

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

Managerial Economics & Financial Analysis

(CIVIL Engineering)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

- | | | | |
|-----|---|----|----|
| (a) | Write short notes on Micro Economics. | L1 | 2M |
| (b) | What do you understand by Opportunity cost? | L1 | 2M |
| (c) | Write short notes on Skimming pricing. | L1 | 2M |
| (d) | What do you mean by Net working capital? | L1 | 2M |
| (e) | What is a Trial Balance? | L1 | 2M |

PART- B

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

UNIT - I

- | | | | |
|----|--|----|----|
| 2. | (a) Define the term "Demand". Explain the types of Demand in detail. | L1 | 5M |
| | (b) Define the law of demand. What are their exceptions? | L2 | 5M |

OR

- | | | | |
|----|--|----|-----|
| 3. | Define Elasticity of demand and Explain Measurement of Elasticity of Demand in detail. | L3 | 10M |
|----|--|----|-----|

UNIT - II

- | | | | |
|----|--|----|-----|
| 4. | Define 'Cost'. How are costs classified? Explain any five important cost concepts useful for managerial decisions. | L3 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|---|----|-----|
| 5. | Define Break-even point with graph and state the assumptions. | L3 | 10M |
|----|---|----|-----|

UNIT - III

- | | | | |
|----|---|----|-----|
| 6. | Explain the different methods of pricing followed by companies in detail. | L5 | 10M |
|----|---|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 7. | What is Perfect Competition? Discuss its features. | L5 | 10M |
|----|--|----|-----|

UNIT - IV

- | | | | |
|----|---|----|-----|
| 8. | Explain the methods of capital budgeting in detail. | L3 | 10M |
|----|---|----|-----|

OR

- | | | | |
|----|---|----|-----|
| 9. | Krishna company has the following two investment alternatives. Each requires Rs 10, 00,000 cash outlay. The expected cash inflows are as follows: | L5 | 10M |
|----|---|----|-----|

Year	Project1	Project 2
1	7,00,000	5,00,000
2	5,00,000	5,00,000
3	6,00,000	4,00,000

The cost of capital is 10% p.a. Evaluate both the projects using NPV Method.

UNIT - V

- | | | | |
|-----|---|----|-----|
| 10. | What is meant by Ratio analysis? Explain briefly about various types of ratios. | L3 | 10M |
|-----|---|----|-----|

OR

- | | | | |
|-----|--|----|-----|
| 11. | A firm's sales during the year were Rs.4, 00,000 of which 60 percent were on credit Basis. The balance of debtors at the beginning and at the end of the year was Rs.25, 000 and Rs.15, 000 respectively. Calculate debtor's turnover ratio of the firm. And also find out debt collection period. | L4 | 10M |
|-----|--|----|-----|

Q.P. Code: 18HS0813

R18

Q.P. Code: 18HS0813

R18

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022
MANAGEMENT SCIENCE
(Common to CSE & ECE)

UNIT - V

10. Elaborate the how modern concepts like JIT, MRP, Six Sigma changed the production environment? L6 10M

OR

11. Explain the enterprise resource planning and its utilities in management. L5 10M

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

- What is line organization.
- Examine the algebraic model of EOQ.
- Define HRM.
- Explain about SWOT analysis.
- Explain the concept of JIT

L1 2M
L3 2M
L1 2M
L2 2M
L2 2M

PART-B

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

UNIT - I

a. Briefly explain the Weber 's Ideal Bureaucracy.

b. Examine the Span of control.

L2 5M
L2 5M

OR

3. Define and explain in the management and its various functions.

L2 10M

UNIT - II

4. Discuss and Explain the various types of plant layout with suitable examples?

L3 10M

OR

5. Explain the concept of work study and its types

L2 10M

UNIT - III

6. Explain and evaluate the process of recruitment and employee selection

L5 10M

OR

7. What is job evaluation? Explain various methods of Job Evaluation

L5 10M

UNIT - IV

8. Explain SWOT analysis and its components by taking an industry example.

L4 10M

OR

9. A small engineering project consists of six activities. The three times estimates in number days for each activity are given below.

Activity	1-2	2-3	3-5	5-6	1-4	4-5
t_o	2	1	0	7	3	2
t_m	5	1	6	7	3	8
t_p	8	1	18	7	3	14

Find out:

- Calculate the values of expected time (te), and S.D variance (v_i) of each activity
- Draw the network diagram and mark on each activity
- Calculate EST and LFT and mark them on the network diagram
- Calculate total slack for each activity
- Identify the critical path and mark on the network diagram
- Probability of completing project in 25 days.

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

ELECTRICAL DISTRIBUTION SYSTEMS

(EEE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

1. (a) Discuss about loss factor.
- (b) Differentiate between radial and loop types of primary distribution feeders.
- (c) What are the advantages and disadvantages of outdoor substation?
- (d) Mention the advantages of Shunt compensation?
- (e) Explain automatic meter reading (AMR).

L1 2M
L1 2M
L1 2M
L1 2M
L1 2M

PART-B

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

UNIT - I

2. A generating station has the following daily load cycle:
Time (Hours): 0-6 6-10 10-12 12-16 16-20 20-24
Load (MW) : 40 50 60 50 70 40
Draw the load curve and find (i) maximum demand (ii) units generated per day (iii) average load and (iv) load factor.

L4 10M

OR

3. (a) Define and explain the terms feeder, distributor & service mains with diagram.

L2 5M

- (b) Examine the relation between load factor and loss factor.

L3 5M

UNIT - II

4. A two-wire d.c distributor AB, 600 meters long is loaded as under:
Distance from A (meters): 150 300 350 450
Loads in Amperes : 100 200 250 300
The feeding point A is maintained at 440V and that of B at 430V. If each conductor has a resistance of 0.01Ω per 100 meter, calculate (i) The current supplied from A to B (ii). The power dissipated in the distributor.

L4 10M

OR

5. (a) Derive an expression for the voltage drop for a uniformly loaded distributor fed at one end.

L3 5M

- (b) List out the advantages and disadvantages AC distribution.

L2 5M

UNIT - III

6. Explain how the rating of distribution substation can be calculated by taking a general case with 'n' number of feeders.

L3 10M

OR

7. Draw the layout and schematic connection of underground sub-station and mention the advantages and disadvantages.

L3 10M

UNIT - IV

8. (a) Explain the role of shunt and series capacitors in power factor correction. Compare their performance in power factor correction.

L3 6M

- (b) Discuss the need of power factor improvement in distribution system.

L2 4M

OR

9. (a) Explain the practical procedure to determine the best capacitor location. List out the various reasons for low power factor and explain.

L3 5M

L2 5M

UNIT - V

10. Explain in detail about the distribution automation and list out the various functions distribution automation.

L2 10M

OR

11. Write a short note on

L4 10M

- (i) Consumer information service and

- (ii) Sensors used in distribution automation

SIDDHARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR

(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

(Compulsory Questions)

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

- Write the Bhogues compounds of cement
- Define Workability? List the factors affecting workability
- Define Dynamic modulus of Elasticity
- Define durability of concrete? Write the factors affecting durability of concrete
- Differentiate between Nominal mix design and Design mix method

L1 2M
L1 2M
L1 2M
L1 2M
L3 2M

PART- B

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

UNIT - I

- What is alkali-aggregate reaction? Explain how it will affect the concrete properties L3 5M

- List out various physical and mechanical properties of aggregates L2 5M

OR

- Explain various types of admixtures with their functions L3 10M

UNIT - II

- Briefly explain about manufacturing of concrete. L2 10M

OR

- With neat diagram, write the procedure involved in determining the split tensile strength of concrete L3 10M

UNIT - III

- Explain Schmidt's Rebound Hammer test and the limitations and applications of the same. L3 10M

OR

- What do you mean by Creep? Explain the various factors affecting creep of concrete L3 10M

UNIT - IV

- How the performance of concrete is affected by acid attack. Explain L3 10M

OR

- How would you improve the quality of concrete by doing surface treatment? Explain with appropriate examples. L3 10M

UNIT - V

- Explain in detail about the statistical quality control and acceptance criteria of concrete. L3 10M

OR

- Design a M30 concrete mix using IS method of Mix Design for the following data. L4 10M

- Maximum size of aggregate - 20mm (Angular).
 - Degree of workability - 0.90 compaction factor.
 - Quality control - good
 - Type of exposure - severe
 - Specific Gravity: A. Cement - 3.10 B. Sand - 2.68 C. Coarse aggregate - 2.69
 - Water absorption: A. Coarse aggregate - 1.0% B. Fine aggregate - 2.0%
 - Free surface moisture: A. Coarse aggregate- Nil B. Fine aggregate: 2.0%
 - Sand conforms to zone III grading.
- Assume any other data required suitably

SIDDARATHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022
UTILIZATION OF ELECTRICAL ENERGY
(EEE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

1. (a) Define luminance.
- (b) Explain Spot welding.
- (c) What are the major parts of an electric drive?
- (d) What is Notching period.
- (e) What are the types of track electrification systems?

L1 2M
L2 2M
L1 2M
L1 2M
L1 2M

PART-B

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

UNIT - I

2. (a) Write short notes on polar curves.
- (b) A filament lamp of 500W is suspended at a height of 4.5 m above the working plane and gives uniform illumination over an area of 6 m diameter. Assuming an efficiency of the reflector as 70% and efficiency of lamp as 0.8 watt per candle power, determine the illumination on the working plane

L1 5M
L3 5M

OR

3. State the laws of illumination. Explain the laws with the help of suitable diagrams and derive an equation of the same.

L1 10M

UNIT - II

4. Differentiate between A.C and D.C welding. Discuss about the techniques used for arc welding.

L2 10M

OR

5. What are the different types of heating? Explain in detail and Write advantages of electric heating

L3 10M

UNIT - III

UNIT - III

6. (a) What is the Classification of Electrical Drives?

L2 5M

- (b) What are the advantages and disadvantages of Electric drives?

L3 5M

OR

7. What are the factors influencing the choice of electrical drives?

L1 10M

UNIT - IV

UNIT - IV

8. (a) Compare A.C traction with D.C traction with necessary examples.

L2 5M

- (b) Explain about the different methods of electric braking systems in the case of traction.

L3 5M

OR

9. Describe how Plugging, Rheostatic braking and Regenerative braking are employed with DC series motor.

L2 10M

UNIT - V

OR

10. Explain the calculations of tractive effort required for train propulsion.

L2 10M

11. A 100-ton weight train has a rotational inertia of 10%. This train has to be run between two stations that are 3 km apart and has an average speed of 50 km/hr. The acceleration and the retardation during braking are 2 kmphps and 3 kmphps, respectively. The percentage gradient between these two stations is 1% and the train is to move up the incline the track resistance is 50 N/ton, then determine: 1. Maximum power at the driving axle. 2. Total energy consumption. 3. Specific energy consumption.

L3 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B. Tech IV Year I Semester (R18) Regular Examinations February 2022
MOBILE APPLICATION DEVELOPMENT
(CSE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

1. (a) What is Intent? (1)
- (b) Discuss on Screen Orientation. (2M)
- (c) Differentiate between Data Picker and Time Picker. (2M)
- (d) Recall Content Provider? (2M)
- (e) Define SMS? (1)

PART-B

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

UNIT - I

2. (a) Briefly explain versions of Android. (5M)
- (b) Describe the features of Android. (5M)

OR

3. Create android application to do addition of any two numerical digits. (1)

UNIT - II

4. Create an application that will pass one number to the next screen and on the next screen that number of items should be display in the list view. (10M)

(Write java code).

OR

5. Develop a Code for hide and display the Action Bar on Android Emulator. (10M)

UNIT - III

6. Develop a program to create a Login Activity using Basic Views. (10M)

OR

7. Discuss about Preference Fragment Neatly. (10M)

UNIT - IV

8. Develop a code to store online in file which resides in sd-card? (10M)

OR

9. Create a simple registration form using Edit Text, Radio Button, and store the user value in Shared Preference. (10M)

UNIT - V

10. (a) What is the use of broadcast? (5M)
- (b) How do you notify an activity from a Broadcast Receiver? (5M)

OR

11. Develop a code for Sending E-Mail in Android? (10M)

Q.P. Code: 18EC0440

R18

Q.P. Code: 18EC0440

R18

SIDDHARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR

(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

EMBEDDED SYSTEMS and IoT

(Electronics & Communication Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

(Compulsory Questions)

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

1. (a) What is the function of linker in embedded system development?
(b) List various levels of IoT.
(c) Define Software defined Network
(d) What is the purpose of Information Model?
(e) Explain in brief PIR sensor.

L1 2M
L1 2M
L1 2M
L2 2M
L2 2M

PART-B

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

UNIT - I

2. (a) Discuss on UART and USB interfaces.
(b) Discuss about the following software tools in an embedded system
assembler i) IDE ii) Prototyping i) Cross-

L1 5M
L2 5M

OR

3. (a) Compare the operation of Zigbee and Wi-Fi network.
(b) Explain the GPRS and RS-485 interfaces in embedded systems.

L2 5M
L2 5M

UNIT - II

4. (a) Describe various functional blocks of IoT.
(b) Distinguish between Rest API & Web Socket API.

L2 5M
L2 5M

OR

5. (a) Define an internet protocol and compare IPV4 and IPV6.
(b) Explain the various link layer protocols of IoT.

L2 5M
L3 5M

UNIT - III

6. Explain how IoT technology can be used in the following application areas:
(i) Structural health monitoring
(ii) Surveillance
(iii) Emergency response
(iv) Weather monitoring

L3 10M

OR

7. (a) Sketch the structure of Software defined networking for IoT & Explain it.
(b) Explain the Key elements of Software defined network for IoT.

L3 5M
L3 5M

UNIT - IV

8. (a) Explain the characteristics of Python programming language.
(b) Distinguish between procedure-oriented programming and object-oriented programming.

L2 5M
L4 5M

OR

9. Describe the following steps involved in IoT system design methodology:
(i) Purpose & Requirements Specification
(ii) Process Specification

L5 10M

UNIT - V

10. (a) List the flavors of Linux OS supported by Raspberry Pi device.
(b) Classify the various frequently used commands during operation of Linux OS.

L1 3M
L3 7M

OR

11. (a) Explain in brief on various Raspberry Pi interfaces used for data transfer.
(b) Compare the various single board computers which are alternatives to Raspberry Pi.

L1 3M
L3 7M

SIDDARATHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR

(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

AUTOMOBILE ENGINEERING

(Mechanical Engineering)

Time: 3 hours

Max.Marks: 60

PART-A**(Compulsory Questions)**

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

1. (a) Define front wheel drive. L1 2M
- (b) What are the types of pollutants? L1 2M
- (c) What is meant by Ignition? L1 2M
- (d) List out the different types of clutches. L1 2M
- (e) Name the Types of Steering Mechanisms. L1 2M

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

2. (a) Write the functions of the following engine components. L1 5M
- (i) Piston (ii) Connecting rod (iii) Crank shaft (iv) Valves (v) Cylinder
- (b) Explain front and rear wheel drive layout in detail with relevant sketch L2 5M

OR

3. Explain the following indirect injection type combustion chamber in C.I Engine with Neat sketch L5 10M
- (i) Swirl Chamber (ii) Pre-Combustion Chamber (iii) Air Cell or Energy Cell

UNIT - II

4. (a) What are the various types of alternate fuels available and mention their importance? L3 5M
- (b) Discuss the effects of emissions on human health. L2 5M

OR

5. Explain briefly about MPFI fuel supply system used in Automobiles with neat sketch. L3 10M

UNIT - III

6. Explain with the help of a neat diagram about working of a magnetic coil ignition system. L5 10M

OR

7. (a) What is meant by Engine cooling system? List out the different types of Cooling system. L3 5M
- (b) Explain about any one type of Lubrication Filters. L3 5M

UNIT - IV

8. What are the different types of clutches used in an automobile? Explain any one of them with neat diagram. L4 10M

OR

9. Explain in details about Differential used in automobile with neat diagram L4 10M

UNIT - V

10. (a) Explain about Torque Bar L2 5M
- (b) Discuss about shock absorber in detail L3 5M

OR

11. Answer all the following questions L4 10M
- Define ABS
- Define EBS
- Discuss about Traction control

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester (R18) Regular Examinations February 2022
FINITE ELEMENTS METHODS
(CE)

Time: 3 hours

Max.Marks: 60

PART-A
(Compulsory Questions)

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

1.
 - (a) List out various applications in FEM. L1 2M
 - (b) Define plane stress problems with example. L1 2M
 - (c) Define shape function. L1 2M
 - (d) Define bar and truss. L1 2M
 - (e) Write short notes on lagrangian elements with suitable examples. L1 2M

PART- B

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

UNIT - I

2. (a) What are the advantages, disadvantages and applications of FEM L1 5M
(b) Explain the concept of FEM briefly. L1 5M

OR

3. Explain the plane strain condition and write the constitutive relations for the plane strain condition. L1 10M

UNIT - II

4. Determine the shape functions N_1, N_2, N_3 at interior point 'p' for triangular element with local coordinates $P(3,1.5)$ and global coordinates $(1,3), (3,4)$ and $(4,6)$. L3 10M

OR

5. Explain area coordinate system and volume coordinate system in finite element analysis. L3 10M

UNIT - III

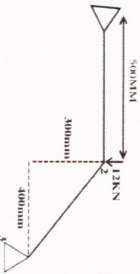
6. Define shape function. Write the properties of shape function and explain with example. L3 10M

OR

7. Derive shape function using polynomials by matrix method. L2 10M

UNIT - IV

8. For two bar truss as shown in figure. Determine the displacement at node 2 and stresses in both elements. $E=70\text{Gpa}, A=200\text{mm}^2$. L5 10M



OR

9. Evaluate strain displacement matrix and stress-strain matrix for the Tri-angular element under plane stress condition. The co-ordinate are $(0,0)$ $(6,0)$ and $(3,5)$. Assume $u=0.25$, $v=1\text{mm}$, $E=200\text{Gpa}$. L3 10M

UNIT - V

10. Derive the shape function for 4-noded Iso-parametric quadrilateral element. L2 10M

OR

11. Determine the Jacobian matrix for 2-D element which has local co-ordinates $\xi=0$ and $\eta=0$. The Global co-ordinates are $(1,1)$ $(5,2)$ $(4,5)$ and $(2,5)$. All dimensions are in mm. L3 10M

SIDDARATHA INSTITUTE OF SCIENCE AND TECHNOLOGY, PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester (R18) Regular Examinations February 2022
POWER SYSTEM PROTECTION
(EEE)

Time: 3 hours

Max. Marks: 60

PART-A
(Compulsory Questions)

Answer the following (5 X 2 = 10 Marks)

1. (a) What is meant by a circuit breaker? Explain its function. L1 2M
- (b) What is meant by MHO relay? L1 2M
- (c) Mention different types of faults occur in generators. L1 2M
- (d) State the types of faults in power system. L1 2M
- (e) Explain the need for a lightning arrester. L1 2M

PART-B

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

UNIT - I

2. (a) Discuss the different methods of "ARC" extinction. L2 5M
- (b) Illustrate resistance switching. L2 5M

OR

3. For a 132kV system, the reactance and capacitance up to the location of a C.B is 3 Ω and 0.015μF, respectively. Calculate the following:
 - i) The frequency of transient oscillations.
 - ii) The Maximum value of restriking voltage.
 - iii) The max value of RRRV.

UNIT - II

4. Explain working of microprocessor based over current relay with suitable diagram. L2 10M

OR

5. Describe the principle of Reactance relay and explain its characteristics on R-X planes. L3 10M

UNIT - III

6. (a) Calculate the required value of neutral resistance for a 3-phase 1kV alternator to protect 70% of the winding against earth-fault by a relay with pick-up current of 1 A. The neutral CT has a ratio of 250/5. L3 5M
- (b) Explain a scheme of protection for failure of alternator excitation. L2 5M

OR

7. (a) A 6.6 kV, 4000 kVA star connected alternator with a transient reactance of 2 Ω /phase and negligible resistance, is protected by a circulating current protective system. The alternator neutral is earthed through a resistor of 7.5Ω. The relays are set to operate when there is an out of balance current of 1 A in the secondary windings of the 500/5 current transformers. What percentage of each phase winding is protected against an earth fault? L3 5M
- (b) Explain the working principle of Buchholz relay with neat diagram? L2 5M

UNIT - IV

8. (a) Elaborate on various methods for protection of feeders. L2 5M
- (b) Describe in detail the protection of parallel feeder and ring mains. L2 5M

OR

9. (a) Discuss the importance of Bus bar protection. L2 5M
- (b) Draw the schematic diagram of the carrier current protection scheme of lines. Also explain its working principle. L2 5M

UNIT - V

10. (a) Discuss the phenomena of a lightning stroke. L2 5M
- (b) Explain and sketch neat diagram of valve type lightning arrester. L2 5M

OR

11. (a) What is horn gap arrester? Explain its working. Discuss the purpose of inserting a resistance. L2 5M
- (b) Enumerate the basic concepts of insulation coordination. L2 5M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester (R18) Regular Examinations February 2022
ARTIFICIAL INTELLIGENCE & MACHINE LEARNING
(CSE)

Time: 3 hours

Max.Marks: 60

PART-A
(Compulsory Questions)

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

- | | | | | |
|-----|---|--|----|----|
| (a) | List few characteristics of intelligent Agents. | | L1 | 2M |
| (b) | What is Alpha and Beta pruning. | | L2 | 2M |
| (c) | What are the types of machine learning. | | L1 | 2M |
| (d) | List the significance Hierarchal clustering. | | L2 | 2M |
| (e) | What is learning and training. | | L2 | 2M |

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

UNIT - I

- | | | | | |
|----|--|--|----|----|
| 2. | a) Describe any one of the Virtual assistant technology. | | L2 | 5M |
| | b) Explain how AI is changing the world. | | L2 | 5M |

OR

- | | | | | |
|----|---|--|----|-----|
| 3. | Discuss how AI solve the complex problems | | L3 | 10M |
|----|---|--|----|-----|

UNIT - II

- | | | | | |
|----|--|--|----|-----|
| 4. | Elaborate any two algorithms for Uninformed search problems. | | L4 | 10M |
|----|--|--|----|-----|

OR

- | | | | | |
|----|--|--|----|-----|
| 5. | With example explain the local search Algorithm. | | L3 | 10M |
|----|--|--|----|-----|

UNIT - III

- | | | | | |
|----|---|--|----|-----|
| 6. | With suitable example explain the Bayesian decision tree. | | L3 | 10M |
|----|---|--|----|-----|

OR

- | | | | | |
|----|--|--|----|-----|
| 7. | Elaborate the search algorithm which efficiently operates on general state representation. | | L4 | 10M |
|----|--|--|----|-----|

UNIT - IV

- | | | | | |
|----|--|--|----|-----|
| 8. | Explain with example the K-means of clustering Algorithm | | L3 | 10M |
|----|--|--|----|-----|

OR

- | | | | | |
|----|---|--|----|-----|
| 9. | Explain the maximization algorithm with real world application. | | L4 | 10M |
|----|---|--|----|-----|

UNIT - V

- | | | | | |
|-----|--|--|----|-----|
| 10. | Compare model based and temporal difference learning | | L3 | 10M |
|-----|--|--|----|-----|

OR

- | | | | | |
|-----|--|--|----|-----|
| 11. | Describe in detail how reinforcement learning maps situation into actions. | | L4 | 10M |
|-----|--|--|----|-----|

Q.P. Code: 18EC0431

R18

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

VLSI DESIGN

(ECE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

- | | | |
|---|----|----|
| (a) Define Threshold Voltage of the MOS transistor | L1 | 2M |
| (b) Draw the circuit diagram of CMOS Inverter | L1 | 2M |
| (c) List Alternate gate circuits | L1 | 2M |
| (d) Differentiate Comparator and Magnitude Comparator | L1 | 2M |
| (e) Enumerate the advantages of CPLD | L1 | 2M |

PART- B

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

UNIT - I

- | | | |
|--|----|----|
| 2. a) Explain working of the NMOS Transistor | L2 | 5M |
| b) Summarize the evolution of microelectronics | L2 | 5M |

OR

- | | | |
|-------------------------------|------------------------------------|-----|
| 3. Explain the following | L2 | 10M |
| (i) Channel length Modulation | ii) Transconductance | |
| (iii) Output Conductance | iv) Figure of merit (ω_0) | |

UNIT - II

- | | | |
|--|-----------------------|-----|
| 4. Construct layout diagram for the logic equations in CMOS logic. | L3 | 10M |
| (i) $Y = (A + B)C$ | (ii) $Z = (AB + CD)E$ | |

OR

- | | | |
|---|----|----|
| 5. a) Illustrate stick diagram of AND-OR-INVERTER in CMOS design Style | L2 | 5M |
| b) Explain about Implant and demarcation line in stick diagrams with neat sketches. | L2 | 5M |

UNIT - III

- | | | |
|---|----|-----|
| 6. Explain the necessity of floor planning concept in VLSI circuits, and Discuss with a suitable example. | L2 | 10M |
|---|----|-----|

OR

- | | | |
|--|----|-----|
| 7. What are the design methods used in physical design cycle? Explain each term with suitable diagrams | L2 | 10M |
|--|----|-----|

UNIT - IV

- | | | |
|--|----|-----|
| 8. Explain different adder designs in sub circuit design with neat sketches. | L3 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|----|
| 9. a) Compare different types of memory elements | L2 | 5M |
| b) Develop the 4x4 array multiplier | L3 | 5M |

UNIT - V

- | | | |
|---|-----------------------------|-----|
| 10. Design the following functions in PLA structure | L6 | 10M |
| (i) $Y1 = A'B'C' + ABC + A'B + ABC'$ | ii) $Y2 = ABC + A'B'C + AC$ | |
| (iii) $Y3 = A'BC' + AB'C + B'C'$ | | |

OR

- | | | |
|--|----|-----|
| 11. Explain Chip Level Test techniques and its methodology | L2 | 10M |
|--|----|-----|

SIDDHARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022
REFRIGERATION AND AIR CONDITIONING
(MECH)

Time: 3 hours

Max.Marks: 60

PART-A
(Compulsory Questions)

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

- Define one Ton of Refrigeration. L1 2M
 - What is the use of p-h chart for a VCR cycle? L1 2M
 - What are the desirable properties required by refrigerant-absorbent pairs L1 2M
 - Define Psychrometry L1 2M
 - Discuss the significance of Comfort chart L1 2M

PART-B

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

UNIT - I

- What is the necessity of refrigeration? L1 5M
 - With a neat sketch, explain the working of simple air refrigeration system L1 5M

OR

- In a refrigeration plant working on Bell - Coleman cycle, air is compressed to 5 bar from 1 bar. Its initial temperature is 10°C . After compression, the air is cooled up to 20°C in a cooler before expanding to a pressure of 1 bar. Determine the theoretical C.O.P of the plant and net refrigerating effect. Take $C_p = 1.005\text{ kJ/kg K}$ and $C_v = 0.718\text{ kJ/kg K}$ L5 10M

UNIT - II

- Explain the working of vapour compression refrigeration system with the help of P-V and T-S diagrams. L1 10M

OR

- The temperature limits of an ammonia refrigerating system are 25°C and -10°C . If the gas is dry at the end of compression, calculate the coefficient of performance of the cycle assuming no under cooling of the liquid ammonia. Use the following table for properties of ammonia. L5 10M

Temperature $^\circ\text{C}$	Liquid Heat (kJ/ kg)	Latent Heat (kJ/ kg)	Liquid Entropy (kJ/ kg-K)
25	298.9	1166.94	1.1242
-10	135.37	1297.68	0.5443

UNIT - III

- With a neat sketch, explain the working of Lithium-Bromide vapour absorption system. L2 10M

- Explain the working of a simple vapour absorption refrigeration system with neat sketch. L1 10M

OR

- With help of psychrometric chart, explain the following processes (i) Sensible heating (ii) Sensible cooling L5 6M
 - Define Bypass factor and Sensible heat factor for sensible heating process L1 4M

OR

- Atmospheric air at 0.965 bar enters the adiabatic saturator. The wet bulb temperature is 20°C and dry bulb temperature is 31°C during adiabatic saturation process. Determine (i) humidity ratio of the entering air (ii) vapour pressure and relative humidity at 31°C and (iii) dew point temperature. L5 10M

UNIT - V

- Enumerate the differences between winter air conditioning system and summer air conditioning system. L2 10M

OR

- With a block diagram, explain the working of summer air conditioning system. L2 10M

Q.P. Code: 18CE0141

R18

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester (R18) Regular Examinations February 2022
ENVIRONMENTAL IMPACT ASSESSMENT & MANAGEMENT
(CE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

- | | | |
|---|----|----|
| (a) Define IEE. | L1 | 2M |
| (b) List out the various EIA method. | L1 | 2M |
| (c) What are the main causes for air pollution? | L1 | 2M |
| (d) What are the sequences in performing Risk Management? | L1 | 2M |
| (e) Describe the process of Audit protocol. | L1 | 2M |

PART- B

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

UNIT - I

- | | | |
|--|----|----|
| 2. (a) Write in detail about the impact evaluation and analysis. | L1 | 5M |
| (b) What are the analytical functions associated with the EIA? | L1 | 5M |

OR

- | | | |
|--|----|-----|
| 3. Discuss in detail about the impacts of various project activities on human aspects. | L2 | 10M |
|--|----|-----|

UNIT - II

- | | | |
|--|----|-----|
| 4. Explain about Ad-hoc method of EIA analysis | L2 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|-----|
| 5. Discuss the importance of network methods in the assessment of impacts. | L2 | 10M |
|--|----|-----|

UNIT - III

- | | | |
|---|----|----|
| 6. (a) List the conceptual approach to study surface water environment impacts. | L2 | 5M |
| (b) What are the physical and chemical characteristics of water? Brief it. | L1 | 5M |

OR

- | | | |
|---|----|-----|
| 7. Make a note on important surface water contaminants and their impacts in a table format. | L3 | 10M |
|---|----|-----|

UNIT - IV

- | | | |
|---|----|-----|
| 8. Give and explain the main causes for depletion of natural vegetation or biodiversity in India. | L3 | 10M |
|---|----|-----|

OR

- | | | |
|---|----|----|
| 9. (a) Define the terms Hazard, Risk, Probability, and Risk Management. | L2 | 5M |
| (b) Explain the various key steps in performing an Environmental Risk Assessment? | L2 | 5M |

UNIT - V

- | | | |
|--|----|-----|
| 10. Discuss about the Water pollution prevention & protection act and its functions. | L2 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|-----|
| 11. Explain the environmental impact of a dam with a case study? | L2 | 10M |
|--|----|-----|

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

POWER QUALITY

(EEE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)
- | | | |
|---|----|----|
| (a) What is ment by dc offset | L1 | 2M |
| (b) What is the main cause for impulsive transient? | L1 | 2M |
| (c) Define THD | L2 | 2M |
| (d) What is ment by true RMS? | L3 | 2M |
| (e) What is Solid State Breaker? | L2 | 2M |

PART- B

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

UNIT - I

2. What are the power quality standards? L1 10M
- OR
3. Classify the different types of power quality issues. L2 10M

UNIT - II

4. (a) Explain the long duration voltage variations L1 5M
(b) Explain the short duration voltage variation L1 5M

OR

5. Explain in detail the role of capacitors for the voltage regulation. L1 10M

UNIT - III

6. What are the harmonics sources from industrial loads? L2 10M

OR

7. Explain the principles of controlling harmonics L1 10M

UNIT - IV

8. Explain about the flicker meters. L2 10M

OR

9. Explain about the permanent power quality monitoring equipment. L1 10M

UNIT - V

10. What is the need for current limiter? Discuss the operation of a Solid state current limiter. L2 10M

OR

11. Explain the principle of DVR operation used for sag mitigation? L1 10M

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

BIG DATA ANALYTICS

(CSE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)
- | | | |
|--|----|----|
| (a) Formulate Hadoop development | L6 | 2M |
| (b) Construct the need for a distributed file system | L3 | 2M |
| (c) List the parameters of mappers and reducers? | L1 | 2M |
| (d) What are pig Latin relational operators | L2 | 2M |
| (e) List out 5 hive shell commands. | L1 | 2M |

PART- B

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

UNIT - I

2. Explain the difference between structure, unstructured and semi-structure data with an examples. L4 10M

OR

3. (a) What is Big Sheets? What can be done with big sheets? L1 5M
(b) Explain in detail about Infosphere Big Insights ? L2 5M

UNIT - II

4. Explain the block, name node and data node in Hadoop file system L2 10M

OR

5. Elaborate the AVRO file format with a diagram L6 10M

UNIT - III

6. Estimate the Significance of YARN over Classic MapReduce Job Run. L5 10M

OR

7. (a) What are the Properties in Task Execution Environment. L1 5M
(b) Discuss about Speculative Execution and its Properties. L2 5M

UNIT - IV

8. (a) Why Do We Need Apache Pig? L4 5M
(b) Examine the different execution modes available in Pig L3 5M

OR

9. Develop the Schemas and Functions in Pig Latin L3 10M

UNIT - V

10. (a) Examine about Hive architecture with a neat diagram L3 5M
(b) Explain about components Hive architecture L2 5M

OR

11. Differentiate between of Hbase over RDBMS. L4 10M

Q.P. Code: 18EC0434

R18

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

DIGITAL IMAGE PROCESSING

(ECE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

- | | | |
|--|----|----|
| (a) List out the various types of adjacency. | L1 | 2M |
| (b) What are advantages of Walsh transform over Fourier transform? | L1 | 2M |
| (c) Recall the term Histogram equalization. | L1 | 2M |
| (d) What do you mean by image enhancement and image restoration? | L1 | 2M |
| (e) List out the various image compression standards. | L1 | 2M |

PART- B

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

UNIT - I

- | | | |
|---|----|----|
| 2. (a) List out the various applications of digital image processing. | L1 | 5M |
| (b) Discuss about any one of the real time applications of DIP with suitable diagram. | L2 | 5M |

OR

- | | | |
|---|----|-----|
| 3. Explain about the basic pixel relationships and distance measures between pixels in a digital image. | L1 | 10M |
|---|----|-----|

UNIT - II

- | | | |
|---|----|-----|
| 4. Determine the Hadamard matrix for $N=8$ using recursive calculation from $N=2$. | L3 | 10M |
|---|----|-----|

OR

- | | | |
|---|----|-----|
| 5. Prove the following two properties of 2D-DFT:
(i) Convolution
(ii) Correlation | L3 | 10M |
|---|----|-----|

UNIT - III

- | | | |
|--|----|-----|
| 6. Illustrate the sharpening of images in spatial domain with Gradient and Laplacian operations with required expressions. | L5 | 10M |
|--|----|-----|

OR

- | | | |
|---|----|-----|
| 7. Interpret the RGB and CMYK color models. | L5 | 10M |
|---|----|-----|

UNIT - IV

- | | | |
|---|----|-----|
| 8. Explain about the local processing approach of linking edge points with necessary steps. | L3 | 10M |
|---|----|-----|

OR

- | | | |
|---|----|-----|
| 9. Illustrate the operation of Prewitt mask & Sobel mask operators in edge detection. | L5 | 10M |
|---|----|-----|

UNIT - V

- | | | |
|---|----|-----|
| 10. Explain the following with respect to Wavelet Transform (WT).
(i) 1 D - Wavelet Transforms (ii) 2D Wavelet Transforms | L3 | 10M |
|---|----|-----|

OR

- | | | |
|---|----|-----|
| 11. Distinguish the compression standards for images & videos and explain the same. | L4 | 10M |
|---|----|-----|

Q.P. Code: 18ME0337

R18

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

MECHATRONICS & ROBOTICS

(MECH)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

- | | | |
|---------------------------------------|----|----|
| (a) Define Mechatronics | L1 | 2M |
| (b) List any two types of actuators. | L1 | 2M |
| (c) What are the functions of robots? | L1 | 2M |
| (d) What is manipulator? | L1 | 2M |
| (e) Define trajectory planning | L1 | 2M |

PART- B

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

UNIT - I

- | | | |
|---|----|----|
| 2. a) Define control system. Explain about control systems. | L1 | 5M |
| b) Explain the open loop control system with neat sketch in detail. | L2 | 5M |

OR

- | | | |
|--|----|-----|
| 3. Explain the working principle and functions of a strain gauge element with neat sketch. | L1 | 10M |
|--|----|-----|

UNIT - II

- | | | |
|--|----|-----|
| 4. How do you classify the actuation system? Draw actuation system functional diagram? | L3 | 10M |
|--|----|-----|

OR

- | | | |
|---|----|-----|
| 5. Elaborate components of hydraulic system with neat sketch? Compare it with pneumatic system? | L3 | 10M |
|---|----|-----|

UNIT - III

- | | | |
|--|----|-----|
| 6. Elucidate the role of robots in material transfer and handling. Explain robot application in assembly and Inspection. | L5 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|-----|
| 7. Classify robots based on the configurations with neat diagrams. What is the role of robots in loading and unloading, discuss in detail? | L5 | 10M |
|--|----|-----|

UNIT - IV

- | | | |
|---|----|-----|
| 8. With help of a suitable example, explain the operators:
(a) Translation (b) Rotation (c) Reflection | L3 | 10M |
|---|----|-----|

OR

- | | | |
|--|----|-----|
| 9. Define Robot program. What is the purpose of it and what are the various methods used for programming robots? | L5 | 10M |
|--|----|-----|

UNIT - V

- | | | |
|--|----|-----|
| 10. Write notes on following:
(a) Forward transformation (b) Reverse transformation | L3 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|-----|
| 11. Explain detail manual lead through programming method in robot application | L4 | 10M |
|--|----|-----|

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester Regular Examinations February 2022

DESIGN & DRAWING OF IRRIGATION STRUCTURES

(Civil Engineering)

Time: 3 hours

Max. Marks: 60

Answer any ONE question

All questions carry equal marks

1. Design a sloping glacis weir with the following hydraulic particulars. L4 60M

	<u>U/S</u>	<u>D/S</u>
Full supply discharge	: 7.5 cumecs	7.5 cumecs
Bed width	: 6.0 m	6.0 m
Bed level	: + 10.00	+ 8.00
F.S.D. (Full Supply Depth)	: 1.5 m	1.5 m
F.S.L.	: + 11.50	+ 9.50
Top of Bank Level	: + 12.50	+ 10.50

Hard soil is available for foundations below + 8.00 level

Draw the following:

- a) Plan b) Sectional Elevation

2. Design a tank sluice with tower head for the data given below: L4 60M

Discharge	: 0.2cumec
Top width of the tank bund	: 2m with 2:1 side slope
The top level of bank	: +40.00
The ground level at the site	: +34.50
Hard soil for foundation	: +33.50
The sill of the sluice at off take	: +34.00
The maximum water level in tank	: +38.00
The Full Tank Level	: +37.00
Average low water level of the tank	: +35.00
The channel bed level	: +34.00
Full supply level	: +34.50
Bed width	: 1.25 m
Side slopes of channel	: 1.5 to1 with top of bank at + 35.50

Draw the following:

- (a) Half plan at top & half plan at foundation level
(b) Longitudinal section through the barrel

*** END ***

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester (R18) Regular Examinations February 2022
HVDC and FACTS
(EEE)

Time: 3 hours

Max.Marks: 60

PART-A**(Compulsory Questions)**

1. Answer the following; (5 X 2 = 10 Marks)
- | | | | |
|-----|---|----|----|
| (a) | What are different applications of HVDC transmission system? | L1 | 2M |
| (b) | What filter configurations are used in HVDC Converter stations? | L1 | 2M |
| (c) | What are the factors which limit the loading capabilities of transmission line explain? | L1 | 2M |
| (d) | What are the objectives of series compensation? | L1 | 2M |
| (e) | What is unified power flow controller? | L1 | 2M |

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

- | | | | | |
|----|-----|--|----|----|
| 2. | (a) | Distinguish between the AC and DC transmission systems? | L1 | 5M |
| | (b) | Discuss the different factors that favour HVDC transmission systems over EHVAC transmission over long distances. | L4 | 5M |

OR

- | | | | |
|----|---|----|-----|
| 3. | List the different converter configuration commonly employed for HVDC converter and bring out their merits and de-merits. | L1 | 10M |
|----|---|----|-----|

UNIT - II

- | | | | |
|----|--|----|-----|
| 4. | Draw a single phase rectifier and inverter circuit with R load and explain the individual characteristics. | L3 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 5. | Draw the block diagram and explain the hierarchical control structure for a DC link. | L3 | 10M |
|----|--|----|-----|

UNIT - III

- | | | | |
|----|--|----|-----|
| 6. | Explain about FACTS device and justify how the FACTS device improves the system stability. | L5 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 7. | Explain the power flow analysis using simultaneous and sequential approach and recommend an approach for initial stage of analysis of power system implementation. | L5 | 10M |
|----|--|----|-----|

UNIT - IV

- | | | | |
|----|--|----|-----|
| 8. | Examine the various functions of Static synchronous series compensator(SSSC) | L3 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 9. | Select the suitable Thyristor controlled series compensator. | L5 | 10M |
|----|--|----|-----|

UNIT - V

- | | | | |
|-----|---|----|-----|
| 10. | Label a neat sketch, explain the implementation of UPFC | L3 | 10M |
|-----|---|----|-----|

OR

- | | | | |
|-----|---|----|-----|
| 11. | Analyse the modelling of UPFC for power flow studies. | L4 | 10M |
|-----|---|----|-----|

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

MODERN MACHINING METHODS

(MECH)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

- | | | |
|---|----|----|
| (a) List the advantages of Ultrasonic Machining. | L2 | 2M |
| (b) Write down any two applications of EDM. | L2 | 2M |
| (c) Write down any two applications of ECM Machining. | L2 | 2M |
| (d) List the advantages of Plasma Arc Machining. | L1 | 2M |
| (e) Define Micromachining. | L1 | 2M |

PART- B

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

UNIT - I

- | | | |
|--|----|----|
| 2. a) What are the advantages of Non-Traditional Machining Methods? | L1 | 5M |
| b) What are the applications, advantages and disadvantages of water jet machining (WJM)? | L1 | 5M |

OR

- | | | |
|---|----|-----|
| 3. With a neat sketch, explain the working process of Ultrasonic Sonic Machining Process (USM). | L2 | 10M |
|---|----|-----|

UNIT - II

- | | | |
|---|----|-----|
| 4. List the advantages and disadvantages of EDM (Electrical Discharge Machining). | L2 | 10M |
|---|----|-----|

OR

- | | | |
|---|----|-----|
| 5. With a neat sketch explain the construction and working of an electrical discharge grinding (EDG) process. | L2 | 10M |
|---|----|-----|

UNIT - III

- | | | |
|---|----|-----|
| 6. Draw the schematic layout of Electro Chemical Machining (ECM) set up and explain the major elements in it. | L2 | 10M |
|---|----|-----|

OR

- | | | |
|---|----|-----|
| 7. Write the advantages, disadvantages and applications of Electro Chemical Grinding (ECG). | L4 | 10M |
|---|----|-----|

UNIT - IV

- | | | |
|---|----|-----|
| 8. Draw the schematic layout of Laser Beam Machining (LBM) set up and explain the major elements in it. | L3 | 10M |
|---|----|-----|

OR

- | | | |
|--|----|-----|
| 9. Draw the schematic layout of Electron Beam Machining (EBM) set up and explain the major elements in it. | L4 | 10M |
|--|----|-----|

UNIT - V

- | | | |
|--|----|-----|
| 10. Discuss about the Top down and Bottom-Up Approaches in Nano Manufacturing. | L3 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|-----|
| 11. Explain about the Micro Fabrication Techniques. | L4 | 10M |
| a. Lithography b. Thin-Film Deposition and Doping | | |

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

FIBER OPTIC COMMUNICATIONS

(ECE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)
- | | | | |
|-----|---|----|----|
| (a) | List out any two the merits and demerits of optical fiber communication | L1 | 2M |
| (b) | List the various types of losses in optical fiber. | L1 | 2M |
| (c) | Define direct bandgap materials and indirect bandgap materials | L1 | 2M |
| (d) | List the operating parameters of Si, Ge, In GaAs for PIN diode | L1 | 2M |
| (e) | Draw the diagram of the optic de-multiplexing technique. | L1 | 2M |

PART- B

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

UNIT - I

- | | | | |
|----|--|----|----|
| 2. | (a) Elaborate the total internal reflection with the help of suitable optical cable setup. | L3 | 5M |
| | (b) Discuss the Acceptance angle and Numerical aperture. | L2 | 5M |

OR

- | | | | |
|----|--|----|----|
| 3. | (a) Explain detail about the Evolution of optical fiber systems. | L2 | 4M |
| | (b) Illustrate the Reflection and Refraction with neat sketch. | L2 | 6M |

UNIT - II

- | | | | |
|----|--|----|-----|
| 4. | Explain dispersion occurring in multimode fibers in detail with expressions. | L2 | 10M |
|----|--|----|-----|

OR

- | | | | |
|----|--|----|-----|
| 5. | Analyze pulse broadening in graded index waveguides. | L4 | 10M |
|----|--|----|-----|

UNIT - III

- | | | | |
|----|---|----|----|
| 6. | (a) Describe about the modulation of LED in detail | L1 | 5M |
| | (b) Explain about edge emitter LED with neat diagram. | L2 | 5M |

OR

- | | | | |
|----|---|----|----|
| 7. | (a) Explain about Distributed feedback LASER. | L2 | 5M |
| | (b) Describe about the resonant frequencies of optical sources. | L2 | 5M |

UNIT - IV

- | | | | |
|----|---|----|----|
| 8. | (a) Explain about the probability of error in detail. | L2 | 5M |
| | (b) Illustrate on the quantum limit in optical receiver | L2 | 5M |

OR

- | | | | |
|----|---|----|----|
| 9. | (a) Derive the expression for response time of a photodiode. | L3 | 5M |
| | (b) Explain the working principle of depletion layer photocurrent with diagram. | L2 | 5M |

UNIT - V

- | | | | |
|-----|--|----|----|
| 10. | (a) Explain Optical Fiber System Design Specification. | L2 | 6M |
| | (b) Explain the Rise Time Budget analysis with basic elements. | L2 | 4M |

OR

- | | | | |
|-----|---|----|----|
| 11. | (a) Explain the significance of system consideration in point-to-point fiber links. | L2 | 5M |
| | (b) Describe about link budget calculations | L2 | 5M |

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

DATA SCIENCE

(CSE)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

1. Answer the following; (5 X 2 = 10 Marks)
- | | | |
|--|----|----|
| (a) List the five main skills and behavioral characteristics of Data Scientists. | L1 | 2M |
| (b) What is meant by downward closure property? | L1 | 2M |
| (c) Define confusion matrix | L1 | 2M |
| (d) List the various parts of ARIMA model | L1 | 2M |
| (e) State what is meant by word cloud? | L1 | 2M |

PART- B

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

UNIT - I

- | | | |
|--|----|----|
| 2. a) Sketch Data Analytics Lifecycle diagram | L1 | 5M |
| b) Explain in detail each stages of Data Analytics Lifecycle | L2 | 5M |

OR

- | | | |
|---|----|-----|
| 3. Discriminate about the functions used for examining Multiple Variables | L1 | 10M |
|---|----|-----|

UNIT - II

- | | | |
|----------------------------|----|-----|
| 4. Explain the following : | L3 | 10M |
| a.Student's t-test | | |
| b.Welch's t-test | | |

OR

- | | | |
|--|----|-----|
| 5. Illustrate any five approaches to improve Apriori's efficiency when the dataset is large. | L3 | 10M |
|--|----|-----|

UNIT - III

- | | | |
|--|----|-----|
| 6. Discuss the following with respect to linear regression | L5 | 10M |
| a. Categorical Variables. | | |
| b. Confidence Intervals on the Parameters | | |
| c. Confidence Intervals on the Expected Outcome | | |
| d. Prediction Interval on a Particular Outcome. | | |

OR

- | | | |
|---|----|-----|
| 7. How does one pick the most suitable method for a given classification problem? | L5 | 10M |
|---|----|-----|

UNIT - IV

- | | | |
|---|----|-----|
| 8. Discuss in detail each part of the ARIMA model | L3 | 10M |
|---|----|-----|

OR

- | | | |
|---|----|-----|
| 9. List and describe Additional time series methods | L5 | 10M |
|---|----|-----|

UNIT - V

- | | | |
|---|----|-----|
| 10. Illustrate the main challenges of text analysis | L3 | 10M |
|---|----|-----|

OR

- | | | |
|---------------------------|----|-----|
| 11. Explain the following | L4 | 10M |
| a) Tokenization | | |
| b) Case folding | | |

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B.Tech IV Year I Semester (R18) Regular Examinations February 2022

ENTREPRENEURSHIP DEVELOPMENT

(Common to ECE, CSE, CIVIL & MECH)

Time: 3 hours

Max.Marks: 60

PART-A

(Compulsory Questions)

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

- | | | |
|--|----|----|
| (a) Define Women Entrepreneur | L1 | 2M |
| (b) What is leasing | L2 | 2M |
| (c) Outline the Trade mark | L3 | 2M |
| (d) Define venture Capital | L1 | 2M |
| (e) Write short note on Product life cycle | L3 | 2M |

PART- B

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

UNIT - I

- | | | |
|--|----|----|
| 2. (a) Briefly explain various types of entrepreneurs. | L3 | 5M |
| (b) Differentiate between entrepreneur and manager. | L2 | 5M |

OR

- | | | |
|---|----|-----|
| 3. Discuss Challenges faced by entrepreneurs in India | L1 | 10M |
|---|----|-----|

UNIT - II

- | | | |
|--|----|-----|
| 4. Examine the role of government in supporting MSMEs in India | L3 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|-----|
| 5. Explain Types of Business organizes in detail | L3 | 10M |
|--|----|-----|

UNIT - III

- | | | |
|--|----|-----|
| 6. Justify the concept of Innovation and explain its types | L5 | 10M |
|--|----|-----|

OR

- | | | |
|---|----|-----|
| 7. What are the sources of information for starting a business? | L5 | 10M |
|---|----|-----|

UNIT - IV

- | | | |
|--|----|-----|
| 8. Discuss various Motivational theories in detail | L3 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|-----|
| 9. What are the various sources of finance for entrepreneurs in India? | L5 | 10M |
|--|----|-----|

UNIT - V

- | | | |
|--|----|-----|
| 10. Define project Management? Determine the stages of project management process. | L3 | 10M |
|--|----|-----|

OR

- | | | |
|--|----|-----|
| 11. Describe about Project post Feasibility analysis | L4 | 10M |
|--|----|-----|

OR

- 11. (a) Discuss about software testing lifecycle?
- (b) Summarize case study on automation tools?

SIDDHARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester (R18) Regular Examinations February 2022
SOFTWARE DEVELOPMENT & TESTING
(Common to ECE, EEE & MECH)

Max.Marks: 60

Time: 3 hours

PART - A

(Compulsory Questions)

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

- 1. (a) Analyse the changing nature of software. L1 2M
- (b) Describe Quality attributes of Design Process? L1 2M
- (c) Compare Content architecture and Web App architecture. L1 2M
- (d) Define verification and validation? L1 2M
- (e) What is the purpose of test debugging? L1 2M

PART - B

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

UNIT - I

- 2. (a) Determine essence of practice in software engineering. L3 5M
- (b) Define the term Software Engineering and Explain about A Layered Technology L1 5M

OR

UNIT - II

- 3. (a) List out general principles of software engineering. L1 5M
- (b) Describe practitioners myths? L1 5M

UNIT - III

- 4. (a) List various analysis rules of thumb in requirement analysis? L1 5M
- (b) Explain elements of requirements model? L1 5M

OR

UNIT - IV

- 5. (a) Discuss briefly about software architectural patterns. L2 5M
- (b) Demonstrate types of Architectural styles briefly. L3 5M

UNIT - V

- 6. (a) Describe the steps involved in Web App Interface Design. L6 5M
- (b) What are the different design tasks focused. L2 5M

OR

UNIT - IV

- 7. (a) Explain golden rules to form the basis for a set of user interface design principles. L2 5M
- (b) Manipulate various steps of Interface Design. L3 5M

OR

UNIT - V

- 8. (a) Illustrate Testing Strategies for Object Oriented software? L3 5M
- (b) Describe about module testing? L2 5M

OR

UNIT - V

- 9. (a) Explain about the importance of test strategies in conventional software? L2 5M
- (b) Describe briefly about White box testing? L1 5M

OR

UNIT - V

- 10. (a) Explain advantages and disadvantages of software quality assurance? L3 5M
- (b) Elaborate test case design techniques? L2 5M