11
Quader	13	28	4	26
Raju	38	19	18	15
Shiyam	19	26	24	10

How the repair task should be allocated to the operator to minimize the total man hours?

..2

15 (a) Derive the formula for simple EOQ and state its assumptions.
   (b) Explain Halsey plan of wage incentive.

16 (a) A machine is brought for Rs 1, 00,000/- and is estimated to have a life of 8 years
      and scrap value of Rs 20, 000/- at the end of life. Calculate
      i) Annual depreciation rate.
      ii) Total depreciation up to the end of 5 years.
      iii) Book value at the end of 5 years. Assume interest rate of 5%. Use straight line
         method for calculating depreciation.
   (b) Explain the concept of Break Even Analysis and state its importance.

17 Write short notes on the following.
   a) Capital budgeting.
   b) Organization Structure and their merits and demerits.
   c) Financial leverage.
   d) Time value of money

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FACULTY OF ENGINEERING

BE VII Semester (CBCS) (M/P) (Main) Examination, December 2019
Subject: Production & Operations Management

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

Note: Answer All Questions From Part-A, & Any Five Questions From Part-B.

PART – A (10 X 2 =20 Marks)

1. Classify the production systems and specify the characteristics of Job shop production.
2. What are the objectives of a good plant layout?
3. Define work sampling.
4. What is the difference between prediction and forecasting?
5. List various symbols used in operation process chart.
6. Given the data 20, 30, 40, 60 and 45, find the forecast for the sixth period using simple average and 3 period moving average?
7. What are the benefits of MRPI?
8. Why CPM is called deterministic model and PERT as probabilistic model?
9. What is master production scheduling?
10. Define the following :
    i) Critical activity   ii) Dummy activity

PART – B (5 x 10 = 50 Marks)

11. (a) What are the factors that affect the selection of a plant layout?
    (b) What is meant by combination layout? Explain with a neat sketch.

12. (a) Differentiate between method study and work measurement.
    (b) Explain the predetermined motion time study approach to work measurement.

13. A computer software firm has experienced the following demand for its personal finance software package.

Period	1	2	3	4	5	6	7	8
Units	56	61	55	70	66	65	72	75

Develop an exponential smoothing forecast using = 0.4 and an adjusted exponential smoothing forecast using = 0.4 and = 0.20.

14. (a) What are the different types of incentive plans? Discuss.
    (b) Briefly explain the procedure in method study.

15. (a) Define aggregate planning. Explain the strategies of aggregate planning.
    (b) What is MRPI? What are the inputs and outputs required by the MRPI system?

16 (a) Differentiate between PERT and CPM.
   (b) The PERT time estimates of the project are given below:

Activity	1-2	1-3	1-4	2-6	3-6	3-5	4-5	5-6
Optimistic (t_o)	6	3	3	4	2	3	1	6
Most Likely (t_m)	12	6	9	19	5	9	4	12
Pessimistic (t_p)	30	15	27	28	8	27	7	30

Construct the PERT network and determine the
i) Critical path and its duration
ii) Variance of each activity

17) Write short notes on the following:
   i) Project crashing
   ii) Work study
   iii) Forecast errors

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FACULTY OF ENGINEERING

BE VII Semester (CBCS) (A.E) (Main) Examination, December 2019

Subject: Vehicle Body Engineering

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

Note: Answer all questions from Part-A, & Any five questions from Part-B.

PART – A (10 x 2 = 20 Marks)

1   Write the classification of car bodies.

2   What are the possible locations of engine in bus body layout?

3   What is the importance of Aerodynamic study?

4   Define the term yawing.

5   What are the types of sections used for chassis side members?

6   How does drag coefficient affect body shape?

7   State the salient design features for drivers safety.

8   How forward visibility of a vehicle can be improved.

9   What are the sources of noise in a vehicle?

10 What are the types of paint used for the vehicle body?

PART – B (50 Marks)

11 (a) Explain in briefly constructional details of Service Doors, Window and Emergency
        Exit of bus body layout.   5

   (b) Explain in briefly constructional details of Integral Bus Body.   5

12 (a) Explain the methods of reducing the air resistance.   5
   (b) Write note on flow visualization around the vehicle.   5

13 (a) Explain load distribution and stress analysis of structure.   5
   (b) Explain different type car doors and window regulators.   5

14 Describe in detail the usages of safety equipment's in the car.   10

15 Explain in briefly different type materials used in vehicle body construction.   10

16 (a) Explain in detail construction of car body with neat sketch.   5
   (b) Write note on electronic displays.   5

17 Write short note on the following:
   (a) Asymmetric loading.   4
   (b) Commercial vehicle ergonomics   3
   (c) Chassis bearing vibration   3

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FACULTY OF ENGINEERING

B. E. (CSE)(CBCS) VII – Semester (Main) Examination, December 2019

Subject: Data Mining

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

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

PART – A (20 Marks)

1. How is a data warehouse different from a database? How are they similar?
2. Classify the following attribute as nominal or ordinal or ratio:
   Age (Youth, Middle_aged, Senior), Length, Color.
3. Give the examples for Multi-Dimensional Rule Mining and Multi Level Association Rule Mining.
4. List various Pattern Interestingness measures.
5. Compare eager and lazy classification.
6. Write the methods to construct classifier.
7. What is the difference between agglomerative and divisive methods of clustering?
8. Identify the methods to form clusters.
9. Mention the Application of Clustering.
10. Write about Bayesian Belief Network.

PART – B (50 Marks)

11. (a) Describe the steps involved in data mining when viewed as a process of knowledge discovery.   5

    (b) Discuss various measures to compute data similarity and dissimilarity.   5

12. Find all frequent itemset using Aprori Generate Strong association rules for the following database has five transactions with min sup=60% and min conf = 80%.   10

TID	Items_bought
T100	{M,O,N,K,E,Y}
T200	{D,O,N,K,E,Y}
T300	{M,A,K,E}
T400	{M,U,C,K,Y}
T500	{C,O,O,K,I,E}

13. (a) For the following table calculate the information fain for X and Y.   5

X	Y	Class
T	T	+
T	F	-
T	F	+
T	T	+
F	T	-

…..2

(b) Explain learning in multi layer neural networks using Back propagation.　　5

14. Explain the following:

(a) SVM Classifier.　　5

(b) DB Scan.　　5

15. (a) Apply k-means algorithm for the following objects
A1(2, 10), A2(2,5), A3(8, 4), A4(5, 8), A5(7, 5), A6(6, 4), A7(1, 2), A8(4, 9). Show only the three cluster centers after the first round of execution. Initial centers are A1, A4, A7.　　5

(b) How to evaluate the performance of Clustering.　　5

16. Summarize the three major areas where data mining is widely used.　　10

17. Write short note on any two of the following:
(a) Ensemble Techniques.　　4
(b) Data Mining Issues.　　3
(c) Text Mining.　　3

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FACULTY OF ENGINEERING

B.E. (I.T) VII – Semester (CBCS) (Main) Examination, December 2019
Subject: Network Security & Cryptography

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

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

PART – A (10x2 = 20 Marks)

1   What are Active and Passive attacks?
2   Define Steganography.
3   What do you mean by confusion and diffusion?
4   Define the terms- Cryptography, Cryptanalysis and Cryptanalyst.
5   Define cryptographic Hash functions and cryptographic MAC functions.
6   Define HMAC and CMAC.
7   What are the threats in Web Security?
8   What is handshake protocol in SSL?
9   What are the services of PGP?
10 What are the applications of IPsec?

PART – B (5x10 = 50 Marks)

11 a) List the different substitution techniques? Explain any one in detail.	(5 M)
b) Explain the model of Network Security.	(5 M)
12 a) Explain RSA algorithm with example.	(5 M)
b) Explain Diffie-Hellman key exchange.	(5 M)
13 a) What are digital signatures? Explain Digital signature standard (DSS).	(5 M)
b) Explain X.509 Certificates.	(5 M)
14 a) With diagram explain in brief - SSL protocol stack.	(5 M)
b) Explain Discovery phase in IEEE 802.11i.	(5 M)
15 a) What are the functions provided by the S/MIME? Explain.	(5 M)
b) Give the overview of IP security.	(5 M)
16 a) Explain in brief the IDEA algorithm.	(5 M)
b) With diagram explain Kerberos realm.	(5 M)
17 Write short notes on:	
a) Symmetric key distribution.	(4 M)
b) RC4	(3 M)
c) Triple DES.	(3 M)

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