

FACULTY OF ENGINEERING**B.E. 3/4 (Civil) II-Semester (Old) Examination, May / June 2017****Subject : Water Resources Engineering and Management – I****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 Gumbel's expression for recurrence interval. 2
- 2 Obtain the relation between porosity, specific yield, and specific retention. 3
- 3 Distinguish between initial and final regime. 2
- 4 State the important requirements of canal linings. 2
- 5 List the measures to be adopted for averting failure of a weir due to scour on the d/s of the structure. 2
- 6 Mention the conditions to be considered in the determination to top width of a weir. 3
- 7 State the circumstances in which a straight glacis canal fall is to be adopted. 2
- 8 List the functions of a head regulator. 3
- 9 State the general principles of project analysis. 2
- 10 List the phases involved in water resources planning and management. 4

PART – B (5 x 10 = 50 Marks)

- 11 a) Explain the different types of precipitation. 3
- b) A sub basin with an area of 1038 sq.km. has 7 stations. The normal annual rainfall depths for all 7 stations are given below. Determine the optimum number of rain gauge stations to be established in the basin if it is desired to limit the error in the mean value of rainfall to 10%. 7

Stations	1	2	3	4	5	6	7
Normal annual rainfall	62	94	62	47	32	88	70

- 12 A 4 hr hydrograph for a project site is given below. Calculate a 12 hr unit hydrograph. 10

Time (hr)	0	2	4	6	8	10	12	14	16	18	20	22	24	2
UH ordinates (cumec)	0	30	110	170	210	180	120	80	40	35	20	15	5	0

- 13 a) Pumping at a rate of 1500 lpm from a 30 cm diameter test well penetrating into 60.0 in of unconfined aquifer given drawdown of 2.0 m and 1.0 m in observation wells located respectively at 120.0 m and 160.0 m away from it. Calculate the hydraulic conductivity of the aquifer and drawdown of the pumping well. 6
- b) Explain the process of determining the yield from an open well. 4

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- 2 -

- 14 a) A reservoir is proposed to be constructed to command an area of 1,20,000 ha. Sugar cane and paddy will be irrigated equal to 20% (each) of the command area in kharif and maize in 50% of the command area in rabi. Compute the storage required for the reservoir. Assume canal losses as 25% of the head discharge. 7
- b) State the necessity of canal lining. 3
- 15 Explain the conditions to be considered for arriving at the bottom width of a vertical drop weir. 10
- 16 a) Explain the design principles of a glacis fall for the d/s protection and u/s approach. 7
- b) Design a pipe cum open flume outlet for a discharge of 75 lps. The available working head is 0.45 m, and the full supply depth in the distributary is 1.5m. 3
- 17 a) Explain the importance of farmer's participation in water management. 4
- b) Explain the salient features of integrated water management. 6

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FACULTY OF ENGINEERING**B.E. 3/4 (Civil) II-Semester (New) (Main) Examination, May / June 2017****Subject : Water Resources Engineering – I****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

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- 4 State the important requirements of canal linings. 2
- 5 List the measures to be adopted for averting failure of a weir due to scour on the d/s of the structure. 2
- 6 Mention the conditions to be considered in the determination of top width of a weir. 3
- 7 State the circumstances in which a straight glacis canal fall is to be adopted. 2
- 8 List the functions of a head regulator. 3
- 9 List the measures to be adopted in reducing the number of cross drainage works. 2
- 10 Mention the secondary factors to be considered in the selection of suitable types of cross drainage work. 4

PART – B (5 x 10 = 50 Marks)

- 11 a) Explain the different types of precipitation. 3
- b) A sub basin with an area of 1038 sq.km. has 7 stations. The normal annual rainfall depths for all 7 stations are given below. Determine the optimum number of rain gauge stations to be established in the basin if it is desired to limit the error in the mean value of rainfall to 10%. 7

Stations	1	2	3	4	5	6	7
Normal annual rainfall	62	94	62	47	32	88	70

- 12 A 4 hr hydrograph for a project site is given below. Calculate a 12 hr unit hydrograph. 10

Time (hr)	0	2	4	6	8	10	12	14	16	18	20	22	24	2
UH ordinates (cumec)	0	30	110	170	210	180	120	80	40	35	20	15	5	0

- 13 a) Pumping at a rate of 1500 *lpm* from a 30 cm diameter test well penetrating into 60.0 m of unconfined aquifer given drawdown of 2.0m and 1.0m in observation wells located respectively at 12.0 m and 160.0 m away from it. Calculate the hydraulic conductivity of the aquifer and drawdown of the pumping well. 6
- b) Explain the process of determining the yield from an open well. 4

- 2 -

- 14 a) A reservoir is proposed to be constructed to command an area of 1,20,000 ha. Sugar cane and paddy will be irrigated equal to 20% (each) of the command area in kharif and maize in 50% of the command area in rabi. Compute the storage required for the reservoir. Assume canal losses as 25% of the head discharge. 7
- b) State the necessity of canal lining. 3
- 15 Explain the conditions to be considered for arriving at the bottom width of a vertical drop weir. 10
- 16 a) Explain the design principles of a glacis fall for the d/s protection and u/s approach. 7
- b) Design a pipe cum open flume outlet for a discharge of 75 *lps*. The available working head is 0.45 m, and the full supply depth in the distributary is 1.5m. 3
- 17 Design the roof slab of a siphon aqueduct for the following data : 10
- Drainage : High flood discharge is 450 cumec, d/s HFL is 207.00 m, DBL is 204.50 m, and GL is 206.50 m
- Canal : Full supply discharge is 40 cumec, FSL is 208.00 m, CBL is 206.40 m, bed width is 30.0 m, side slopes are 1.5:1
- The canal trough has a clear span of 5.0 m, the trough slab has a thickness of 0.4 m, partition walls of the trough have a thickness of 0.3 m, the head loss at entry into the siphon barrel is 0.108 m, and u/s HFL of drain is 207.33 m.

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FACULTY OF ENGINEERING**B.E. 3/4 (EE/Inst./ECE) II-Semester (Old) Examination, May / June 2017****Subject : Managerial Economics and Accountancy****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- | | | |
|----|-------------------------------------|---|
| 1 | What is Marginalism? | 3 |
| 2 | Explain the concept of equilibrium. | 2 |
| 3 | Income elasticity of demand. | 3 |
| 4 | Time perspective principle. | 2 |
| 5 | What is perfect competition? | 2 |
| 6 | Write about ARR method. | 3 |
| 7 | Define Break-even analysis. | 3 |
| 8 | What is Trial Balance? | 2 |
| 9 | What is BRS? | 2 |
| 10 | Write a note on working capital. | 3 |

PART – B (50 Marks)

- 11 Explain the nature and scope of Managerial Economics.
- 12 Write about the determinants of demand.
- 13 How price and output determined under monopoly?
- 14 Describe the concepts and conventions of Accountancy.
- 15 Explain various methods of capital budgeting.
- 16 A company reported the following results for two periods.

<u>Period</u>	<u>Sales</u>	<u>Profit</u>
1	Rs.20,00,000	Rs.2,00,000
2	Rs.25,00,000	Rs.3,00,000

Ascertain the BEP, P/V ratio, fixed cost and margin of safety.

- 17 Prepare a Trial Balance as on 31st March, 2004 from the following list of balances extracted from the books of XYZ.

Particulars	Rs.	Particulars	Rs.
Freehold property	10,800	Discount received	150
Capital	40,000	Return inwards	1,590
Return outwards	2,520	Office expenses	5,100
Sales	80,410	Bad debts	1,310
Purchases	67,350	Carriage outwards	1,590
Depreciation of Furniture	1,200	Carriage inwards	1,450
Insurance	3,300	Salaries	4,950
Opening stock	14,360	Book debts	11,070
Creditors for expenses	400	Cash at bank	2,610
Creditors	4,700		

FACULTY OF ENGINEERING

BE 3/4 (EE/INST/ECE) II Sem.(New) (Main) EXAMINATION June 2017

Subject: Managerial Economics and Accountancy

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. Define Evolution of Economics? 2
2. What is demand? 2
3. Write features of monopoly. 2
4. Differentiate between Firm and Industry. 2
5. What is Fixed Capital? 2
6. Define production function 3
7. What is break -even point? 3
8. Write about current ratio. 3
9. Explain petty cash book? 3
10. Write Journal Entries for the following. 3
 - a) Purchased goods for cash Rs.10,000/-
 - b) Paid Rent to land lord Rs.5,000/
 - c) Received cash from suresh Rs.7,000/-

Part – B (50 Marks)

11. Managerial Economics is the application of Economic Theory to business management discuss.
12. Define cost & explain different cost concepts used in the process of cost analysis..
13. Define Market and differentiate between perfect and imperfect market.
14. Explain about any 5 accounting concepts with suitable examples.
15. Calculate 1) break even point 2) margin of safety 3) sales required to earn a profit of Rs. 50,000 from the following information.
Sales Rs.4,00,000 Fixed cost Rs. 75,000 variable cost Rs.3,00,000
16. Mayor co. Ltd. Is proposing to take up a project which will need an investment of Rs.80,000. The net income before depreciation and tax is as follows.

Year	1	2	3	4	5
Net income (Rs)	20,000	24,000	28,000	32,000	40,000

Depreciation is to be charged according to the straight line method. Tax rate is 50% calculate the Accounting Rate of Return.

17. On 31-3-2016, the following trial balance was prepared from the books of Raju.

Particulars	Debit (Rs)	Credit (Rs)
Capital	----	70,000
Plant and machinery	75,000	
Bills receivable	5,000	
Sundry debtors	50,600	
Purchases	90,000	
Sales		2,31,000
Premises	50,000	
Wages	14,400	
Carriage inwards	750	
Carriage outwards	1,000	
Salaries	11,000	
Bad debts	900	
Sundry creditors		10,000
General charges	1,500	
Cash at bank	6,100	
Bills payable		6000
Postage and stationary	750	
Furniture	10,000	
	3,17,000	3,17,000

Prepare final accounts of Mr.Raju after taking into account, the following adjustments:

1. Closing stock as on 31-3-2016 valued at Rs.6,000
- 2) Depreciate Plant and Machinery by 10%
- 3) Outstanding wages Rs. 600

FACULTY OF ENGINEERING**B.E. 3/4 (M/P) II-Semester (Old) Examination, May / June 2017****Subject : Refrigeration and Air Conditioning****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****Use of refrigeration tables permitted.****PART – A (25 Marks)**

- | | |
|--|---|
| 1 List the thermodynamic properties of refrigerants. | 2 |
| 2 What is the difference between refrigeration load and refrigeration effect? | 3 |
| 3 Draw T-s and P-h diagrams for simple vapour compression refrigeration system. | 3 |
| 4 Explain about cascade refrigeration system. | 2 |
| 5 List the limitations and applications of steam jet refrigerator. | 2 |
| 6 Enumerate the desirable properties of refrigerant pairs for absorption system. | 3 |
| 7 Define apparatus dew point temperature. | 2 |
| 8 What factors affecting optimum effective temperature? | 3 |
| 9 Explain about By-pass factor both for heating and cooling. | 2 |
| 10 State the advantages of modern transport air conditioning system. | 3 |

PART – B (50 Marks)

- | | |
|--|----|
| 11 In an open cycle air refrigeration machine, air is drawn from a cold chamber at -2°C and 1 bar and compressed to 11 bar. It is then cooled, at this pressure, to the cooler temperature of 20°C and then expanded in expansion cylinder and return to the cold room. The compression and expansion are isentropic and follows the law $PV^{1.4} = \text{constant}$. Sketch the p-v and T-s diagrams of the cycle and for refrigerant of 15 tonnes, find : i) theoretical C.O.P. ii) Rate of circulation of air in kg/min. iii) Piston displacement per minute in the compressor and expander ; and iv) theoretical power per tonne of refrigeration. | 10 |
| 12 A Vapour compression refrigerator uses R-12 as refrigerant and liquid evaporates in the evaporator at -20°C . The temperature of this refrigerant at the delivery from the compressor is 20°C when the vapour is condensed at 10°C . Determine the C.O.P. if i) there is no under cooling; and ii) the liquid is cooled by 5°C before expansion by throttling.
Take specific heat at constant pressure for the superheated vapour as 0.64 kJ/kg K and that for liquid as 0.94 kJ/kg K.
Take the other properties from refrigeration tables. | 10 |
| 13 a) Explain with sketch the working of steam jet refrigeration system. | 5 |
| b) Explain the working of Thermo-Electric refrigeration system. List out the fields of its applications. | 5 |

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- 14 Atmospheric air at 0.97 bar enters the adiabatic saturator. The wet bulb temperature is 20°C and dry bulb temperature is 30°C during saturation process. Determine i) humidity ratio of the entering air, ii) vapour pressure and relative humidity at 30°C ; and iii) dew point temperature. 10
- 15 The following data refer to summer air conditioning of a restaurant.
- | | |
|---------------------------|---|
| Inside design conditions | = 27°C DBT and 21°C WBT |
| Outside design conditions | = 38°C DBT and 27°C WBT |
| Sensible heat load | = 126000 kJ/hr |
| Latent heat load | = 50,400 kJ/hr |
- The outside air is supplied at the $20\text{ m}^3/\text{min}$ directly in to the room ventilators and by infiltration. The outside air is to be conditioned is passed through a cooling coil which has an apparatus dew point of 12°C and 60% of the total air is re-circulated from the conditioned space and mixed with conditioned air after the cooling coil. Find a) Condition of air after the cooling coil before mixing with recirculated air b) Condition of air entering the restaurant c) Mass of fresh air entering the cooling coil d) By-pass factor of the cooling coil, and e) Total refrigeration load on the cooling coil. 10
- 16 a) Explain with neat sketch the working of pulse tube refrigeration system
What are the fields of its applications? 5
b) Discuss about Global warming and green house effect. 5
- 17 a) Explain with neat sketch the working of Li-Br absorption system. List the applications of this system. 5
b) Explain the methods of food preservation. 5

FACULTY OF ENGINEERING**B.E. 3/4 (M/P) II-Semester (New) (Main) Examination, May / June 2017****Subject : Refrigeration and Air Conditioning****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 Ton of Refrigeration.
- 2 Explain designation of refrigerants.
- 3 What are the limitations of vapour compression system for low temperature applications?
- 4 What are the limitations effect of Evaporator pressure on the performance of the VCR system?
- 5 Compare VCRS and VARS.
- 6 In an absorption refrigeration system heating, cooling and refrigeration takes place at the temperatures of 100°C , 20°C and -10°C respectively. Find the theoretical COP of the system.
- 7 Explain chemical dehumidification process.
- 8 Define RSHF.
- 9 What are the sensible heat sources of Air Conditioned space?
- 10 What are Grills?

PART – B (50 Marks)

- 11 a) Explain reversed carnot cycle. 3
 b) A dense air refrigeration machine operating on Bell-coleman cycle operates between 3.4 bar and 17 bar the temperature of air after the cooler is 15°C and offer the refrigerator is 6°C . For refrigeration capacity of 6TR. Find
 a) Temperature after compression and expansion
 b) Mass flow rate of air per min
 c) Work of compressor and expander
 and d) COP 7
- 12 a) Draw the schematic diagram of cascade refrigeration system. 3
 b) A 5TR, F-12 refrigeration plant has condenser temperature of 32°C and evaporator temperature of -5°C . The liquid leaving the condenser is saturated liquid and compression is isentropic. Determine
 a) mass flow rate of the refrigerant in kg/s
 b) Power required to run the compressor
 c) heat rejected in the plant and d) COP. 7
- 13 a) What are the limitations and advantages of steam jet refrigeration system? 3
 b) Explain the working principle of Aqua-Ammonia Refrigeration system with a neat sketch. 7
- 14 a) Ideal properties of refrigerant and absorbent for Vapour Absorption Refrigeration system. 4
 b) Explain the effect of Evaporator and Condenser pressures on the performance of vapour compression refrigeration system. 6

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- 15 a) Explain about By-pass factor. 3
- b) The sling psychrometer reads 40°C DBT and 28°C WBT. Calculate the followings
- i) Specific humidity
 - ii) Relative humidity
 - iii) Vapour density in air
 - iv) Dew point temperature and
 - v) enthalpy of the mixture per kg of dry air. 7
- 16 An air conditioning system is to be designed for a restaurant with the following data.
- OD conditions = 40°C DBT and 28°C WBT ID conditions : 25°C DBT, 50% RH
solar heat gain through walls, roof, floor = 5.52 kW, No. of occupants load = 25, SH gain per Person = 58W, LH gain per Person = 60W, internal lighting load = 15 lamps of 100W and fluorescent tubes of 80W, SH gain from other sources = 11.60 kW infiltration air = 15 cmm If 25% fresh air and 75% recirculated air is mixed and passed through the cooling coil. Find
- i) DPT of the coil
 - ii) Conditions of supply air to the room
 - iii) amount of total air required in cmm and
 - iv) capacity of conditioning plant. 10
- 17 Answer any two of the following : 2 x 5 = 10
- a) Alternative refrigerants to reduce Ozone depletion and Global warming
 - b) Pulse Tube refrigeration system
 - c) Explain about filters used in Air-conditioning.

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FACULTY OF ENGINEERING

B.E. 3/4 (AE) II-Semester (New) (Main/Backlog) Examination,
May / June 2017

Subject : Finite Element Methods

Time : 3 hours

Max. Marks : 75

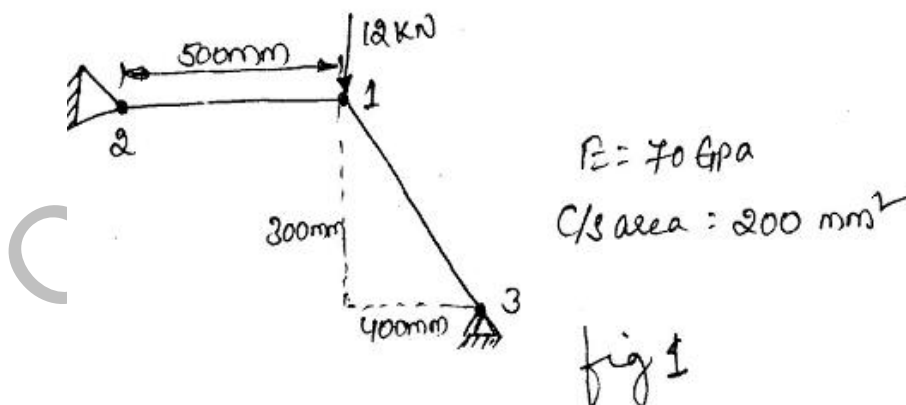
Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

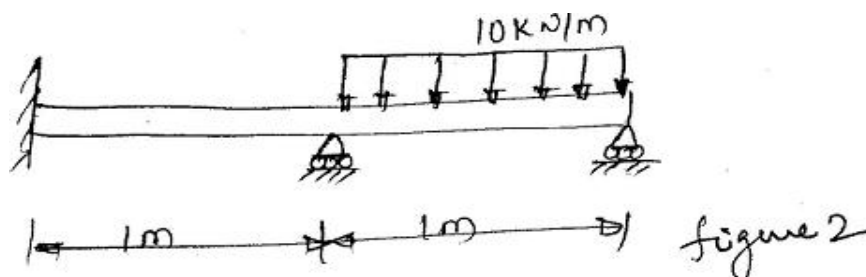
- 1 Distinguish between error and residual.
- 2 Define shape function.
- 3 Derive quadratic shape function for 1-D element in global co-ordinates.
- 4 What is meant by node or joint?
- 5 What is CST element?
- 6 State the governing differential equation for 3-D heat transfer problem with boundary condition.
- 7 Derive Mass matrix for a 1-D linear bar element.
- 8 Write down capacitance matrix for rod.
- 9 What is convergency? Explain.
- 10 Differentiate between lumped Mass matrix and consistent mass matrix.

PART – B (50 Marks)

- 11 List and briefly describe the general steps of the FEM.
- 12 For the two bar truss shown in fig.1 determine the displacement of node 1 and stress in element 1-3.



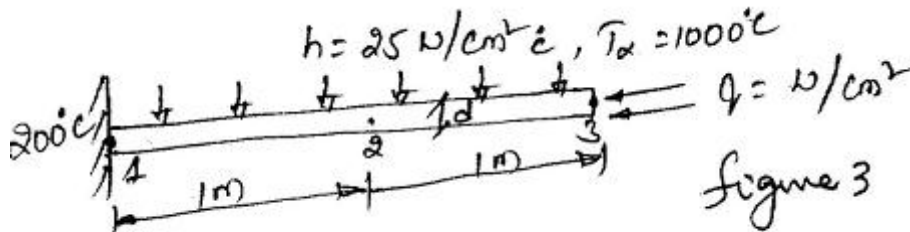
- 13 For the beam and loading as shown in fig.2 calculate slopes at node 2 and 3 and deflection at mid-point of distributed load. Take $E = 200 \text{ GPa}$ $I = 40 \times 10^5 \text{ mm}^4$.



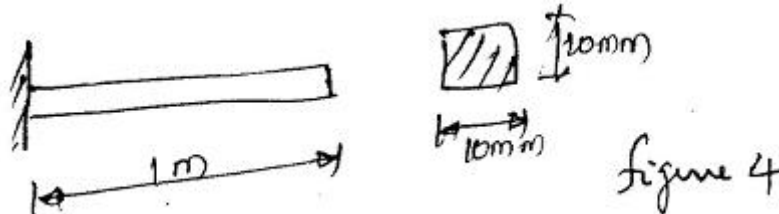
- 2 -

- 14 Derive strain-displacement matrix for
 i) Axi-symmetric Triangular element
 ii) Constant strain Triangle

- 15 For a rod as shown in fig.3 subjected to convection and heat flux, determine the temperature distribution if thermal conductivity is $50 \text{ W/cm}^\circ\text{C}$.



- 16 Determine the natural frequencies of a cantilever beam as shown in fig.4. Take $E = 200 \text{ GPa}$ $P = 7800 \text{ kg/m}^3$.



- 17 Why numerical integration is important in FEM? Check what orders of Gauss quadrature would exactly integrate $2 + 3x + 5x^3$.

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FACULTY OF ENGINEERING

B.E. 3/4 (AE) II-Semester (Old) Examination, May / June 2017

Subject : Finite Element Analysis

Time : 3 hours

Max. Marks : 75

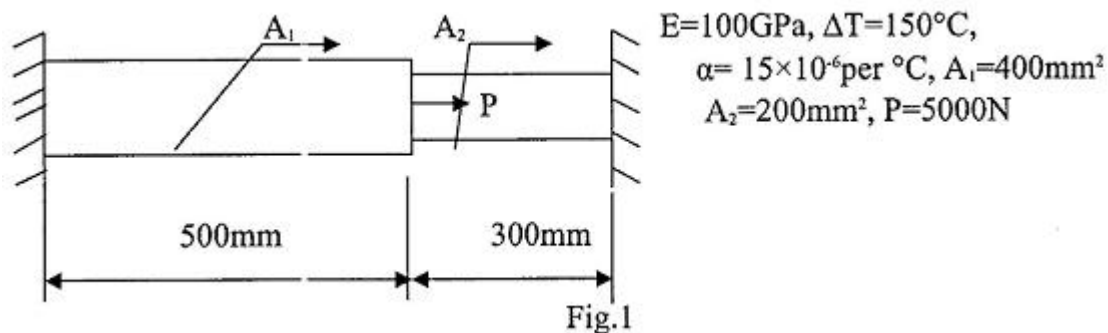
Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

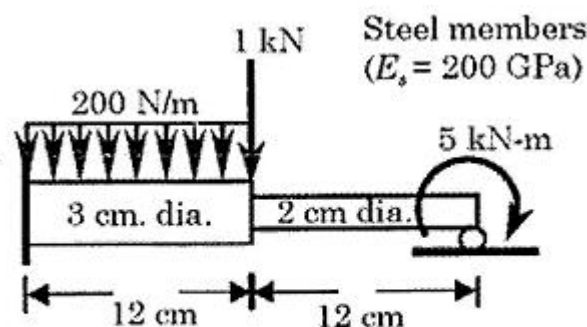
- 1 Explain the importance of Finite element techniques.
- 2 What are the properties of shape functions?
- 3 Derive the shape function for quadratic element.
- 4 Why numerical integration required in finite Element Analysis?
- 5 Derive strain displacement matrix for beam element.
- 6 List the popularly used FEA softwares.
- 7 Sketch 2D elements and show the degree of freedom on it.
- 8 State Hamilton's principle and give an equation of motion.
- 9 The nodal temperatures for the triangular element 1(2, 2) ; 2(6, 4) and 3(5, 8) are $T_1 = 50^\circ\text{C}$, $T_2 = 60^\circ\text{C}$ and $T_3 = 80^\circ\text{C}$. Determine the temperature at point P with in the element.
- 10 How do you treat boundary conditions in the following cases
 - i) infinite cylinder subjected to internal pressure
 - ii) elastic sleeve press fitted on a rigid shaft.

PART – B (50 Marks)

- 11 Determine the nodal displacements and element stresses for the stepped bar as shown in Fig.1



- 12 Find the deflection and shear force for the beam shown in Fig. 2



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13 Formulate the elemental equation for an Axi-symmetric element and also derive material matrix and strain displacement matrix.

14 Calculate [J], [B] and [D] matrices for the element shown in Fig.3 at

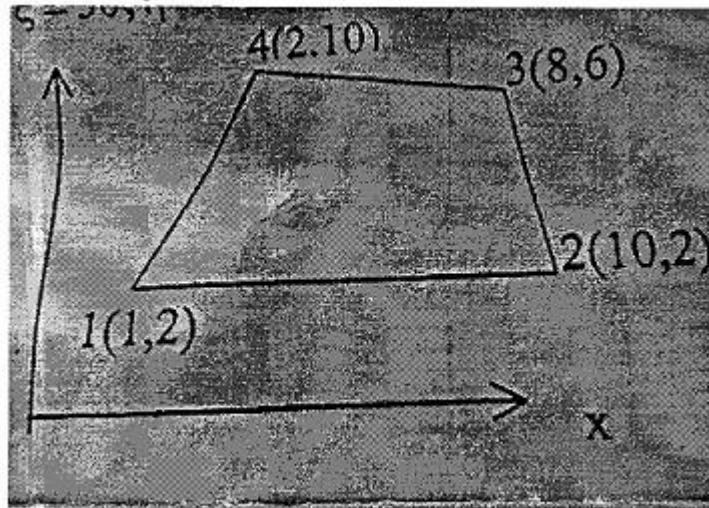


Fig.3

15 Find the temperature for the multi-layered wall shown in Fig.4. The composite wall consists of three materials. Convection heat transfer takes on the left face of the first layer.

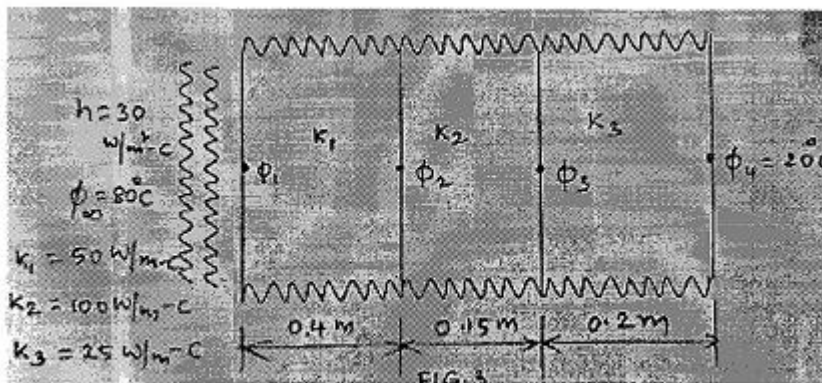


Fig.4

16 Obtain the Eigen values and Eigen vectors for the cantilever beam of length 100cm using two consistent mass with $E = 210\text{GPa}$, and density of 7080m^3 with cross sector $5\text{cm} \times 10\text{cm}$.

- 17 a) Explain step by step procedure in FEM.
 b) Distinguish between consistent and lumped mass matrix.
 c) Using two point Gaussian quadrature evaluate the following integral.

FACULTY OF ENGINEERING**B.E. 3/4 (CSE) II – Semester (Old) Examination, May / June 2017****Subject: Web Programming and Services****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 List set of tools required to program the web. 2
- 2 Differentiate XML schema and DTD. 3
- 3 Write JavaScript code to validate range from 1-100. 3
- 4 What is the purpose of Servlet Context object? 2
- 5 What are scripting elements? 2
- 6 Differentiate between Servlet and JSP. 3
- 7 What is POP3? List the interfaces in JAVA mail API. 3
- 8 What is Connection Pooling? 2
- 9 What are languages supported by .Net platform? 2
- 10 List the life cycle events in ASP.Net application. 3

PART – B (5x10 = 50 Marks)

- 11 a) What are the rules to create XHTML document. Write the XHTML program to create a table as per the format below. 5

Name	Subject	Credits	Marks
XYZ	Maths	4	35
UVW		4	66
ABC	Science	5	
Students details mentioned above.			

- b) What is an XML Processor? Write an XML document to store the employee details and create a XML style sheet to display the employee information. 5
- 12 a) Explain in detail the architectural styles for creating enterprise application. 5
- b) Write a Servlet program to read the details from a registration form and display them. 5
- 13 a) What is Filter? Explain the life cycle methods of Filter. 5
- b) Write a JSP program to read the details from the JSP page (form) and display the contents of the form fields. 5
- 14 a) Write a program to send and receive a mail using Java APL. 5
- b) Explain different statement objects in JDBC with suitable examples. 5

- 15 a) Explain the architecture of .NET and how does CLR execute the .NET source code. Explain the steps involved in it. 6
- b) Explain different validation controls supported by ASP.Net. 4
- 16 a) What is session tracking? Discuss different session tracking mechanisms. 5
- b) Write JDBC program to retrieve the details like sno (integer), sname (string), age (integer), photo (jpeg) from the database. 5
- 17 Write short notes on: 10
- a) .NET Remoting
- b) Connection Pooling.

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FACULTY OF ENGINEERING**B.E. 3/4 (CSE) II – Semester (New) (Main) Examination, May / June 2017****Subject: Web Programming and Services****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 | Mention the MIME format for PDF documents. | 2 |
| 2 | Write Javascript code to validate range from 10-100. | 3 |
| 3 | Differentiate between Servlet and CGI? | 3 |
| 4 | What is Session? | 2 |
| 5 | What is the purpose of deployment descriptor? | 2 |
| 6 | List the implicit objects in JSP. | 2 |
| 7 | Write the syntax of UseBean tag. | 3 |
| 8 | Why type 4 driver referred to as thin driver? | 3 |
| 9 | Distinguish between Statement and PreparedStatement object. | 3 |
| 10 | Name the server on which ASP pages are deployed. | 2 |

PART – B (5x10 = 50 Marks)

- | | | |
|-------|---|---|
| 11 a) | Write the XHTML program to create employee registration form with fields employee id, name, gender (radio button), designation, DOB, email-id, skillset (check boxes), and provision to upload photo of the employee. Write JavaScript code to validate employee name and email-id. | 6 |
| b) | Write JavaScript code to greet the user based on time. | 4 |
| 12 a) | Write a Servlet program to read the details from the form and store them in database using JDBC. | 6 |
| b) | What is session tracking? How do we track user sessions with Cookies? Give an example. | 4 |
| 13 a) | What is webserver? Explain different web servers and describe the sequence of steps for deploying a web application. | 6 |
| b) | Write a JSP page demonstrating the usage of JSP include and forward tag. | 4 |
| 14 a) | Describe in detail the types of JDBC drivers. | 5 |
| b) | Write a Java Mail program to read the details from the form and send a mail to the user. | 5 |

- 15 a) Describe the trends in ASP. Write an ASP.Net program to validate fields and display date. 6
- b) Write a program demonstrating .Net Remoting. 4
- 16 a) Explain different types of hyperlinks. Design a webpage to display chapters and chapter contents, apply hyperlink within a page to navigate to chapter contents. 6
- b) Describe enterprise architectural styles. 4
- 17 Write short notes on:
- a) Filter. 5
- b) Connection Pooling. 5

FACULTY OF INFORMATICS**B.E. 3/4 (IT) II-Semester (Old) Examination, May / June 2017****Subject : Artificial Intelligence****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 | List and state the types of problems in real life. | 3 |
| 2 | Define AI. | 2 |
| 3 | State about Min-Max procedure. | 2 |
| 4 | Prove theorem
$((A \rightarrow B) \wedge (B \rightarrow C) \rightarrow (A \rightarrow C))$ using deduction theorem. | 3 |
| 5 | What is TMS? | 3 |
| 6 | List the applications of expert systems. | 2 |
| 7 | List the design issues of Artificial Neural Network. | 2 |
| 8 | Define SVM. With neat diagram. | 3 |
| 9 | State about semantic analysis. | 2 |
| 10 | What is Rote learning? Give an example. | 3 |

PART – B (50 Marks)

- | | | |
|-------|---|----|
| 11 a) | What is the use of Heuristic search? Give an example. | 3 |
| b) | Explain about A* algorithm. | 7 |
| 12 a) | Explain in detail about how knowledge is represented using semantic networks. | 5 |
| b) | Consider the following English sentences.
"Anything anyone eats is called food.
Mita likes all kinds of food. Burger is a "food".
Mango is a "food". John eats 'Pizza',
John eats everything "Mita eats". | 5 |
| | Translate these sentences into formulae in predicate logic and then to program clauses. Use resolution algorithms to answer the following goals. | |
| 1) | What food does John eat? | |
| 2) | Does Mita likes Pizza. | |
| 3) | Which food does John like? | |
| 4) | Who likes what food? | |
| 13 | Write Back-propagation algorithm. Explain its working with the help of an example. | 10 |
| 14 a) | Explain about reasoning with certain and uncertain information. | 7 |
| b) | Construct the feed forward network for XOR-function. | 3 |

..2

- 15 a) Explain about sentence analysis phases. 7
b) What is Bottom up parser? Give an example. 3
- 16 a) Explain about α - β pruning with example. 5
b) Explain in detail about Rule-based expert systems. 5
- 17 Write short notes on :
a) Axiomatic system 3
b) Iterative deepening 3
c) Dempster shafer theory 4

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FACULTY OF INFORMATICS**B.E. 3/4 (IT) II-Semester (New) (Main) Examination, May / June 2017****Subject : Artificial Intelligence****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 AI. List the applications of AI. | 3 |
| 2 | Write the inference rules for propositional logic. | 2 |
| 3 | What are the difference phases of Expert systems? | 3 |
| 4 | Explain about uniformed search. List all of them. | 3 |
| 5 | What is knowledge Representation? | 2 |
| 6 | Explain various components of Expert systems. | 3 |
| 7 | Write the difference between inductive and deductive learning. | 2 |
| 8 | What is parsing? | 2 |
| 9 | Distinguish between supervised and unsupervised learning. | 3 |
| 10 | Write the applications of NLP. | 2 |

PART – B (50 Marks)

- | | | |
|-------|--|----|
| 11 a) | Define Heuristic function for 8-puzzle problem and solve the problem by means of heuristic search procedure. | 6 |
| b) | Explain briefly about constraint satisfaction problem. | 4 |
| 12 a) | Explain in detail about semantic tableau system and resolution refutation in propositional logic. | 6 |
| b) | Write a brief note on predicate logic and predicate calculus. | 4 |
| 13 a) | Write a short notes on single layer feed forward network. | 5 |
| b) | Explain Bayesian belief network with example. | 5 |
| 14 | What is an expert system? Draw the architecture of expert system and explain in detail. | 10 |
| 15 | Explain about various neural network Architectures in detail. | 10 |
| 16 | Sketch and explain semantic parse tree showing all stages of semantic analyses of an example sentence. | 10 |
| 17 | Write short notes on the following : | |
| a) | A* Algorithm | 3 |
| b) | Perceptron neuron model | 3 |
| c) | Support vector machines | 4 |
