

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester (R18) Regular Examinations July/ Aug 2021

Data Warehousing and Data Mining

(CSE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)
- | | | |
|---|----|----|
| (a) Classify Data pre-processing methods?. | L4 | 2M |
| (b) Compare the differences between ROLAP and MOLAP server. | L2 | 2M |
| (c) Illustrate the frequent item set mining? | L2 | 2M |
| (d) Define Bayes theorem. | L1 | 2M |
| (e) Classify various Clustering methods. | L4 | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Discuss about Data Mining Task primitives with examples. L6 10M

OR

3. (a) Classify different data pre-processing techniques used to improve the overall quality of the mined data. L4 5M
- (b) Explain about Data Transformation. L2 5M

UNIT - II

4. Explain about the Three-tier data warehouse architecture with a neat diagram. L5 10M

OR

5. (a) How are concept hierarchies useful in OLAP? Explain. L1 5M
- (b) Explain in brief about ROLAP, MOLAP and HOLAP servers. L2 5M

UNIT - III

6. What are the Draw backs of Apriori Algorithm? Explain about FP Growth Concept in Detail? L4 10M

OR

7. (a) Explain about Constraint based Association mining L5 5M
- (b) Discuss about the criteria for classifying the frequent item set. L6 5M

UNIT - IV

8. Define Bayes theorem. Explain the Naïve Bayesian Classification with an example L1 10M

OR

9. Define Neural Network. Explain the Classification by Back Propagation L1 10M

UNIT - V

10. (a) What are the basic approaches for generating an agglomerative hierarchical clustering? Explain the algorithm. L1 5M
- (b) What is outlier analysis? Discuss. L1 5M

OR

11. How clusters are identified using DBSCAN algorithm? L1 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations July/ Aug 2021

Management Science

(EEE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)
- | | |
|---|----|
| (a) What are the principles of scientific management? | 2M |
| (b) What are four P's of marketing? | 2M |
| (c) What is the difference between wage and salary? | 2M |
| (d) What is critical path? | 2M |
| (e) What is ERP? | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Define Management. Describe nature and importance of Management 10M
- OR**
3. (a) What are the various types of organization structures? 5M
(b) Examine line & staff organization structure. 5M

UNIT - II

4. Explain the concept of work study and its types 10M
- OR**
5. Elaborate the ABC analysis and derive algebraic model of EOQ 10M

UNIT - III

6. Discuss the various steps in Human Resource Planning Process. 10M
- OR**
7. (a) Placement and Employee Induction. 5M
(b) Job analysis 5M

UNIT - IV

8. Explain SWOT analysis and its components by taking an industry example. 10M
- OR**
9. Explain and illustrate what you understand by network analysis. How would you compare PERT with CPM? 10M

UNIT - V

10. (a) What is TQM and its importance? 5M
(b) What is balanced score card? How it is useful for a company? 5M
- OR**
11. Explain the enterprise resource planning and its utilities in management. 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021

Data Communication and Networking
(ECE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)
- | | | |
|---|----|----|
| (a) In what way you can summarize the purpose of layering. | L2 | 2M |
| (b) Define hidden node problem | L1 | 2M |
| (c) Determine the mechanisms used for transition for IPv6 to IPv4 address | L5 | 2M |
| (d) What is the difference between a user agent (UA) and a mail transfer agent? | L1 | 2M |
| (e) Explain the types of Bridges? | L1 | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Draw the OSI network architecture and explain the functionalities of each layer in detail. L2 10M

OR

3. (a) What is Switching? Where switching techniques are applicable? L1 4M
(b) Write short note on circuit switching, packet switching & message switching. L2 6M

UNIT - II

4. Illustrate the working of CSMA/CA protocol with necessary diagrams L3 10M

OR

5. Discuss the features & write down the classifications of wired LANs. L3 10M

UNIT - III

6. Define TCP/IP layering and explain how it is differing from OSI model? L3 10M

OR

7. (a) Write the classifications of IPv4 address & define them. L2 6M
(b) Compare classful addressing and classless addressing L4 4M

UNIT - IV

8. Explain the architecture and services of e-mailing system. L2 10M

OR

9. Discuss how simple mail transfer protocol (SMTP) works? Can multimedia messages be transmitted using SMTP? Discuss. L2 10M

UNIT - V

10. (a) What are SLIP and PPP? . L1 5M
(b) Compare SLIP and PPP. L4 5M

OR

11. Write short notes on L1 10M
1. Connecting devices 2. Routers

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B. Tech. III Year II Semester (R18) Regular Examinations July/ Aug 2021

Construction Project Management

(Civil Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)
- | | | |
|--|----|----|
| (a) Define event, activity and dummy activity. | L1 | 2M |
| (b) What are the different types of time estimates | L1 | 2M |
| (c) Elucidate Project cost? | L2 | 2M |
| (d) What are the different conditions of contract? Mention any four. | L1 | 2M |
| (e) What are the different types of project quality? | L1 | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. What are the main functions of construction management? Explain. L2 10M
- OR**
3. (a) Write about classification of network? Explain briefly? L1 5M
(b) Write the difference between AoA and AoN diagram? L1 5M

UNIT - II

4. A project schedule has the following characteristics L3 10M
- Construct network diagram
 - Find the estimated duration and variance
 - Find the critical path and expected project completion time
 - What is the probability of completing the project on or before 22 weeks

Activity	Predecessor	Duration (weeks)		
		t_o	t_m	t_p
A	-	5	6	7
B	-	1	3	5
C	-	1	4	7
D	A	1	2	3
E	B	1	2	9
F	C	1	5	9
G	C	2	2	8
H	E, F	4	4	10
I	D	2	5	8
J	H, G	2	2	8

OR

5. The following details are available regarding a project: L3 10M

Activity	Dependency	Duration (months)
A	-	2
B	-	5
C	-	4
D	B	5
E	A	7
F	A	3
G	B	3
H	C,D	6
I	C,D	2
J	E	5
K	F,G, H	4
L	F,G, H	3
M	I	12
N	J,K	8

- Construct the CPM network.
- Determine the critical path, the critical activities and the project completion time.
- Compute total float & free floats for Non-Critical activities.

UNIT - III

6. Draw the network diagram and determine the critical path for the L3 10M following project:

Activity	Dependency
1-2	5
1-3	6
1-4	3
2-5	5
3-6	7
3-7	10
4-7	4
5-8	2
6-8	5
7-9	6
8-9	4

OR

7. (a) Explain the role of contract in network analysis for cost optimization L2 5M
 (b) How would you suggest cost optimization in project cash flow? L2 5M

UNIT - IV

8. Write short notes on: L2 10M
 a) Earnest Money Deposit. b) Security Deposit.

OR

9. What are different types of contract? Explain each. L5 10M

UNIT - V

10. (a) Explain the role of Quality control in construction project. L5 5M
 (b) How an engineer can provide Quality assurance in projects. L1 5M

OR

11. What are the objectives in cost of quality and organization? L1 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations July/ Aug 2021

ENVIRONMENTAL ENGINEERING
(CIVIL ENGINEERING)

Time: 3 hours

Max.Marks: 60

PART-A**(Compulsory Questions)**

1. Answer the following; (5 X 2 = 10 Marks)

- | | | | |
|----|---|----|----|
| 1. | | L1 | 2M |
| | (a) List out the various types of demand. | L1 | 2M |
| | (b) Define pH value. | L1 | 2M |
| | (c) What are the two types of sewage system? | L1 | 2M |
| | (d) What is the significance of pH value in sewage treatment? | L1 | 2M |
| | (e) Write down any two purposes of sludge dewatering | L1 | 2M |

PART- B**(Answer all five units, 5 x 10 =50 Marks)****UNIT - I**

2. The populations of 5 decades from 1960 to 2000 are given below in table. Find out the population 2010, 2020 & 2030 beyond the last known decade. By (a) Arithmetic increase method (b) Geometrical method

Year	1960	1970	1980	1990	2000
Population	25000	28000	34000	42000	47000

OR

- | | | | |
|----|--|----|----|
| 3. | (a) What is design period? Write the factors affecting the design period | L1 | 5M |
| | (b) Explain the variations in water demand | L2 | 5M |

UNIT - II

- | | | | |
|----|--|----|-----|
| 4. | Explain procedure of bacteriological testing of water | L2 | 10M |
| 5. | Discuss different methods of disinfection of water in water treatment plant. | L3 | 10M |

UNIT - III

- | | | | |
|----|---|----|-----|
| 6. | What are the systems of collection and disposal of waste and explain the methods of the system? | L2 | 10M |
|----|---|----|-----|

OR

- | | | | |
|----|---|----|----|
| 7. | (a) What is DWF? Explain the factors affecting DWF | L2 | 5M |
| | (b) Explain the method of estimation of storm water flow. | L2 | 5M |

UNIT - IV

- | | | | |
|----|--|----|-----|
| 8. | Define activated sludge process? Explain their operation including advantages and disadvantages. | L2 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 9. | Compare between the standard rate filter and high rate filter. | L2 | 10M |
|----|--|----|-----|

UNIT - V

- | | | | |
|-----|---|----|----|
| 10. | (a) Explain the factors affecting the sludge digestion. | L2 | 5M |
| | (b) Explain the process involved in self-purification. | L2 | 5M |

OR

- | | | | |
|-----|---|----|-----|
| 11. | With a neat sketch, explain the construction and operation of septic tank | L2 | 10M |
|-----|---|----|-----|

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations July / Aug. 2021
HEAT AND MASS TRANSFER
(Mechanical Engineering)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

Answer the following: (5 X 2 = 10 Marks)

1. (a) What is the significance of thermal diffusivity in heat conduction
- (b) Explain the critical radius of insulation with regard to steam pipes
- (c) Explain the mechanism of free convective heat transfer
- (d) What are the limitations of LMTD method of heat exchanger analysis?
- (e) What is a black body? How it differs from a gray body

PART-B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Derive the general heat conduction equation in cylindrical coordinates
L3 10M
- OR
3. (a) Explain different modes of heat transfer with governing laws
L1 5M
- (b) A plane wall is 150 mm thick and its wall area is 4.5 m². If its conductivity is 9.35 W/m °C and surface temperature are steady at 150 °C and 45 °C determine i) Heat transfer across the plane wall, ii) Temperature gradient in the flow direction
L3 5M

UNIT - II

4. (a) Derive an expression for the overall heat transfer coefficient of a composite wall of having 3 layers connected in series.
L3 4M
- (b) A cold storage room has walls made up of 220 mm of brick on outside 90 mm of plastic foam and finally 16 mm of wood on the inside. The outside and inside air temperatures are 25 °C and -3 °C respectively. If the inside and outside heat transfer coefficients are 30 and 11 W/m² °C respectively. The thermal conductivities of brick, plastic foam and wood are 0.99, 0.02 and 0.17 W/m °C respectively. Then determine:
i) The rate of heat removal by the refrigeration, if the total wall area is 85 m²
ii) The temperature of the inside surface of the brick
L3 6M

OR

5. (a) What is lumped system analysis? Derive the expression for temperature distribution
L1 5M
- (b) A 50 cm x 50 cm copper slab 6.25 mm thick has a uniform temperature of 300 °C. Its temperature is suddenly lowered to 36 °C. Calculate the time required for the plate to reach the temperature of 108 °C. Take $\rho = 9000 \text{ kg/m}^3$, $c = 0.38 \text{ kJ/kg}^\circ\text{C}$, $k = 370 \text{ W/m}^\circ\text{C}$ and $h = 90 \text{ W/m}^2^\circ\text{C}$.
L3 5M

UNIT - III

6. Calculate the heat transfer from a 60 W in incandescent bulb at 115 °C to ambient air at 25 °C. Assuming the bulb as a sphere of 50 mm diameter. Also, find the percentage of power lost by free convection. The correlation to be used is: $Nu = 0.60 (Gr \cdot Pr)^{1/4}$
L3 10M

OR

7. (a) Explain the significance of Nusselt and Prandtl numbers in convective heat transfer
L1 5M
- (b) Assuming that a man can be represented by a cylinder 350 mm in diameter and 1.65 m high with a surface temperature of 28 °C. Calculate the heat he would lose while standing in a 30 km/h wind at 12 °C.
L3 5M

UNIT - IV

8. (a) What are the applications of boiling and condensation processes?
L1 4M
- (b) A vertical tube of 60 mm outside diameter and 1.2 m long is exposed to steam at atmospheric pressure. The outer surface of the tube is maintained at a temperature of 50 °C by circulating cold water through the tube. Calculate the following i) The rate of heat transfer to the coolant, and ii) The rate of condensation of steam
L3 6M

OR

9. Derive an expression for the logarithmic mean temperature difference (LMTD) of a parallel flow heat exchanger
L3 10M

UNIT - V

10. (a) Explain the modes of Mass transfer
L1 6M
- (b) What is mass transfer coefficient
L1 4M
- OR
11. The effective temperature of a black body having an area of 0.12 m² is 527 °C. Calculate the following
L3 10M
- i) The total rate of energy emission
- ii) The wave length of maximum monochromatic emissive power

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester (R18) Regular Examinations July/ Aug 2021

SOFTWARE ENGINEERING
(Computer Science Engineering)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)

- | | | |
|--|----|----|
| (a) What is Software Engineering? | L1 | 2M |
| (b) Elaborate the tasks of Requirements Engineering? | L4 | 2M |
| (c) Define Modularity? | L1 | 2M |
| (d) What are the design issues to be handled during User Interface Design? | L1 | 2M |
| (e) Compare Black box testing with White box testing? | L4 | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Discuss briefly about different types of Software myths? L6 10M

OR

3. (a) Examine in detail about Spiral Model? L4 5M
(b) Write a note on Agile Unified Process? L3 5M

UNIT - II

4. Explain about Flow-based Modeling with an example? L6 10M

OR

5. How to build Requirements Model? Explain Negotiation and Validation Requirements? L1 10M
L2

UNIT - III

6. Describe in detail about different types of Software Architecture styles with examples? L2 10M

OR

7. (a) How to determine Software Design concepts? L3 5M
(b) Discuss briefly about Design Model? L6 5M

UNIT - IV

8. List and explain various steps in Interface Design? L4 10M

OR

9. Write about design principles used for the WepApp Interfaces? L2 10M

UNIT - V

10. (a) Discuss about the process of debugging? L6 5M
(b) Illustrate Testing strategies for Object-Oriented Software? L2 5M

OR

11. What is Testing? Explain various Software Testing strategies with neat sketch? L2 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021
POWER SYSTEMS-II
(EEE)

Time: 3 hours

Max Marks: 60

PART-A

(Compulsory Questions)

Answer the following: (5 X 2 = 10 Marks)

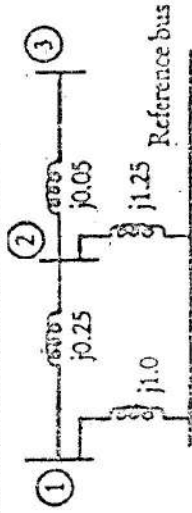
1. (a) Define cut-set and Tie-set
(b) What is per unit system?
(c) List out the known and unknown parameters in PV-bus
(d) Mention any two differences between Gauss-seidel and Newton- Raphson method
(e) What is power angle curve?

PART-B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Find the bus impedance matrix for the system whose reactance diagram as shown below. All the impedances are in p.u.



OR

3. (a) Derive the expression for Direct inspection method by using 3 Bus systems
(b) Explain the procedure for formulation of bus incidence matrix.

UNIT - II

4. Discuss the principle of symmetrical components. Derive the necessary equations to convert:
 - (i) Phase quantities into symmetrical components.
 - (ii) Symmetrical components into phase quantities.

OR

5. (a) Define per unit system and write equation for new base impedance?
(b) Derive an expression for the fault current in LLG fault.

UNIT - III

6. Write step by step algorithm for Gauss seidel method with PV buses.

OR

7. (a) What is Acceleration factor and Explain its role gauss seidel method?
(b) State merits and demerits of Gauss seidel method.

UNIT - IV

8. Write an Algorithm for N-R Polar Coordinate Method when PV Bus is present. L3 10M

OR

9. Draw a Flow Chart for N-R Rectangular Coordinate Method when PV Bus is absent. L3 10M

UNIT - V

10. (a) What is critical clearing angle? Explain by using Swing curves.
(b) Explain the Factors effecting the Transient stability. L1 5M
L2 5M

OR

11. (a) What is steady state stability and steady state stability limit.
(b) Discuss the various methods of improving steady state stability. L1 5M
L1 5M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY, PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021
Antennas & Wave Propagation
(ECE)

Time: 3 hours

Max.Marks: 60

PART-A**(Compulsory Questions)**

Answer the following; (5 X 2 = 10 Marks)

1. (a) Define Directivity of an antenna. [L1] 2M
- (b) What are the advantages of Yagi-Uda antenna? [L1] 2M
- (c) What are the applications of Microstrip antenna? [L1] 2M
- (d) What is the difference between BSA and EFA? [L1] 2M
- (e) What is meant by Ionospheric storms? [L1] 2M

PART-B**(Answer all five units, 5 x 10 =50 Marks)****UNIT - I**

2. (a) Explain Radiation Intensity and Antenna Gain. [L2] 5M
 - (b) Explain Antenna Directivity and Effective aperture of an Antenna [L2] 5M
- OR**
3. (a) Derive expression for Magnetic Field radiated by Half Wave Dipole and Sketch its Field Strength pattern. [L4] 5M
 - (b) What is meant by radiation pattern? Find the length of half wave dipole at 30MHz. [L3] 5M

UNIT - II

4. (a) Discuss about the helical antenna geometry, axial mode of radiation and its applications. [L3] 5M
 - (b) Give the applications of helical antennas. [L2] 5M
- OR**
5. (a) Draw and explain the three elements of Yagi-Uda array [L3] 5M
 - (b) Calculate the directivity of 20 turn helix with $a = 12\lambda$ and circumference equals to one wavelength [L3] 5M

UNIT - III

6. (a) Explain the construction and working of rectangular patch antenna [L3] 5M
- (b) What are the types of reflectors? Explain the features of parabolic [L3] 5M

OR

7. (a) Explain about the Reciprocity with respect to antenna measurements. [L3] 5M
- (b) Explain Gain measurement by direct comparison method [L3] 5M

UNIT - IV

8. (a) What is an antenna array? Define point sources and uniform linear array. [L2] 5M
- (b) Explain pattern multiplication with examples [L3] 5M

OR

9. (a) What are the different types of antenna arrays? [L2] 3M

- (b) Derive the expression for far field pattern of an array of two isotropic point sources at equal amplitude & opposite phase. [L4] 7M

UNIT - V

10. (a) Explain different modes of Wave Propagation. [L2] 5M
- (b) Explain about refraction and reflection of EM waves [L3] 5M

OR

11. (a) Explain Skip distance and derive its expression. [L3] 5M
- (b) Explain Multipath propagation [L2] 5M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021

BIOLOGY FOR ENGINEERS

(ECE & CSE)

Time: 3 hours

Max. Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)

- | | | |
|-----|---|----|
| (a) | Define taxonomy. | 2M |
| (b) | What is gene mapping? | 2M |
| (c) | List out the some important organic compounds present in living organism. | 2M |
| (d) | Draw a neat diagram of DNA double helix structure | 2M |
| (e) | What is kerbs cycle | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Write the differences between Plant cell and Animal cell in detail. 10M

OR

3. Draw neat labeled diagram of plant cell . Write the difference between plant cell and animal cell. 10M

UNIT - II

4. (a) Give an account on Duplicate Gene interaction. 5M
(b) Explain Monohybrid cross. 5M

OR

5. Define Mitotic Cell division. Explain Mitosis with neat diagram. 10M

UNIT - III

6. What are carbohydrates? Explain in detail about the mechanism in Enzymes. 10M

OR

7. Classify and explain monosaccharides. 10M

UNIT - IV

8. Describe the functions & Structure of Proteins. 10M

OR

9. Explain about genetic material of DNA. 10M

UNIT - V

10. Describe kerbs cycle in detail 10M

OR

11. Illustrate step by step processing of glycolysis. 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021

WEB TECHNOLOGIES

(CSE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

Answer the following; (5 X 2 = 10 Marks)

- | | | | |
|---|--|----|----|
| 1 | (a) What are HTML forms? | L1 | 2M |
| | (b) List out some primary CSS text properties. | L2 | 2M |
| | (c) Define servlet | L1 | 2M |
| | (d) What is the use of XML declaration? | L1 | 2M |
| | (e) What is SOAP? | L1 | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

- | | | | |
|----|--|----|-----|
| 2. | What is the significance of using forms on the web page? Enlist various components used on form with an example. | L1 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|--|----|----|
| 3. | (a) Create a HTML table with columns for a Country name, National sport, National flower, National animal, National tree. There must be at least five states as rows in the table. | L6 | 5M |
| | (b) Discuss in detail about Multimedia with an example. | L6 | 5M |

UNIT - II

- | | | | |
|----|--|----|-----|
| 4. | In how many ways we can insert CSS in an html document with an example for each. | L1 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 5. | List and explain JavaScript operators with an example. | L2 | 10M |
|----|--|----|-----|

UNIT - III

- | | | | |
|----|--|----|-----|
| 6. | Explain about a)HTTP servlet Request
b)HTTP servlet Response with syntax. | L2 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 7. | Write a Java servlet program to change the Background color of the page by the color selected by the user from the list box. | L6 | 10M |
|----|--|----|-----|

UNIT - IV

- | | | | |
|----|---|----|-----|
| 8. | What is the difference between Session and Cookie? Write a program to create a session, to set a value in session, and to remove data from a session. | L6 | 10M |
|----|---|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 9. | State and explain built-in functions in PHP. | L2 | 10M |
|----|--|----|-----|

UNIT - V

- | | | | |
|-----|--|----|----|
| 10. | (a) How XML is changing the Web? | L2 | 5M |
| | (b) Explain the method of creating a web service client with an example. | L2 | 5M |

OR

- | | | | |
|-----|---|----|-----|
| 11. | Explain client server architecture in AJAX. | L3 | 10M |
|-----|---|----|-----|

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations July/ Aug 2021

METROLOGY & MEASUREMENTS

(Mechanical Engineering)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)

- | | | | |
|-----|---|----|----|
| (a) | List out types of fits. | L2 | 2M |
| (b) | What are the purposes of Vernier calipers | L1 | 2M |
| (c) | Name the various types of errors in gears | L2 | 2M |
| (d) | How the resistance strain gauge is functioning? | L1 | 2M |
| (e) | How does a torque meter work? | L2 | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Describe briefly the principal features of the Indian standard System of limits and fits. L1 10M

OR

3. (a) Distinguish between 'Hole basis system' and 'Shaft basis system' of fits. L4 5M
(b) Define deviations. Explain types of deviations with the help of sketches. L1 5M

UNIT - II

4. Explain with the help of neat sketches the principle and construction of an auto collimator L2 10M

OR

5. Construct in detail the working of the Sine Bar to measure unknown angle L6 10M

UNIT - III

6. Elaborate method of measuring the gear tooth thickness by Constant Chord method with neat sketch L2 10M

OR

7. (a) Explain with neat sketch the gear tooth profile measurement. L2 5M
(b) Describe the parkinson's gear tester and state its limitations L1 5M

UNIT - IV

8. What is the principle of strain gauge? Explain any two methods of usage for measurement of strains with neat sketches. L2 10M

OR

9. Prove variable Capacitance Transducer is the most common form of measurement of displacement? L5 10M

UNIT - V

10. (a) Define manometer? Elaborate the U- tube Manometer in detail. L6 5M
(b) List out common piezoelectric material? Sketch Piezoelectric pressure transducer with parts. L1 5M

OR

11. What are the basic methods of force measurement? Elaborate elastic force devices with neat sketch L1 10M

Q.P. Code: 18EC0420

R18

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year - II Semester (R18) Regular Examinations July/Aug 2021

MICROPROCESSORS & MICROCONTROLLERS

(Common to ECE & EEE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

Answer the following: (5 X 2 = 10 Marks)

1. (a) Define machine level language. L1 2 M
- (b) Write the importance of instruction decoder. L1 2 M
- (c) Write a short note on TCON register configuration. L1 2 M
- (d) Write the difference between RLC A and RRC A. L1 2 M
- (e) Write a short note on 7 - segment display. L3 2 M

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. (a) With the help of block diagram explain the function of microcomputer. L1 5 M
- (b) Define memory and write the different types of memories. L1 5 M

OR

3. With the help of block diagram, explain the basic architecture of a microprocessor. L1 10 M

UNIT - II

4. Explain in detail, how data flow from memory to microprocessor. L1 10 M

OR

5. (a) Explain how timing and control signals are generated in 8051 microcontroller. L1 5 M
- (b) Explain the following instructions of 8085 microprocessor with example L2 5 M
 - i. Data transfer instructions
 - ii. Logical instructions.

UNIT - III

6. Draw the pin diagram of 8051 microcontroller and explain the function of each pin in detail. L2 10 M

OR

7. (a) Explain how the memory is organized in 8051 microcontroller in detail. L1 5 M
- (b) Define counter. Write the applications of counter L1 5 M

UNIT - IV

8. (a) Write the difference between Jump and Call operations L1 4 M
- (b) With example, explain logical instructions of 8051 microcontroller. L2 6 M

OR

9. (a) What are the various arithmetic operations performed in assembly language. L2 4 M
- (b) Explain how the 8051 μ C performs rotate and swap operations with an example. L2 6 M

Q.P. Code: 18EC0420

R18

UNIT - V

10. (a) List instruction command codes for programming an LCD. L1 5 M
- (b) With the help of diagram, explain the interfacing of LCD Display with 8051 microcontroller. L3 5 M

OR

11. (a) Write a short note on Analog to Digital Converter. L1 4 M
- (b) With the help of a neat diagram, show the interfacing of 7 - segment display with 8051 μ C and explain its operation. L2 6 M

Q.P. Code: 18CE0124

R18

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021
Transportation Engineering

(Civil Engineering)

Use of IRC:37-2012, IRC:58-2011 is permitted

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

Answer the following: (5 X 2 = 10 Marks)

1. (a) Name any four highway cross-sectional elements. L1 2M
- (b) What is the relationship between speed and Flow? L1 2M
- (c) List out the types of pavement based on structural behaviour. L1 2M
- (d) What are the different types of rails used? L1 2M
- (e) If the ruling gradient is 1 in 140 on a particular section of MG and at the same time a 3.8 degree curve is situated on this ruling gradient, find out the allowable ruling gradient. L3 2M

PART- B

(Answer all five units, 5 x 10 =50 Marks)

2. Calculate the minimum sight distance required to avoid a head on collision of two cars approaching from opposite directions at 90 and 60 kmph. Assume a reaction time of 2.5 seconds, coefficient of friction of 0.7 and a brake efficiency of 50 per cent, in either case. L3 10M

OR

3. (a) Enumerate the factors governing the width of carriage way. L1 5M
- (b) List the Factors affecting OSD. Explain Lag distance and Braking distance L1 5M

4. Discuss about various Engineering measures that can help in reducing time accident rate. L2 10M

OR

5. Explain briefly about traffic control devices. L1 10M
6. Design a new flexible pavement for a two-lane undivided carriageway using the following data: Design CBR value of subgrade = 8.0%, Initial traffic on completion of construction = 1800 CV per day, Average growth rate = 6.0% per year, Design life = 15 years, VDF value = 2.5. L3 10M

OR

7. (a) Classify different types of joints in CC pavements. L1 5M
- (b) What are the functions of tie bars and dowel bars in rigid pavements? L1 5M
8. Giving a typical cross section of a permanent way on an embankment, indicate various components. Also describe the functions of various components of a permanent way. L2 10M

OR

9. What are the requirements of rail joint? Explain the different types of rail joint. L1 10M

Q.P. Code: 18CE0124

R18

10. (a) Compute the maximum permissible speed for the following data on a curve of high speed B.G for the following data. Degree of curve = 1.2°, Amount of super elevation = 8 cm, Length of transition curve = 150 m, Maximum sanctioned speed likely to be 135 kmph. L3 5M
- (b) Discuss briefly about various components of turnouts. L2 5M

OR

11. Discuss briefly about stations with different types L1 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021
FOUNDATION ENGINEERING
(Civil Engineering)

Time: 3 hours

Max.Marks: 60

PART-A
(Compulsory Questions)

1. Answer the following: (5 X 2 = 10 Marks)
- Compare shallow foundation with deep foundation
 - Define Pile group efficiency
 - Write Components of Well foundations
 - What do you mean by vibration Isolation?

PART-B

(Answer all five units, 5 x 10 = 50 Marks)

UNIT - I

2. In certain sea shore the height of the retaining wall with smooth vertical back is 4.4m. The foundation is over an expansive soil and has a horizontal surface at the level of top of the wall and carries a u.d.l of 197 kN/m². The Unit weight and angle of internal friction are 19 kN/m³ and 30° respectively. Find the magnitude of the Total active pressure per meter length of this sea shore wall and point of its application.

OR

- What are different types of Retaining walls
 - Write about stability considerations of Gravity Retaining Wall
- Explain with neat sketches different modes of shear failures of shallow foundation

OR

5. Define Settlement. Explain various Types of settlements.
- UNIT - III**
6. What is 'negative skin friction' on pile and why does it cause concern? How do you estimate its value in clay and sandy soil? Suggest means of controlling it.

OR

- What are the different types of piles according to its function
 - A Pile is driven in uniform clay of large depth. The clay has an unconfined compressive strength of 0.90 kg/m². The pile is 30cm diameter and 6m long. Determine the safe load carrying capacity of the pile assuming a factor of safety of 3. Assume adhesion factor of 0.70.

8. Explain different shapes of wells with neat sketch.
- UNIT - IV**

9. Discuss the construction Aspects of Caissons
- UNIT - V**

10. (a) Differentiate between free vibration and forced vibration
(b) Explain reinforcement and construction details of machine foundations.
- OR**

11. A foundation block of weight 30kN rests on a soil for which the stiffness may be assumed as 25000kN/m. The machine is vibrated vertically by an exciting force of 3.0 sin (30t) kN. Find the natural frequency, natural period, natural circular frequency and the amplitude of vertical displacement. The damping factor is 0.50.

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester (R18) Regular Examinations July/ Aug 2021
INDUSTRIAL ENGINEERING & MANAGEMENT
(Mechanical Engineering)

Max.Marks: 60

Time: 3 hours

PART-A**(Compulsory Questions)**

Answer the following: (5 X 2 = 10 Marks)

1. (a) Compare Theory X and Theory Y. [L2] 2M
- (b) List the types of plant layout. [L1] 2M
- (c) What are the benefits of Work Measurement? [L1] 2M
- (d) Define Elasticity of demand. [L1] 2M
- (e) Summarize the demerits of Accounting Rate of Return method. [L2] 2M

PART-B**(Answer all five units, 5 x 10 =50 Marks)****UNIT - I**

2. (a) Explain the Mayo's Hawthorne experiments. [L2] 5M
- (b) Explain the Maslow's Hierarchy of human needs. [L2] 5M

OR

3. (a) "Management is the art of getting things done through and with the people", Interpret. [L2] 5M
- (b) Discuss the systems approach to management. [L6] 5M

UNIT - II

4. What are advantages and disadvantages of urban and suburban locations for a plant? Compare rural and urban sites for the location of the plant. [L1] 10M

OR

5. Explain the importance of travel chart in effective layout of a production plant. [L5] 10M
Prepare a travel chart for a hypothetical engineering concern with 4 functional departments, i.e. foundry, machining, welding and inspection.

UNIT - III

6. (a) Explain the various method study symbols in detail. [L2] 5M
- (b) Compare outline process chart and flow process chart. [L2] 5M

OR

7. (a) What are the typical questions used in operation analysis with respect to material shape, equipment, tool, and other aspects of the operation and elements of operation? [L1] 5M
- (b) What is the purpose of string diagram and explain it with an example. [L2] 5M

UNIT - IV

8. Explain briefly statistical methods of forecasting. [L5] 10M
(i) Moving average method (ii) Leading indicators method.

OR

9. Classify and explain the types of markets. [L2] 10M

UNIT - V

- 10 (a) Explain the traditional payback period method. Also list out its merits and demerits. [L2] 6M
- (b) Determine the pay-back period for the project whose cost is Rs. 8, 00,000 yields a profit of Rs. 80,000 after depreciation at 12% per annum but before tax of 40%. [L5] 4M

OR

- 11 Define profit and loss account and prepare the format for profit and loss account with suitable example. [L5] 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester (R18) Regular Examinations July/ Aug 2021

LINUX PROGRAMMING

(CSE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)

- | | | |
|---|----|----|
| (a) Explain date command with its syntax and example. | L1 | 2M |
| (b) What is ignoreeof option? Write the syntax to ON or OFF the option. | L4 | 2M |
| (c) Explain cut command with its syntax and example. | L1 | 2M |
| (d) What would be the effect of the command <code>grep "[A - Z]" file1</code> | L1 | 2M |
| (e) Define trash file. | L1 | 2M |

PART- B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Write about the operations that can be performed on both directories and file. L2 10M

OR

3. (a) Write about the operations unique to directories alone? L3 5M
(b) Discuss about listing directories and files. L2 5M

UNIT - II

4. (a) What is JOB? Explain in detail foreground and background jobs. Give example. L1 5M
(b) Explain sort command with its options. L2 5M

OR

5. (a) Explain concatenate command with its options. L2 5M
(b) Illustrate the following L4 5M
i) CDPATH ii) PATH iii) HOME iv) Primary prompt v) TERM

UNIT - III

6. List the range command in the vi Editor and explanation. L1 10M

OR

7. (a) How files with duplicate lines are handled in Unix L1 5M
(b) Write a shell program for counting characters, words and line? L3 5M

UNIT - IV

8. (a) What does a startup script consist of? L2 5M
(b) Mention the primary difference between fgrep and the other two members of the family? L2 5M

OR

9. List and explain the expressions involved in Korn shell. L1 10M

UNIT - V

10. (a) What are the startup scripts in the C Shell? L1 5M
(b) What are the shutdown scripts in the C Shell? L1 5M

OR

11. How decision making is done? Explain with program. L1 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021
MODERN CONTROL THEORY
(Electrical and Electronics Engineering)

Time: 3 hours

Max.Marks: 60

PART-A**(Compulsory Questions)**

1. Answer the following; (5 X 2 = 10 Marks)
- What are the advantages of state-space representation? Compare with transfer function representation. L2 2M
 - State the condition for observability by Kalman's method. L2 2M
 - Define full order & reduced-order observer. L1 2M
 - What are the methods available for the analysis of nonlinear system? L1 2M
 - State Lyapunov instability theorem. L1 2M

PART-B**(Answer all five units, 5 x 10 =50 Marks)****UNIT - I**

2. Consider the following transfer function of a system $\frac{Y(s)}{U(s)} = \frac{s+6}{s^2+6s+6}$. Obtain a state-space representation of the system. L4 10M

OR

3. (a) Computer the solution of state equation $\dot{X} = \begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix} X + \begin{bmatrix} 1 \\ 1 \end{bmatrix} U; X_0 = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$ L3 5M
(b) State and prove the various properties of the state transition matrix. L2 5M

UNIT - II

4. A System is represented by the state model: L4 10M
- $$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \\ \dot{x}_3 \end{bmatrix} = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 1 & 3 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} + \begin{bmatrix} 0 & 1 \\ 1 & 0 \\ 0 & 1 \end{bmatrix} U; y(t) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$$
- Check whether the system is (a) Completely Controllable, and (b) Completely Observable.

OR

5. State and prove the principle of duality between controllability and observability. L2 10M

UNIT - III

6. A single input system is described by the following state equation L1 10M

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \\ \dot{x}_3 \end{bmatrix} = \begin{bmatrix} -1 & 0 & 0 \\ 1 & -2 & 0 \\ 2 & 1 & -3 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} + \begin{bmatrix} 10 \\ 1 \\ 0 \end{bmatrix} U.$$

Design a state feedback controller which will give closed-loop poles at $-1 \pm j2, 6$.

OR

7. (a) Justify the need for state observer? L5 5M

- (b) What is pole placement by state feedback? L1 5M

UNIT - IV

8. Explain the classification of non-linear systems. L2 10M

OR

9. With the help of graphical representations, explain various common physical nonlinearities. L2 10M

UNIT - V

10. (a) Show the graphical representation of stability, asymptotic stability, and instability L1 5M
(b) Define quadratic form and Hermitian form. L1 5M

OR

11. Show that the asymptotically stable condition of a linear system $\dot{x} = Ax$ at origin is: $A^T P + P A = -Q$. Where P and Q are the symmetric positive definite matrices. L2 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester (R18) Regular Examinations July/Aug 2021
MICROWAVE THEORY & TECHNIQUES
(ECE)

Time: 3 hours

Max.Marks: 60

PART - A**(Compulsory Questions)**

Answer the following: (5 X 2 = 10 Marks)

1. (a) Define Wave guide and guide wave length. L1 2M
- (b) Why TEM mode cannot propagate in rectangular waveguides? L2 2M
- (c) What is an attenuator and mention different attenuator? L1 2M
- (d) List the different microwave signal sources. L1 2M
- (e) List the possible errors in VSWR measurement. L1 2M

PART - B

(Answer all five units, 5 x 10 =50 Marks)

UNIT - I

2. Assume a lossless transmission line with its transmission parameters: $R=0$ and $G=0$. Formulate the transmission line equation for this condition. L3 10M

OR

3. (a) Show that characteristics impedance of a transmission line $Z_0 = \sqrt{L/C}$ L2 5M
- (b) Explain briefly on (i) Guide wavelength (ii) dominant mode and (iii) over mode conditions in waveguide. L2 5M

UNIT - II

4. Identify an explain the working of a multiport junction microwave device in which the wave can travel from one port to the next immediate port in one direction only; Obtain its S-matrix also. L2 10M

OR

5. A 2 port non-reciprocal ferrite device produces a minimum attenuation to wave propagation in one direction and maximum attenuation in the opposite direction-identify this device, explain its working and derive its Scattering matrix. L2 10M

UNIT - III

6. Identify the microwave tee, where the H-plane and E-plane tee are combined for wave propagation. Explain its working mechanism and derive its S-matrix. L2 10M

OR

7. (a) Explain the various performance parameters of a directional coupler with relevant expressions. L2 5M
- (b) State and prove the Symmetry property of $|s|$ for a reciprocal network L3 5M

UNIT - IV

8. Discuss in detail about the working of Reflex Klystron with mechanism and modes of oscillation. L3 10M

9. Determine the Hull cutoff magnetic and voltage expression for cylindrical magnet for field condition $B_0 < B_{oc}$. L3 10M

OR**UNIT - V**

10. (a) With the help of a neat sketch, briefly explain the functions of different blocks of a microwave bench. L2 5M
- (b) Two identical directional couplers are used in a waveguide to sample the incident and reflected powers. The output of the two couplers is found to be 2.5mW and 0.15mW. Determine the value of VSWR in the waveguide. L3 5M

OR

11. (a) Explain in detail about Swept Frequency method of Q Measurement. L2 5M
- (b) Explain the measurement of Quality factor (Q) using slotted line method L2 5M