

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester M.Sc Computer Science Degree Examination, March /April 2019

MCS2E05(3) – Web Technology

(2018 Admission onwards)

3 hours

Max. Weightage : 36

Part A**Answer all questions**

- Recall DHTML.
- What is XML?
- What is CSS?
- What is SSL?
- What are browser Objects?
- What is XML?
- What is WAMP?
- What is Common Gateway Interface?
- What is User Based Authentication?
0. Differentiate sever side scripts and client side scripts?
1. Discuss different variable scopes in PHP?
2. Write a shot note on Joomla?

(12 x 1 = 12 weightage)

Part B**Answer any six questions****Each question carries 2 weightge**

13. Explain any six form control tags in HTML.
14. Illustrate any four CSS background properties with example.
15. Explain different Lists in HTML.
16. Explain various Action tags in JavaScript.
17. Explain the role of Apache Web Server in the Dynamic Web.
18. Give a detailed note on Server Side Includes.
19. What are Cache Servers? How an Apache server can be installed as a Cache Server.
20. Explain how to connect PHP with MySQL database using examples.
21. Illustrate how Users are Managed in Joomla.

(6 x 2 = 12 weightage)

Part C
Answer any three questions
Each question carries 4 weightge

22. What are Filters and Transitions in DHTML? Narrate its significance in Web Programm
23. Give a detailed account of Browser Objects.
24. Sketch Session Tracking in JSP.
25. With a neat diagram elucidate the architecture of Apache Web Server with its core comp
26. What are the different data types in PHP? Write a simple PHP program to display a welcome message .
27. What are CMS ? Explain any one Content Management system and its features with exa

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Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester M.Sc Computer Science Degree Examination, March /April 2019

MCS2C04 – Artificial Intelligence

(2018 Admission onwards)

Time: 3 hours

Max. Weightage : 36

PART A

Answer *all* questions.

Each question carries *one* weightage.

1. Define Well Formed Formula.
2. Define Machine learning?
3. Define artificial neural network.
4. Define State Space of a problem?
5. What is meant by knowledge acquisition?
6. Define a production System.
7. What is meant by problem reduction?
8. What do you meant by non-monotonic reasoning?
9. Give two examples for expert systems.
10. What is the importance of semantic net.
11. Define compound proposition.
12. State unification principle in proposition logic.

(6 x 2 =12 weightage)

PART B

Answer any *six* questions

Each question carries *two* weightage.

13. Explain the term "Knowledge" with respect to a Knowledge Base System. How "Knowledge" differs from "Intelligence"?
14. What are the advantages of predicate Logic over propositional logic? Explain with examples.

15. Assume the following Facts :
- If it is not humid then it will rain
- If it is humid, then it is hot
- It is humid now.
- Using the propositional logic Inference, answer the Question, will it rain?
16. Write an algorithm for DFS.
17. Explain the advantages of Prenex Normal Form with example.
18. Explain frame as a tool for knowledge representation.
19. Differentiate Scripts and Semantic net.
20. 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.
21. Transform the following into Conjunctive Normal Form (CNF) :
- $(C \rightarrow D) \vee (C \wedge D)$

(6 x 2 = 12 weightage)

PART C

Answer any *three* questions
Each question carries *four* weightage.

22. What are Expert Systems? Briefly discuss the life cycle of the development of an expert systems.
23. Enumerate the Various Knowledge representation schemes. Give brief description of each scheme. Identify advantages of representation scheme over the other.
24. Explain the following logic concepts, using suitable examples :
- Modus Tollens
 - Satisfiable statement
 - Resolution principle in proposition logic
 - Invalid statement.
25. a) How is inferencing used in deriving conclusions from the facts?
b) Differentiate between forward chaining and backward chaining. On what factors does the decision to choose forward or backward chaining depend?
26. a) What is meant by minimax strategy? Explain this in the context of Game theory.
b) What is the significance of alpha and beta cutoffs? Explain alpha-beta pruning.

(3 x 4 = 12 weightage)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester M.Sc Computer Science Degree Examination, March /April 2019

MCS2C03 – Computer Networks

(2018 Admission onwards)

Time: 3 hours

Max. Weightage : 36

Part A

Answer all questions

Each question carries 1 weightage

1. Define throughput and delay of a network.
2. What is a passive hub?
3. Which is a broadcast link?
4. What is the use of a POP3 protocol?
5. What do you mean by leaky bucket?
6. What is a choke packet?
7. What do you mean by switching?
8. State various transmission media.
9. What is the use TELNET?
10. Differentiate between intra and interdomain routing.
11. What are the various ATM services?
12. What do you mean by SMTP ?

(12 x 1 = 12 weightage)

Part B

Answer any 6 questions

Each question carries 2 weightage

13. Write short note on FTP.
14. Explain how a person can be authenticated.
15. Explain any two routing techniques.
16. Explain the use of repeaters.
17. Write short note on CRC.
18. Write short note on cryptography.
19. Differentiate various topologies of computer networks.
20. Explain various multiplexing techniques.
21. Explain various ways to perform transition from IPv4 to IPv6.

(6 x 2 = 12 weightage)

Part C
Answer any 3 questions
Each question carries 4 weightage

22. Differentiate functions of various layers in ISO OSI and TCP/IP.
23. Explain various flow control techniques.
24. Explain various congestion control techniques.
25. Explain various switching techniques.
26. Explain various ALOHA protocols.
27. Explain Email structure in detail.

(3 × 4 = 12 weightage)

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Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
 Second Semester M.Sc Computer Science Degree Examination, March /April 2019
MCS2C02 – Operating System Concepts
 (2018 Admission onwards)

Time: 3 hours

Max. Weightage : 36

Part A

Answer all questions.

Each question carries 1 weightage.

1. Define the term embedded system.
2. Differentiate between hard real time system and soft real time system.
3. What is a translation look-aside buffer?
4. What is Cache Memory? Explain its functions.
5. Describe System call.
6. What are temporal locality and spatial locality?
7. When does Page fault error occur?
8. What complications does concurrent processing adds to an operating system?
9. Is it possible to have a deadlock involving two process? Explain your answer.
10. What are the various IPC mechanisms in Linux?
11. What is context switching? When it is used?
12. What is the relationship between threads and processes?

(12 x 1 = 12 weightage)

Part B

Answer any six questions.

Each question carries 2 weightage.

13. Compare first fit, best fit and worst fit allocation strategies.
14. What are the functions of Operating System? Explain briefly.
15. Describe RPC.
16. What are the basic functions of file management in OS?

17. What is a semaphore? Explain its usage with an example.
18. Explain monitors.
19. Explain the necessary conditions for deadlock.
20. Compare parallel and distributed systems.
21. Describe four general strategies for dealing with deadlocks.

(6 x 2 = 12 weightage)

Part C

*Answer any three questions.
Each question carries 4 weightage.*

22. Explain any two page replacement algorithms and find the page faults, by simulating the algorithms using four frames, considering the following page references.

2, 5, 2, 4, 2, 6, 3, 2, 1, 5, 4, 3, 2, 3, 4, 2
23. Draw the UNIX process state transition diagram and explain
24. What are three requirements of any solution to the critical sections problem? Why are the requirements needed?
25. Describe page-based virtual memory. You should consider pages, frames, page tables, and Memory Management Units in your answer.
26. Explain distributed message passing.
27. Name and describe any three processor scheduling algorithms. Critically compare them with each other taking suitable example (assume required values suitably).

(3 x 4 = 12 weightage)

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester M.Sc Computer Science Degree Examination, March /April 2019

MCS2C01 – Design and Analysis of Algorithms

(2018 Admission onwards)

Max. Weightage : 36

3 hours

Part A

(Answer all questions, Each question carries 1 weightage)

- What are the methods to specify an algorithm?
- What do you mean by Greedy approach?
- Write a note on Brute Force method.
- What is Indirect Recursion?
- Define Ω (Big Omega) notation.
- What is Euler Tour Technique?
- Explain Parallel Prefix Computation with an example.
- $\text{Min}\{O(\log n), O(n^2)\}$ is.....?
- What do you mean by space complexity of an algorithm?
- 1. What is the use of Iteration method?
- 1. Write a note on Kruskal's algorithm.
- 2. What do you understand by Big Oh Ratio theorem?

(12 x 1 = 12 weightage)

Part B

Answer any 6 questions, Each question carries 2 weightage

- 3. Explain Prim's algorithm with an example.
- 4. How can we solve Sum of subsets problem using Backtracking?
- 5. What are the important characteristics of an algorithm?
- 6. Explain the procedure to analyze control structures.
- 7. Let $f(n) = 3n^3 + n^2 + 2$, Show that $f(n) = O(n^3)$
- 8. What do you mean by Nondeterministic Polynomial time algorithm?
- 9. Write a paragraph on Traveling Sales Man's problem.
- 20. How can we solve Knapsack problem using Branch-and-Bound technique?
- 21. What do you mean by Master's Theorem? Explain.

(6 x 2 = 12 weightage)

Part C

Answer any 3 questions, Each question carries 4 weightage

22. Solve the recurrence using Recursion Tree Method.

$$T(n) = 2T(n/2) + n$$

23. How can we align two strings using Dynamic Programming?

24. Prove that Hamiltonian Cycle is NP Complete.

25. 'Merge sort algorithm closely follows the divide and conquer paradigm'. Explain the meaning of the statement with the support of an example.

26. i) Explain Strassen's Matrix Multiplication algorithm.

ii) Compute the Time Complexity of Strassen's Matrix Multiplication algorithm.

27. Find an optimal Huffman Code for the following set of frequencies

A: 45, B: 13, C: 12, D: 16, E: 9, F: 5

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