FACULTY OF ENGINEERING

B.E. (Civil) VI – Semester (CBCS) (Main) Examination, May / June 2019

Subject: Water Resources Engineering – II

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

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

PART – A (10x2 = 20 Marks)

1. List the drawbacks of Kennedy's theory.
2. What are the differences between lined and unlined canals?
3. List components of weir.
4. Define afflux and how it is calculated in the case of a weir.
5. Differentiate between Bligh's and Lanes weighted creep theory.
6. What is exit gradient and its importance in the design of weirs.
7. What is canal fall?
8. Define the terms flexibility and Sensitivity.
9. Differentiate between aqueduct and siphon aqueduct.
10. What is fluming of canal in cross drainage works and its importance?

PART – B (5x10 = 50 Marks)

11 a) Differentiate between Kennedy's theory and Lacey's theory. 5
   b) Design an irrigation channel for a discharge of 10 cumecs and side slope of ½H:1 V. Assume B/D ratio as 3.5, critical velocity ratio as 1 and N = 0.0225. 5

12 Sketch the layout of a diversion headwork. List all the components of headworks and explain their functions. 10

13 a) Explain Bligh's theory and its limitations. 5
   b) A line diagram of a weir is shown in Fig.1. Using Khosla's theory determine the uplift pressure at points C, D, E and C_1, D_1, E_1. Also determine exit gradient. 5
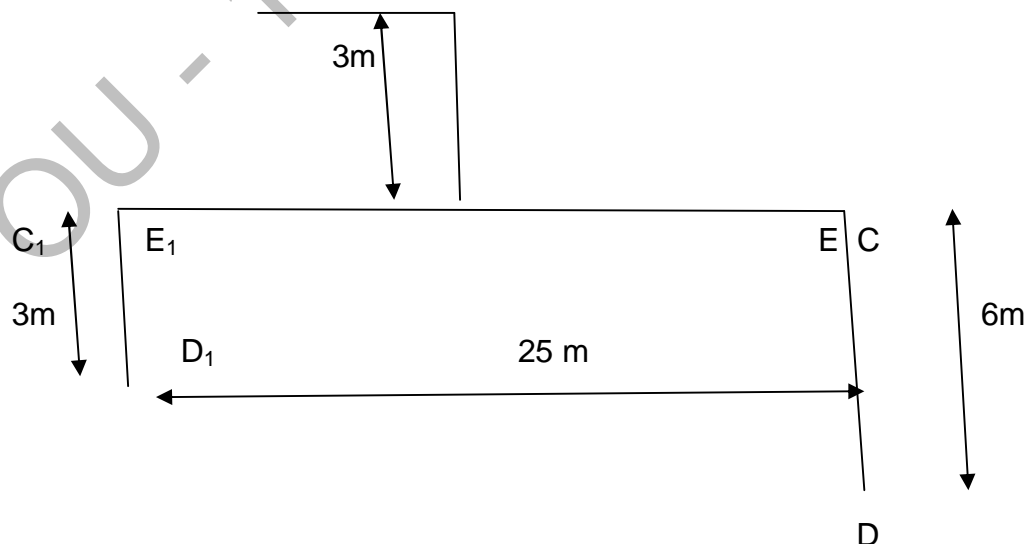

Fig. 1

14 a) Explain the functions of canal head regulator and cross regulator with neat sketches.   5
   b) Explain with neat sketches the various types of canal outlets.   5

15 a) What is necessity of cross drainage work. Explain with neat sketches the various types of cross drainage works.   5
   b) Explain the design procedure of siphon aqueduct.   5

16 a) Explain canal alignment.   5
   b) Explain the design principles of a vertical drop weir with a neat sketch.   5

17 Write short notes on: 10
i) Failures of weirs on permeable foundation
ii) Canal escapes
iii) Types of aqueducts

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FACULTY OF ENGINEERING

B.E. (EEE) VI - Semester (CBCS) (Main) Examination, May / June 2019

Subject : Renewable Energy Technologies

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	Compare different conventional energy resources.	2
2	Classify fuel cells.	2
3	Brief about solar Spectral Distribution of Extraterrestrial Radiation.	2
4	Classify wind energy conversion systems.	2
5	List out the advantages and limitations of tidal energy.	2
6	List out the advantages of fluidized bed gasifier.	2
7	List out the working fluids used in turbine driven pump using solar energy.	2
8	Compare biological and thermal conversion processes.	2
9	Explain the basic working principle of solar cooker.	2
10	Classify geothermal resources.	2

PART – B (5 x 10 = 50 Marks)

11 a) Compare the AFC, PEMFC, MCFC and SOFC fuel cells with respect to electrolyte, charge carriers, operating temperatures, fuels, efficiency, typical electrical output and applications. 5

   b) Discuss in detail about Polarization in fuel cells. 5

12 a) Explain the construction details and working principles of abbot silver disk Pyrheliometer and Yellot Solarimeter. 5

   b) Discuss about thermal energy storage systems. 5

13 a) Derive the expression for maximum power developed due to wind. 5

   b) Brief about the factors to be considered for the selection of site for WECS. 5

14 a) Explain about vapor dominated system with necessary diagrams. 5

   b) Derive the expressions for power in waves. 5

15 a) Discuss in detail about the fixed dome and floating drum systems. 5

   b) Draw the diagram for the kachra gas plant diagram. And brief it. 5

16 a) With necessary diagram explain about Solar Distillation systems. 5

   b) Discuss about variable speed and constant frequency system. 5

17 a) With necessary diagram explain about regenerative fuel cell system. 5

   b) Discuss in detail about solar chemical energy storage systems. 5

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FACULTY OF ENGINEERING

B.E. VI – Semester (EIE) (CBCS)(Main) Examination, May /June 2019

Subject: Electronics Instrumentation Systems

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) Mention basic requirements of Electrical Transducer. [2]

2) Draw the schematic of a R-Ladder DAC. [2]

3) Explain the principle of operation of a digital time measurement. [2]

4) Compare with true RMS meter with an average responding meter. [2]

5) Draw the schematic of a Log IF Amplifier. [2]

6) State the applications of PLL. [2]

7) What is the function Audio bus? [2]

8) Describe IEEE-488 Data bus. [2]

9) Brief about the magnetic material used for tape. [2]

10) What is the function of Magnetic Recorders? [2]

PART – B (50 Marks)

11. a) Draw the circuit of Instrumentation Amplifier with Op-Amps. Explain the working principle. [5]

    b) With suitable diagram explain ADC successive approximation. [5]

12. Explain the following in detail related to digital meters:

    i) Automatic Ranging and Automatic Zeroing.

    ii) Input signal conditioning and counting errors. [10]

13. Explain in detail about Spectrum Analyzer with suitable diagram. Also explain in detail various types of Analyzers. [10]

14. With necessary diagrams explain in detail about IEEE-488 interface bus. [10]

15. a) Explain basic concepts of CRO with suitable diagrams. [5]

    b) With necessary diagrams explain in detail about digital storage oscilloscope. [5]

16. a) In a video cable, a particular channel program is selected at 78.5 MHz. Explain how you measure its harmonics using Spectrum Analyzer? What are different harmonic frequencies for the above channel? [5]

    b) Determine detection sensitivity of a CRO given that with usual notation l=2.5 cm , L= 20 Cm, d = 2.5 mm, V_d =5v and V_a =2000V. [5]

17. Write short notes on the following:

    (a) Digital Storage Oscilloscope. [5]

    (b) Automatic instrumentation. [5]

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FACULTY OF ENGINEERING
B.E.VI – Semester (CBCS) (ECE)(Main) Examination, May / June 2019

Subject: Managerial Economics and Accountancy

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

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

PART – A (2 x 10=20 Marks)

1. Define managerial economics.
2. Explain opportunity cost principle.
3. Write about price elasticity of demand.
4. What is demand schedule?
5. Differentiate explicit cost and implicit cost
6. Define monopoly
7. Write any two sources of capital
8. What do you mean by working capital?
9. Write the rules of accounting.
10. How outstanding income given in adjustment are dealt in final accounts?

PART – B (5 x 10 = 50 Marks)

11) a) What are the usefulness of managerial economics   5
   b) Write about the law of demand and also its exceptions   5

12) a) Explain internal economies of scale   5
   b) Price out-put determined under perfect competition.   5

13) a) Write about the short run cost function.   5
   b) Describe the conventions of accounts.   5

14) from the following information calculate: 10
   1) B.E.P in units
   2) B.E.P in Rs.
   3) number of units to be sold to earn a profit of Rs. 50,000
   Fixed cost Rs. 40,000, selling price per unit Rs. 12 ,variable cost per unit Rs.8

15) A project requires an investment of Rs.10,00,000. The plant and machinery required under the project will have a scrap value of Rs.80,000 at the end of its useful life of 5 Years. The profit after tax and depreciation are estimated to be as follows: 10

Year	1	2	3	4	5
Rs.	50,000	75,000	1,25,000	1,30,000	80,000

   Calculate Net present value.

16) Prepare Bank Reconciliation statement as on 31-12-2017 from the following particulars of Anand Rao
   a) Bank balance as per pass book Rs.28,000
   b) Cheques deposited in bank on 28-12-2017 amounted to Rs.3,400 were not credited.
   c) Cheques amounting to Rs.4,000 issued before 27-12-2017 were not presented for
   d) payment.Interest on deposits Rs.80/- dividends Rs.800/- credited in pass book.
   e) Bank charges Rs.20/- and insurance premium Rs.300/- debited in pass book.

17. Prepare Trading, Profit and Loss account and balance sheet of Mr. Rajesh as on 31-12-2010.

Trial Balance

Debit balance	Rs.	Credit balance	Rs.
Power	10,000	Capital	3,00,000
Buildings	1,50,000	Sales	2,73,000
Commission	8,000	Purchase returns	10,000
Salaries	90,000	Creditors	60,000
Opening stock	20,000		
Rent	20,000		
Administrative expenses	15,000		
Purchases	2,50,000		
Sales returns	10,000		
Furniture	20,000		
Debtors	50,000		
	6,43,000		6,43,000

Adjustments:
1) closing stock Rs.15,000
2) outstanding salaries Rs.25,000
3) depreciation on building @ 10% per annum

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FACULTY OF ENGINEERING

B.E. VI – Semester (M/P) (CBCS)(Main) Examination, May /June 2019

Subject: Metrology & Instrumentation

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

Note: Answer all questions from Part A & any Five questions from Part B.

PART – A (20 Marks)

1. Sketch geometric of rectangular slip gage.

2. Sketch principle of sector dial gage mechanism.

3. State the type of tests conducted on spur gears.

4. State the different type of signal used measurement.

5. State the types of materials used in thermocouples.

6. Sketch the hysteresis phenomena in measuring instruments.

7. Why deviations of size occurs in manufacturing-state two reasons?

8. Explain thermocouple ambient temperature compensation methods

9. Sketch the thread pitch errors.

10. Name more than four instruments used to machine tool testing.

PART – B (50 Marks)

11. a) Explain the material properties for design of fixed pages.   5

     b) Sketch different of micrometer anvils geometries for measuring different parts..   5

12. a) Explain the principle of free flow pneumatic gaging with neat sketch.   5

     b) What are complex geometric which the CMM can measure-sketch?   5

13. a) Derive the numerical assessment of surface finish-R_a and R_z values.   5

     b) State general geometrical tests conducted on milling machine tools.   5

14. a) Give five examples of each

     i) Zero order,

     ii) first order measurements instruments.   5

     b) Sketch the arrangement of gages of axial load and torsion measurements

        instruments.   5

15. a) Explain the working of displacement type seismic transducer with neat sketch.   5

     b) Explain the working of Bourdon pressure gage with neat sketch.   5

16. a) Explain the desirable characteristics of gauge material.   5

     b) Derive the relationship between electrical resistance of wire and mechanical

        deformation of the wire.   5

17. a) Explain with sketch the testing conducted on lathe bed.   5

     b) Explain how strain is measured in the pipe/cylinder?

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FACULTY OF ENGINEERING

B.E. VI – Semester (CBCS) (A.E.) (Main) Examination, May / June 2019

Subject: Production Technology

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. What are the required properties of good moulding sand?

2. Illustrate with example the functioning of chaplets in casting process.

3. What are the functions of flux in coated electrodes?

4. State the advantages of brazing?

5. Differentiate between the hot working and cold working.

6. What is spring back effect? How to prevent it?

7. State and explain about Taylor's tools life equation.

8. What are the differences between orthogonal and oblique cutting?

9. Define lapping, honing and super finishing operations?

10. How will you specify a lathe?

PART – B (5 x 10 = 50 Marks)

11. Describe the complete step by step procedure of investment casting. What are the main advantages, disadvantages and applications of investment casting?

12. (a) Explain with neat sketch the various modes of metal transfer in GMAW.
    (b) What is the principle of Resistance welding? Compare spot welding and projection welding.

13. Write short notes on the following with the help of neat sketch
    (a) Forward extrusion
    (b) Backward extrusion
    (c) Hydrostatic extrusion

14. (a) State and explain about various types of rolling mills with neat diagrams.
    (b) With neat sketches explain Drop forging and Press forging.

15. Explain Merchant's analysis of cutting forces. Also draw the Merchant's Circle diagram and show various forces in it.

16. (a) Sketch various machining operations performed on the following machine Lathe
    (b) Explain about the taper turning process by compound swivel method with a sketch

17. Write short notes on:
    a) Casting Pattern materials   b) Directional solidification   c) Sand casting defects

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FACULTY OF ENGINEERING

B. E.VI – Semester (CBCS)(CSE)(Main) Examination, May / June 2019

Subject: Computer Networks & Programming

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. Differentiate between virtual circuits and datagram subnets.   2
2. Define Buffering   2
3. What is Tunneling?   2
4. Why do we need computer network? Give any two applications of computer network.   2
5. Define upward multiplexing and downward multiplexing with examples.   2
6. Draw the diagram showing TCP Connection Release.   2
7. What do you mean by video on demand?   2
8. What is the significance of SNMP?   2
9. What is a Socket?   2
10. Define out of band data.   2

Part – B (5 x 10 = 50 Marks)

11. a) Explain similarities and differences between ISO-OSI and TCP/IP architecture.   (5M)
     b) Illustrate Broadcast and Multicast routings.   (5M)

12. Illustrate Elementary socket system calls.   (10M)

13. a) Explain briefly about MIME.   (5M)

     b) Discuss on name servers.   (5M)

14. Explain about OSPF and BGP in detail.   (10M)

15. Explain TCP and UDP header format.   (10M)

16. a) What is the difference between Transport Layer and Network Layer? Discuss.   (4M)

     b) Discuss congestion control in virtual circuit.   (6M)

17. Write short notes on: (4+3+3M)

     a) Fragmentation
     b) Telnet
     c) Internet super server.

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FACULTY OF ENGINEERING

B.E. VI – Semester (CBCS) (I.T.) (Main) Examination, May/June 2019
Subject: Embedded Systems

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. Draw and explain structure of PSW in 8051.

2. List the characteristics of Embedded Computing.

3. Differentiate between CAN and I^2C bus.

4. Write about Rotate and Swap operations.

5. What is Priority Inversion Problem?

6. What is the role of a Task Scheduler in RTOS?

7. Where is sensing majorly performed in Automobile Systems?

8. What are the steps involved in monitoring Environmental Pollution.

9. Define SOC.

10. Write about instruction level parallelism.

PART – B (5 x 10 = 50 Marks)

11. Draw and Explain in detail block diagram of 8051 microcontroller.   (10)

12. (a) Explain the structure of TCON and TMOD.   (5+5)

    (b) Explain various SFR's used to handle interrupts in 8051.

13. Explain how keyboard is interfaced to 8051 with a suitable diagram.   (10)

14. (a) Explain memory management in ARM and SHARC processors.   (5+5)

    (b) Explain different addressing modes in 8051.

15. (a) Explain features of Uc-os RTOS.   (5+5)

    (b) What is a shared data problem? How semaphores are used to solve it?

16. Explain processor models of SIMD architecture.   (10)

17. (a) Discuss the various sources of pollution hazards and their impacts? Explain how
    sensing of environmental pollution is performed.   (5+5)

    (b) Explain working of Oxygen Sensor in Automobile Systems.

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FACULTY OF ENGINEERING
B.E.4/4 [Civil] I-Semester (Suppl.) Examination, May / June 2019

Subject : Water Resources Engineering –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 flood routing.

2) Differentiate between valley storage and bank storage.

3) List out the various modes of failure of gravity dam.

4) What is practical profile of gravity dam?

5) Write various types of filters used in earthen dams.

6) State the significance of flow net in earthen dam.

7) State the salient features of ogee spillway.

8) List out various types of spillway.

9) Differentiate between storage and pondage.

10) What is flow duration curve?

Part – B (50 Marks)

11) a) Briefly explain various investigations for reservoir planning.
    b) Write a note on reservoir sedimentation and control.

12) A masonary dam 10m high is trapezoidal in section with top width of 1m and bottom width of 8.25m. The face exposed to water has a batter of 1:10. Test the stability of the dam. Find out the principle stresses at the toe and heel of the dam. Assume unit weight of masonary as $2240 Kg/m^3$; w for water $=1000 Kg/m^3$ and permissible shear stress joint $=14 Kg/cm^2$.

13) a) Briefly explain various classification of earth dam with sketch.
    b) What is meant by piping in earth dam?

14) a) Explain the procedure of constructing Tail water curve and Jump height curve.
    b) Compute the discharge over an ogee weir c=2.4 at ahead of 2m.The length of spillway is 100m and the weir crest is 8m above the bottom of approach channel having the same length as that of spillway.

15) a) Write a brief note on use and type of turbine in hydroelectric scheme.
    b) Draw a neat sketch of hydropower plant and show the various elements.

16) a) Explain various modes of failure of gravity dam.
    b) Describe with neat sketches the various types of energy dissipaters.

17) Write short note on any two following.
    a) Elementary profile of gravity dam.   b) Mass inflow curve.
    c) Seepage control of earth dam.

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FACULTY OF ENGINEERING

B.E. 4/4 (Inst.) I-Semester (Supplementary) Examination, May / June 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 different methods of Q switching.	2
2	Write requirements of a Laser operation.	3
3	List industrial application of Laser.	2
4	In a Michelson's interferometer 200 fringes are in the field of view when a movable minor is moved through 0.0589 nm. Calculate the wavelength of light used.	2
5	Explain laser safety with respect to their output power.	3
6	Write the equation for acceptance angle of an optical fibre.	2
7	Calculate the refractive indices of the core and cladding material of a fibre from the following data N.A. = 0.22, Δ = 0.012.	3
8	Differentiate between Active and Passive fibre sensors.	2
9	Based on its construction list different types of LEDS.	3
10	Define opto isolator and draw its circuit diagram.	3

PART – B (50 Marks)

11	With its energy level scheme explain liquid dye laser and mention its applications.	10
12	Explain any two medical applications of Laser in detail.	10
13	With the basic structural diagram of optical fibre explain in detail propagation of light wave in an optical fibre for its different modes.	10
14	With a diagram explain optical time domain reflectometer construction and operation also mention its applications.	10
15	With its output characteristics explain the construction and operation of a solar cell.	10
16	Explain measurement of the following parameters with optical fibre sensor. a) Voltage b) Fluid Level	10
17	Explain the following briefly : a) Laser b) Characteristics of stabilization in lasers	10

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FACULTY OF ENGINEERING

B.E. 4/4 (ECE) I– Semester Examination, May / June 2019

Subject: Industrial Administration & Financial Management

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 State the purpose of the organization.
2 What is a meant by Management?
3 State the purposes of method study.
4 State the objectives of work study.
5 State are objectives of inspection.
6 State features of SQC.
7 State the features of LP.
8 State the features of Project Network.
9 What are overheads?
10 What is depreciation?

PART – B (5x10 = 50 Marks)

11 a) Draw the sketch of line organization, state its merits and demerits.
   b) Explain the function of Management.

12 a) Explain the steps in conducting a method study.
   b) Explain the principles of motion economy for assembly of component in chair sitting posture with work table.

13 a) Explain quality control charts for:
      i)   Attributes
      ii) Variables
   b) Explain acceptance sampling OC curves operation.

14 a) Find the LP optimal solution for the conditions:
      a) $2x_1 - 6x_2 < 9$
      b) $4x_1 + 7x_2 < 7$
          Where $x_1, x_2 > 0$
   b) A department has 5 employees and 5 jobs to be performed. The time each man will take to perform each job in given in the effectiveness matrix below. How should the job be allocated, one employee, so as to minimize the total man-hours.

	Employees				
Jobs	1	2	3	4	5
A	10	5	13	15	16
B	3	9	18	13	6
C	10	7	2	2	2
D	5	11	9	7	12
E	7	9	10	4	12

15 a) Explain various types of overheads.

b) Explain two methods of calculating depreciating fund.

16 a) Explain matrix type of organizational structure.

b) Explain the principles of motion economy.

17 a) A manufacturer requires 2000 units of an item per annum. The cost of placing an order is Rs. 10 per order and inventory carrying cost is 16% per year per unit of average inventory. The purchase price is Re. 1 per unit of quantities below 1000 units. A discount of 5% is offered if the item is purchased in lots of 1000 units or above and there is a 7% discount if the whole annual requirement of 2000 units is purchased in a single lot. Find the economic order quantity and the total inventory costs in all the cases. What would be the order quantity for minimum total cost?

b) The following table shows normal time, crash time, normal costs and crash costs.

Activity Time	Normal		Crash	
	Time (Days)	Cost (Rs.)	Time (Days)	Cost (Rs.)
1-2	6	60	4	100
1-3	4	60	2	200
2-4	5	50	3	150
2-5	3	45	1	65
3-4	6	90	4	200
4-6	8	80	4	300
5-6	4	40	2	100
6-7	3	45	2	80

i) Draw the network for the project.

Find the minimum total time of the project after crash and the corresponding cost. Taking into consideration the minimum crash cost.

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FACULTY OF ENGINEERING

B.E. 4/4 (M/P) I-Semester (Suppl.) Examination, May / June 2019

Subject : Finite Element Analysis

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. Write the strain displacement relationship for 2d truss, 2d beam, plane stress and axisymmetric elements
2. Derive the quadratic shape functions for 3 noded line element
3. What are local, global and natural coordinates? Establish the relationship. Enumerate the relevance of Jacobian Matrix.
4. Write the stiffness matrix of a frame element (A line element with nodes, each node 3dof of 2 translations in x and y axes and rotation about z axis)
5. Obtain the elasticity matrix 'D' for an axisymmetric element in terms of Young Modulus 'E' and Poisson's ratio 'ν'
6. If x = $3\xi^2 + 2\xi y - y^2, y = 4\xi^2 - 2\xi y + 2y^2$ then find determinant of jacobian (det J) at the point P ($\xi = y = 1$)
7. The element shape functions evaluated at a point A of a triangular element are N1 = N2 = 7/19 and N3=5/19. If the nodal displacements in the x-direction are q1 = 0.004cm, q2 = 0.006cm. q3 = 0.002cm. Calculate the displacement at the point A (where N is the shape function)
8. Explain the meaning of an Eigen value. Differentiate between the lumped and consistent mass
9. Determine the capacitance matrix for a rod of length 'L' ' Area 'A' and density 'P' and specific heat 'C'.
10. Find the twist at node2 if node 1 twist is .05 of torsion element of line with two nodes of a circular shaft of dia. 0.01m, length 2m, and rigidity modulus 80 GPa subjected to a torque of 1000N-M.

PART – B (5x10 = 50 Marks)

11 a) Explain the steps involved in Finite Element formulations for solving an elasticity problem

a) An axially loaded member is shown in figure.1 The cross sectional area varied linearly from A1 to A2 at the ends. Using a suitable interpolation model, compute the stiffness matrix of the element.
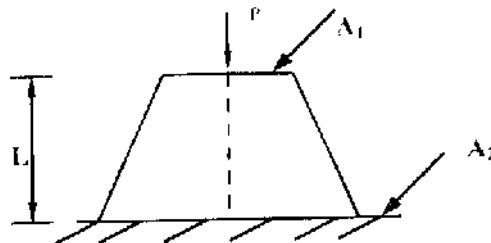

Fig 1

10 Each joint of the structural systems shown in Figure 2 is a pinned joint. The node numbers and element numbers are given on the sketch. C.S area of each member is 1000 mm2 and is made of steel with E = 1 x 10^{11} N/m^2. Determine the displacement at node '3' by Finite Element Formulations. Assume α =Coefficient of thermal expansion = 1 x 10^{-6}/$^\circ$C and ΔT = 100°C.
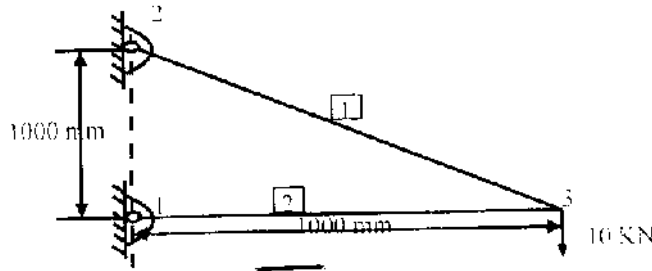
…2

Fig 2

11 a) For the beam shown in Fig. 3 determine the assembled stiffness matrix and global load vector. Take E=100GPa & 1 = 4 10^6 mm^4
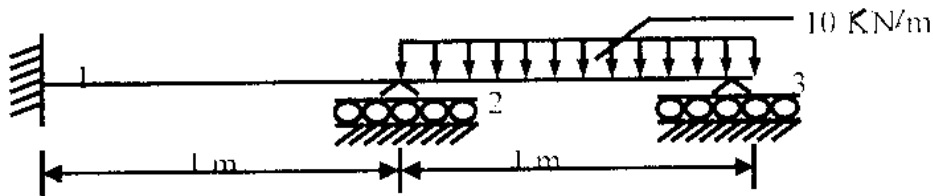

Fig 3

b) A triangular element has a nodal coordinates (1,2),(5,3) and (4,6) The Y-coordinate at an interior point is 3.5 and N1 = 0.3 Determine the X – coordinate of the point and the other shape functions .

14 Determine the global stiffness matrix for the two dimensional formulation of a plate shown in Fig.4, use plane strain condition. No. of elements = 2, Plate thickness = 10 mm, E=200 GPa, ˆ = 0.3
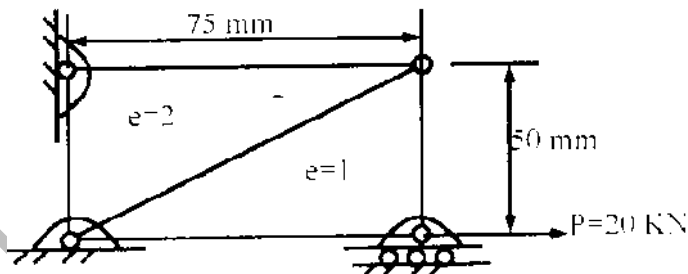

Fig. 4

15 a) Integrate numerically I = $\int_{-1}^{-1}(3<^{x2} -3< +5)d<$ and compare the solution by Gaussian

Quadrature if n=1, $<_1$=0.0, w_1=2, for n=2, $<_1 = <_2 = \pm 0.577$, w_1=w_2=1.0.

b) Determine the jacobian for 4 nodded quadrilateral elements

c) Write the FE formulation of 3d Elements

16 a) What are the types of boundary conditions imposed in heat transfer problems.

b) A composite wall consists of three materials as shown in Fig. 5 The outer temperature is T0=40oC. Convection heat transfer takes place on the inner surface of the wall with h = 25W/m2oC and t = 1000oC Determine the temperature distribution in the wall

The properties are
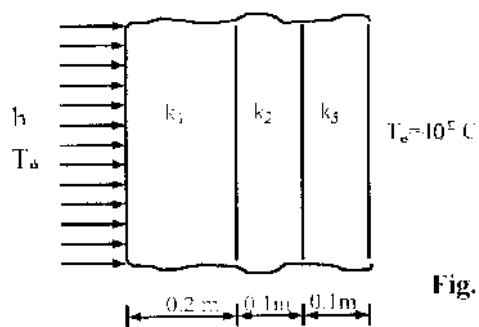K1=40 W./m^{o}C,
K2 = 20 W./m^{o}C,
K3 = 20 W./m^{o}C

…3

Fig. 5

17 Determine the natural frequency and modes of vibration of the beam shown in Fig. 6 by considering Translational of only. Assume Density = 1000 kg/m^3, E=100 GPa, The cross section is a rectangle, whose dimensions are width=10mm, Height = 20 mm.

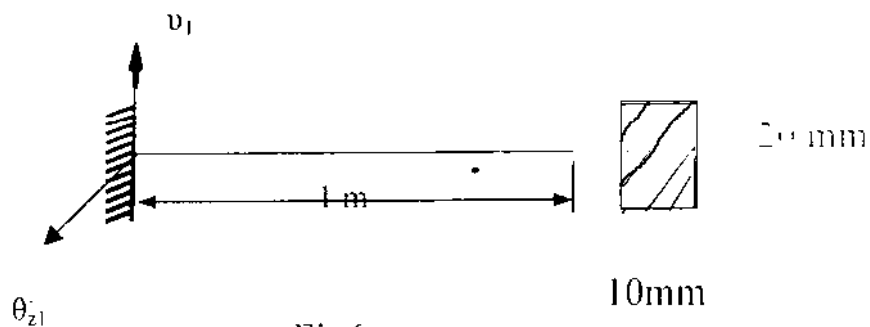Fig6.

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FACULTY OF ENGINEERING

B.E. 4/4 (AE) I-Semester (Suppl.) Examination, May / June 2019

Subject : Vehicle Maintenance

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. Name the different record forms used in maintenance.

2. Illustrate a typical trip sheet of vehicle.

3. List out the various methods of cleaning

4. Mention two methods to calculate ovality of engine cylinder.

5. Name the basic troubles of the suspension system.

6. Mention two main reasons for clutch slip of a vehicle.

7. What are the different methods of test on batteries?

8. List out the dash board instruments.

9. List out the parts to be Lubricated in engine.

10. List the body repair tools.

PART- B (50 Marks)

11. a) Explain scheduled maintenance a long with its documents

    b) Explain general servicing that are carried out during first servicing of a car

12. What are the re-conditioning methods adopted for the various components of an automobile. Briefly explain the machinery used for this purpose

13. Write down the step by step procedure of dismantling of an engine of a car for overhauling.

14. a) Explain the procedure for brake bleeding operation

    b) Explain the servicing of propeller shaft and universal joint.

15. List out the most common problems that will affect the ignition system of a petrol engine and explain the maintenance procedure for the ignition system.

16. a) Where are the possible causes and remedy for engine overheating due to cooling system?

    b) State causes and remedy for not building up of lubricating oil pressure.

17. Write short notes on

    a) Maintenance of electrical system   b) Maintenance of Trans mission system

    c) Maintenance of vehicle body.

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FACULTY OF ENGINEERING
B.E. 4/4 (CSE/IT) I-Semester (Suppl.) Examination, May / June 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	What are the critical characteristics of information?	3
2	Differentiate between virus & worms.	3
3	What are the general causes of unethical and illegal behaviour?	3
4	How transport mode is used in VPN?	2
5	What is vulnerability?	2
6	What is message digest?	2
7	Define data confidentiality.	3
8	What are requirements of digital signature?	3
9	What are the risk control strategies?	2
10	What is due care?	2

PART – B (50 Marks)

11 Differentiate between threat and attack. Explain different types of attacks.   10

12 Discuss the following aspects of continuity strategies: (4+3+3)
    a) Incident Response
    b) Disaster Recovery
    c) Business Continuity

13 What are the different firewall architectures? Explain   10

14 a) Write about RSA algorithm with an example.   5
    b) What are the 3 basic operations in cryptography?   5

15 What are the different protocals used for secure communication?   10

16 a) What is the difference between configuration management and change
      management?   5
    b) What are the primary objectives of internal monitoring domain?   5

17 Write a short note on: 10
    a) Security Education, Training and Awareness
    b) Biometric control
    c) Vernum Cipher

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