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Reg. No:............................

Name: ....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester M.Sc Degree Examination, March/April 2020

MCS2C05– Principles of Software Engineering

(2019 Admission onwards)

Time: 3 hours

Max. Weightage : 30

Section A

Answer any *Four* questions. Each question carries *Two* weightage

1. What is the Engineering approach to Software Development?

2. Define the term Software Configuration Management?

3. Define Requirement Specification?

4. What is meant by Quality Assurance?

5. What is Project Monitoring?

6. Define Modularity in design Process?

7. What is Reliability of a Software Product?

(4x2=8 weightage)

Section B

Answer any *four* Questions. Each question carries *Three* weightage

8. Explain Waterfall of Development. What are its merits and demerits?

9. What are the various tasks involved in Requirement Process?

10. Discuss Top-Down Programming and Bottom-Up programming.

11. Explain Cost Estimation. Give size based estimation methods.

12. Illustrate Inspection and Code Reviews.

13. Recall the steps involved in the Test Plan Preparation Process.

14. Enumerate the steps involved in Change Control Process.

(4x3=12 weightage)

Section C

Answer any *Two* Questions, Each question carries *Five* weightage

15. Explain various design concepts in Software Engineering.

16. Explain Project Monitoring Process along with the methods of Monitoring?

17. Explain the Function-Oriented Design and Object Oriented Design

18. Explain Static Analysis and methods for Static Analysis

(2x5=10 weightage)

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(Pages : 2)

Reg. No:..............................

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester M.Sc Degree Examination, March/April 2020

MCS2C04– Artificial Intelligence

(2019 Admission onwards)

Time: 3 hours

Max. Weightage : 30

PART A
Answer any *four* questions. Each carries *2* weightage.

1. Define Artificial intelligence. Give any four applications of AI.

2. Explain various machine learning approaches.

3. Explain Reinforcement Learning. Give any two examples where RL has been used.

4. Define Expert System. Give characteristics of expert system.

5. Compare Expert system development with conventional system development.

6. What do you understand by knowledge acquisition? What are the major difficulties faced in knowledge acquisition.

7. Explain Turing test with the help of a diagram.

(4 x 2 = 8 weightage)

PART B
Answer any *four* questions. Each carries *3* weightage.

8. Briefly explain characteristics of AI problem.

9. List any two most common methods of problem representation in AI. Explain them in detail.

10. What is meant by Brute force search? Explain any two brute force search algorithms in detail.

11. Explain A* Algorithm in detail.

12. What is *minimax* strategy? Explain.

13. Differentiate forward and backward chaining.

14. Express the following statements in Propositional Logic.

    a) If he work hard, he will win the game.

    b) If the humidity is high, it will rain either today or tomorrow.

    c) It requires dedication and hard work to win the examination.

(4 x 3 = 12 weightage)

PART C

Answer any *two* questions. Each carries 5 weightage.

15. Suppose the stock prices go down if the interest rate goes up. Suppose also that most people are unhappy when stock prices go down. Assume that the interest rate goes up. Show that we can conclude that most people are unhappy.

16. Explain any four knowledge representation methods.

17. Give any five rules of inferences. Explain each of them.

18. Write notes on:

    a. MYCIN

    b. DIPMETER

    c. PROSPECTOR

<div align="right">(2 x 5 = 10 weightage)</div>

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Second Semester MSc Degree Examination, March/April 2020
MCS2C03 – Computer Networks
(2019 Admission onwards)

Time: 3 hours   Max. Weightage : 30

PART A
Answer any FOUR questions:
Each Questions carries TWO weightage

1. Explain client-server model ?

2. Explain the component of TCP segment structure ?

3. Write a note on ATM physical layer.

4. Distinguish between connection- oriented and connectionless services ?

5. What is Socket ? Explain the structure of the socket.

6. Write note on digital signature.

7. Compare IPV4 and IPV6 .

                                                    (4x2=8 weightage)

PART B
Answer any FOUR questions
Each Question carries THREE weightage

8. Give an account on guided media.

9. Explain distance vector routing algorithm.

10. Explain the function of bridges and switches.

11. Explain different classes of IP addresses in detail.

12. Explain the different services provided by DNS.

13. Explain Go-Back- N protocol.

14. Write short note on Firewall.   **(4x3=12 weightage)**

PART C
Answer any TWO questions
Each question carries FIVE weightage

15. Explain the function of various layers of ISO-OSI reference model.

16. Explain in detail how SMTP works?

17. Explain the concept of user authentication and access control.

18. Write an essay on Internet protocol stack.

                                                    (2x5=10 weightage)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester MSc Degree Examination, March/April 2020

MCS2C02 – Operating System Concepts

(2019 Admission onwards)

Time: 3 hours   Max. Weightage : 30

PART A (Answer any four. Each question carries *Two* weightage.)

1. Differentiate between Logical and Physical address.

2. What is a translation look-aside buffer?

3. What is an inverted page table?

4. Describe System call.

5. What is the Belady`s anomaly and when it does occur?

6. What complications does concurrent processing adds to an operating system?

7. What are the advantages of using Threads?

                                                            (4 x 2 = 8)

PART B (Answer any four. Each question carries *Three* weightage.)

8. What is Synchronization in OS? What are the different Synchronization mechanisms?

9. Explain the concept of swapping.

10. What are the causes of thrashing?

11. Describe the life cycle of a process.

12. Compare any two different CPU scheduling algorithms.

13. Evaluate the merits and demerits of Virtual memory.

14. Write note about different mobile Operating systems.

                                                            (4 x 3 = 12)

PART C(Answer any two. Each question carries *Five* weightage)

15. Describe the common strategies for dealing with deadlocks.

16. Consider the page reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 4 , 3, 6, 1, 7, 6, 1 with 4 page frames. Find number of page faults using FIFO, OPTIMAL and LRU page replacement algorithms.

17. Explain three-tier client server architecture and compare and contrast with RPC.

18. Explain the term 'Race condition'. Outline the strategies to deal with race conditions.

                                                            (2 x 5 = 10)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester M.Sc Degree Examination, March/April 2020

MCS2C01 – Design and Analysis of Algorithms

(2019 Admission onwards)

Time: 3 hours   Max. Weightage : 30

PART A

Answer any 4 questions. Each question carries 2 weightage

1. What is meant by time complexity? Explain.

2. Differentiate NP-hard and NP-complete problems

3. Describe travelling salesman problem

4. Define **o** (Little oh) notation. Explain how it is useful.

5. Write the properties of asymptotic notations

6. 'The running time is directly proportional to the frequency count of the algorithm.'

   Explain the meaning of the statement.

7. Describe trees and binary trees with examples.

                                                     (4x2 = 8 weightage)

PART B

Answer any four questions. Each question carries 3 weightage

8. Explain Strassen's algorithms for Matrix multiplication.

9. Illustrate parallel prefix computation.

10. Explain Dynamic programming with the support of an example.

11. Explain Floyed- Warshall algorithm.

12. Explain Kruskal's algorithm for minimum spanning trees

13. Briefly explain about solving recurrences

14. Write an algorithm for merge sort

                                                     (4x3 = 12 weightage)

Part C

Answer any two questions. Each question carries 5 weightage

15. Explain fractional knapsack problem with an example

16. Solve the recurrence $T(n) = 4\ T(n/2) + n$ using Master Theorem.

17. Describe in detail backtracking with sum of subset problem. Illustrate with example

18. i) Explain Master Theorem.

    ii) Compute the runtime complexity of quick sort algorithm.

                                                     (2x5 = 10 weightage)