SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
MID TEST – II

Year: **II B. Tech I-Semester**   Date: 02-12-2024(FN)
Branch: **CSE, CSD, CSM, IT, CAI, CSC, CSBS & CSO**   Time: **2 hrs**
Subject: **Discrete Mathematicsh and Graph Theory (23AHS17)**   Max. Marks: **30**

PART-A

Answer **ALL** questions and each question carries **TWO** marks   **5 X 2 = 10M**

1. How many words of three distinct letters can be formed the letters of the word FLOWER?

                                                                    [CO3- Remember]

2. State the Binomial theorem.   [CO3-Remember]

3. Find the generating function for the sequence 1,2,3,4, ...   [CO4- Remember]

4. Solve the recurrence relation $a_{n+1} = 3a_n$ given that $a_0 = 2$ [CO4-Apply]

5. Define directed graph with example.   [CO5-Remember]

PATR-B

Answer ALL questions and each question carries TEN marks (Part-B is condemned to 15 marks)

                                                                    3 X 10 = 30M

6. (a) Find the coefficient of $x^8 y^4$ in the expansion of $(2x + 3y)^{12}$ [CO3-Apply]
   OR
   (b) Find the coefficient of xyz^2 in the expansion of $(2x - y - z)^4$ [CO3-Apply]

                                                        [CO3-Apply]

7. (a) Solve the recurrence relation $a_n + a_{n-1} - 6a_{n-2} = 0$ for $n \geq 2$
      Given that $a_0 = -1, a_1 = 8$ [CO4-Apply]
   OR
   (b) Solve the recurrence relation $a_{n+2} - 4a_{n+1} + 3a_n = -200$ for $n \geq 0$
      Given that $a_0 = 3000, a_1 = 3300$

                                                                    [CO4-Apply]

8. (a) Explain the following with example.   [CO5- Remember]
   (i) Connected graph (ii) Complete graph (iii) Bipartite graph
   (iv) Euler graph (v) Hamilton Graph

                                    OR

   (b) Explain Euler graph and Hamiltonian graph with example.

                                                        [CO5- Remember]

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

Class & Branch: II B. Tech I SEM

Sub: UNIVERSAL HUMAN VALUES – UNDERSTANDING HARMONY AND ETHICAL HUMAN CONDUCT (23AMB01)

R23

Date: 03-12-2024   **Mid Test -II**   Time : 2 Hrs

(COMMON TO ALL BRANCHES)   Max Marks: 25

Part-A

Answer all the questions. All questions carry equal marks   **5X2 = 10 marks**

1. Define 'trust' in the context of harmony in human relationships. (CO3 –Understanding)

2. What is the significance of respect as the right evaluation in relationships? (CO3 – Remembering)

3. Define the four orders of nature.   (CO4 –Understanding)

4. What is meant by interconnectedness in nature?   (CO4 – Remembering)

5. What is ethical human conduct?   (CO5,CO6 – Remembering)

Part-B

Answer all the questions. Each questions carry 10 marks (Part B is to be condemned to 15 Marks)

     3X10= 30 marks

6 a) How harmony within the family contributes to a harmonious society?

     (CO3- Understanding)

OR

b) Explain the concept of harmony in society and its relationship with a universal human order.

     (CO3-Understanding)

7 a) Describe the interconnectedness and mutual fulfillment among the four orders of nature.

     (CO4-Remembering)

OR

b) Explain the holistic perception of harmony in existence.   (CO4-Understanding)

8 a) Discuss the definitiveness of ethical human conduct and its importance in professional life.

     (CO5, C06-Understanding)

OR

b) Describe the implications of holistic understanding in developing sustainable technologies.

     (CO5, CO6-Remembering)

***

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)
II B-Tech – I Semester – Midterm II Examination December - 2024
CSE (AI &ML)& CSE(AI)

Subject code & Name: 23ACA01 ARTIFICIAL INTELLIGENCE **Max Marks: 25 Marks**

Date: 04/12/2024   Time: 2 Hours

PART – A   **2x5=10 Marks**

Answer all the questions. Each question carries two marks

1. Define Knowledge representation issues.   (CO3Remember)

2. Define Reasoning under uncertainty.   (CO3Remember)

3. What is first order logic?   (CO4Understand)

4. List out the difference between Forward chaining and Backward chaining. (CO4Analyse)

5. What are the different components of an expert system?   (CO5 Remember)

PART – B   **3x5=15 Marks**

Answer all the questions. Each question carries five marks

6(a) Explain in detail Sematic nets – frames and heritances. (CO3Understand)

(Or)

(b) Explain in detail about Constraint propagation.(CO3Understand)

7(a) Write in detail inference in first order logic?   (CO4Remember)

(Or)

(b) Explain in Statistical Learning Methods.   (C04 Understand)

8(a) Explain architecture of expert system in artificial intelligence. (C05 Understand)

(Or)

(b) Write down the application of Expert system shells and explain any application in detail?

(C05 Understand)

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous)
RVS Nagar, Chittoor – 517217
MID – 2 – Dec - 2024

R23

Class & Branch: II B. Tech / I Sem
(Commonto CSE, CSE(AI&ML), CSE(DataScience), CSE(AI), CSE(CS), CSE(IOT), CSE(BS), IT)

Date: 06/12/2024(FN)

Subject: OBJECT ORIENTED PROGRAMMING THROUGH JAVA (23ACS06)

Time: 2 Hours   Max.Marks:35

PART-A

Answer all questions and all questions carry equal marks   5 x 2 = 10M

1.a) Define super keyword with syntax.CO3 - Remembering

 b) Define Interface and write down the syntax to create an Interface CO3 - Remembering

 c) What is unchecked Exception? List out any three of them in Java CO4 - Remembering

 d) Describe the difference between throw and throws keyword.CO4 - Understanding

 e) Define Thread.CO5 - Remembering .

PART-B

Answer All questions and all questions carry equal marks   3 x 10 = 30M

2. a) Explain the following Inheritance with example program.CO3 - Application
        i) Single Inheritance   ii) Multilevel Inheritance
                                        (OR)

 b) Write a Java program to implement Multiple Inheritance using Interface. CO3 - Application

3. a) What is a package? How do you create it? Give an example of creating and accessing a package.
                                        CO4 - Higher Order Thinking
                                        (OR)

 b) Explain Java I/O streams in detail. Write a Java program to read the data from a file and write the data to a file.   CO4 - Application

4. a) Write a Java program to implement inter-thread communication.CO5 - Application
                                        (OR)

 b) Explain JDBC Architecture in detail with a neat diagram. CO5 - Remembering

24785A3302.

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)
II Sessional Examination
Advanced Data Structures & Algorithms Analysis(23ACS05)
(Common to CSE, CSD, CSM, CSC, CAI, CSO, IT, CSBS)

Time: 10.00AM - 12.00PM

Date: 05/12/2024

Total Marks: 25 Marks

Year/Sem: II/I

Part –A (5 * 2=10 Marks) (Answer all the questions)

1. What is Greedy Method? List its applications in optimization problems. (CO3/Remember)

2. Explain the Backtracking method? List out its applications. (CO4/ Understand)
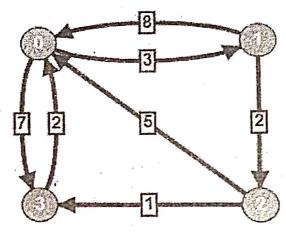
3. What is the Branch and Bound method? (CO4/Remembering)

4. What is Chromatic Number? Explain with an example. (CO5 /Remember)

5. What does Cook's Theorem state? (CO5 /Remember)

Part –B (3* 10=30 Marks) (Answer all the questions)

6.a) Explain the Job Sequencing problem with deadlines. What are the steps in its solution using the Greedy Method? Given the following jobs with profits and deadlines, solve the Job Sequencing problem. Jobs = {J1, J2, J3, J4, J5, J6, J7}, Profits = {35,30,25,20,15,12,5}, Deadlines = {3,4,4,2,3,1,2}. (CO3/Apply)

(OR)

6. b) What is All Pair shortest path algorithm? Solve the following graph for All-Pairs Shortest Paths using Floyd-Warshall Algorithm. (CO3/Apply)

7. a) Given a set of integers {10, 7, 5, 18, 12, 20, 15} and a target sum 35, solve the Sum of Subsets problem using Backtracking. n = 7 (CO4/Apply)

(OR)

7.b) What is 0/1 Knapsack Problem? Solve the following 0/1 Knapsack problem using Branch and Bound method: Items = {I1, I2, I3, I4}, Weights = {5,7,4,2}, Profit = {30,28,20,24}, Capacity = 12. (CO4/Apply)

8.a). Define & Differentiate b/w NP-Hard and NP-Complete problems? (CO5/Analyze)

(OR)

8.b) What is Satisfiability problem? What is Clique Decision Problem (CDP)? Prove that Boolean Satisfiability problem reduces to CDP with an example. (CO5 / Understand)