SASTRA

PART A

Answer all the questions   **10 x 2 marks = 20 marks**

1. Expand the following quality factors of the software: FURPS.
2. Define all concurrent modeling phases.
3. Derive the steps of requirement engineering process.
4. How many levels are maintained in the CMMI of the software?
5. Identify any two metrics of the software estimation from 4Ps.
6. State Beizer's four Behavior modeling testing methods.
7. Design any four domain classes of "University Management system"
8. What are the two phases of documentation testing?
9. Enlist all approaches of Integration testing.
10. Give the guidelines of defining equivalence partitioning classes.

PART B

Answer any two Questions   **2 x 10 marks = 20 marks**

11. Differentiate V-Model and Water fall model by its process flow diagram, advantages and disadvantages.
12. Assume there is an another version of Open Office package which consist of additional package as "insert a new object with AR modeling on camera captured images". Identify major, inter tasks and attributes of given OO software for an OOTesting.
13. Construct L9 Orthogonal array for the given software problem:
A microprocessor's functionality has to be tested to the given factor:
Temperature: 100C, 150C and 200C.
Pressure : 2 psi,5psi and 8psi
Doping Amount :4%,6% and 8%
Deposition Rate : 0.1mg/s . 0.2 mg/s and 0.3mg/s at these three levels.

Answer to all Questions   **1 x 10 marks = 10 marks**

14.a Draw flow graph, graph matrix of the following instruction set and find cyclomatic complexity. (2 marks)

```
Start
Declare a,b,c
Get(a,b,c);
d=sqrt(b*b-4a*c);
r1=d/2*a;
r2=-d/2*a;
If (d==0)
 print("roots are equal");
else If (d>0)
 print(" roots are real");
else If (d<0)
 print("roots are complex");
else print ("invalid inputs");
endif
print(r1,r2);
end
```

14.b. Perform selective path testing, control structure and loop testing of matrix operations such as 1. Matrix addition 2. Matrix subtraction 3. Matrix multiplication with necessary constraints and verification points. (3 marks)

14.c. How to conduct Model based testing (MBT) for the "online food ordering and delivery system" with atleast 3 UML models?
        Write the steps and guidelines of MBT.(3 marks)

14.d. Differentiate real time system testing with stand alone conventional module based software testing. (2 marks)

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School of Computing
ThirdCIA Exam – April 2024
Course Code: CSE308
Course Name: Operating Systems
Duration: 90 minutes
Max Marks: 50

SASTRA

PART - A

Answer all the questions   **5 X 2 = 10**

1. How does an interrupt differ from a trap?
2. A process executes the following code.
   for (i = 0; i< n; i++) fork ();
   How many child processes are created?
3. Name two hardware instructions and their definitions that can be used for implementingmutual exclusion.
4. How the problem of external fragmentation can be solved?
5. Calculate the number of pages for the process of size 72,766 bytes and thepage size is 2,048 bytes. Does internal fragment occur? If yes, how? If no, why?

PART- B

Answer Any Three Questions   **3 X 10 = 30**

6. Consider the following set of processes, whose arrival and execution time, is given below.

Process	Arrival Time	Exec. Time
P1	0.0	7
P2	2.0	4
P3	4.0	1
P4	5.0	4

(a) With pre-emptive SJF algorithm find average waiting time and average turnaround time. (4)
(b) With Round Robin algorithm [Time Quantum=2] find average waiting time and average turnaround time. (4)
(c) Compare two algorithms and conclude which one is best and why? (2)

7. Given page reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6 with four frames. Compare the number of page faults for LRU and Optimal page replacement algorithm.

8. Discuss : Segmentation.

9. With neat diagram, explain three major methods of allocating disk space.

PART – C

Answer the following Question   1 X 10 = 10

10. a) Assume a disk with 200 tracks numbered 0 to 199. Initially the read/write head is on 100. The queue of the pending request is kept in the order 55, 58, 39, 18, 90, 160, 150, 38 and 184. With diagram showing the head movement calculate the average seek length for the following disk scheduling algorithm.
    i) FIFO   ii) SSTF   iii) C-SCAN

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THINK MERIT | THINK TRANSPARENCY | THINK SASTRA

School of Computing
Third CIA Exam –April 2024
Course Code: ENG212
Course Name: Business Communication & Value Science III
Duration: 90 min   Max Marks: 50

PART A

Answer any three of the following in about 200 words   3x10 =30

1. Produce a user manual for any gadget, you have recently purchased Include Logo, Caption, safety guidelines, functions and capabilities of the product, variants, instructions for installation, use & troubleshooting and warranty statement

2. Motivation causes you to act in a way that gets you closer to your goals - substantiate with adequate example and pictorial representation.

3. Draft a Feasibility Report to start a Organic Dairy Products manufacturing unit. Organic products are not harmful to the body, these products are made from organic and all-natural ingredients. They also come in recyclable compostable or biodegradable packaging. .Your report should contain- terms of reference, work done, findings, recommendations and conclusion.

4. Human Machine communication encourages us to focus on how relationships between human and machine partners unfold through social processes, perceptual dynamics, and interaction- Justify with relevant evidences.

PART B

Answer the following in about 300 words   1x20=20

5. Technology plays a fundamental role in wealth creation, improvement of the quality of life, real economic growth and transformation in any society- Elucidate with reference to Nation Building

SASTRA

School of Computing
Third CIA Exam – April 2024
Course Code CSE318
Course Name: Algorithm Design Strategies & Analysis
Duration: 90 minutes   Max Marks: 50

PART A

__Answer all the questions__   **10 x 2 = 20 Marks**

1. List out any six algorithm-design strategies.
2. Backtracking approach uses _____ search, whereas Branch & Bound approach uses _____ search.
3. What are the four different types of approximation algorithms available for solving Bin-Packing Problem?
4. Predict the algorithm design strategy used in the following algorithms. (a) Bin Packing Problem (b) Dijkstra's Shortest Path Problem (c) Job Sequencing Problem (d) Sum of Subsets Problem
5. Compare deterministic and non-deterministic algorithms.
6. Relate decision problems with optimization problems.
7. What is negative weight cycle in a graph? Which algorithm is used to check whether a graph containing negative weigh cycle or not?
8. State Boolean Satisfiability Problem. Give an example.
9. What is Clique in graph? Describe Clique Decision Problem.
10. Differentiate NP-Hard and NP-Complete problems.

PART B

__Answer any two questions__   **2 x 10 = 20 Marks**

11. How to prove a problem belongs to NP-Complete? Prove that Travelling Salesperson Problem is NP-Complete.
12. Given a set of (n=5) items with their profits and wieghts. Apply the branch and bound strategy to solve the 0/1 Knapsack Problem.

     Profit[1..5] = {10, 10, 12, 18, 5}
     Weight[1..5] = {2, 4, 6, 9, 3}
     Knapsack Capacity = 15

13. Find the shortest distance from the vertex 'S' to all other vertices by applying Bellman-Ford algorithm for the following weighted graph.
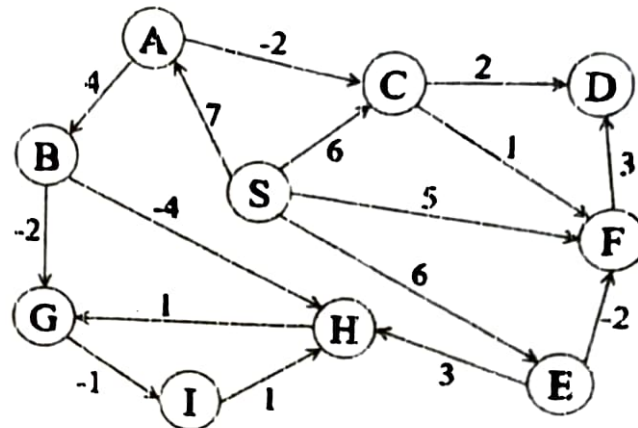
PART C

Answer all questions

1 x 10 = 10 Marks

14. Discuss on approximation algorithms, scheduling independent tasks problem and LPT schedule. Consider n=7 independent tasks with processing times (in hours) given by 1, 4, 5, 7, 8, 9 and 10. (a) Schedule these tasks with, m=2 processors using LPT schedule algorithm. Show the timeline and give the tasks finishing time. (b) Find the optimal finishing time for m=2 processors. (c) Compute the relative error of LPT schedule found in (a) expressed as percent.

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School of Computing
Third CIA Exam – March 2024
Course Code: MGT 207
Course Name: Introduction to Innovation, Entrepreneurship and IP Management
Duration: 90 minutes   Max Marks: 50

PART A   5 X 2 = 10 MARKS
Answer all the questions

1. Describe the innovation space with an apt diagram.

2. Explain the concept of thinking hats to enhance creativity.

3. Why do we need intellectual property rights?

4. List down the various empathizing tools involved in design thinking process.

5. Mention concept of copyright in intellectual property rights.

PART B   2 X 15 = 30 MARKS
Answer ANY 2 questions

6. Explain the effectuation process with clear mention of all the steps.

7. "Patents are the key to technology and technology is the key to innovation." Elucidate the patent filing procedure in detail.

8. Describe the nuances of copyright and trademark infringement and the remedies available for it.

PART C   1 X 10 = 10 MARKS
Answer the question

9. Ram has a great idea to start a business in the field of fintech. Propose a business plan, provided he needs to pitch it before a "Start-up India" panel. Ensure the business plan covers all functional aspects of your proposed business.