2B3N24044 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester B.Sc Computer Science Degree Examination, November 2024

BCS3A11 – Numerical Skills

(2022 Admission onwards)

Time: 2 ½ hours Max. Marks: 80

PART — A
Answer *all* questions.
Each question carries Two mark.
Ceiling -25 Marks

1. Differentiate Arithmetic mean and Geometric mean.
2. Convert the decimal number -321 to BCD.
3. What is a K-map? what are the limitations of K-map.
4. State De Morgan's Theorem.
5. Construct NOT and OR gate using NOR gate.
6. Define statistics. Give any two uses of Statistics.
7. Find the 1's and 2's complement of 1001
8. Solve xy+xy' using Boolean algebra method.
9. What is a NOT gate?
10. Simplify the expression xyz + xyz' + x'z.
11. Differentiate latch and flip-flop
12. What is mean by Harmonic mean?
13. What is deMultiplexer? List its applications.
14. Convert $(946.152)_{16}$ to Binary.
15. Differentiate minterm and maxterm

PART — B
Answer *all* questions.
Each question carries Five marks.
Ceiling -35 Marks

16. What is multiplexer? List the applications of multiplexer.
17. What is Gray code? Explain Binary to Gray code conversion and Gray code to Binary conversion with example.
18. Simplify using K-Map

    Y = A'B'CD + A'BCD + ABCD + AB'CD + ABC'D' + ABC'D + ABCD'
19. Briefly explain about EX-OR and EX-NOR gate

20. Distinguish between combinational logic circuits and sequential logic circuits.

21. Convert the given Hexadecimal numbers$(AE5)_{16}$ and $(B20F)_{16}$ to equivalent decimal Numbers and $(256)_{10}$ and $(999)_{10}$ to hexadecimal.

22. Briefly explain the rules and laws of Boolean Algebra.

23. Find Mode of the following data

Class	0-10	10-20	20-30	30-40	40-50
No of students	2	4	8	5	6

PART - C

Answer any *two* questions.
Each question carries Ten marks.

24. Obtain the simplified expressions in product-of-sums.

(a) F (x,y,z) $= \pi$ (0,1,4,5) (4)

(b) F (A,B,C,D) $= \pi$ (0,1,2,3,4,10,11) (6)

25. What is a decoder? Explain BCD to 7-segment decoder.

26. Discuss the working of half and full adders.

27. What are universal gates? Realize all the fundamental gates using NAND and NOR gate.

2 x 10 = 20 Marks

32

2B3N24045 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester B.Sc Computer Science Degree Examination, November 2024

BCS3A12 – Web Designing

(2022 Admission onwards)

Time: 2 ½ hours Max. Marks: 80

PART A

Answer all questions.
Each question carries Two marks.
Ceiling – 25 Marks

1. What do you mean by URL? Mention its uses.
2. What is the purpose of ID and class in CSS?
3. What are the key elements that define content in Joomla?
4. How to create an alert box using JavaScript?
5. What is DNS? Give an example.
6. What is HTML media tag?
7. What are web browsers? Give two examples.
8. How will you create superscript text and subscript text in HTML?
9. What is a class selector in CSS? Explain.
10. List down the layers of Joomla Architecture.
11. Write an HTML code to generate radio buttons.
12. What are HTML Frames?
13. How to add comments in JavaScript code?
14. List down any four technologies or components used to build Joomla?
15. What is external style sheet in CSS?

PART B

Answer any all questions.
Each question carries Five marks.
Ceiling – 35 Marks

16. Briefly explain the Conditional statements in JavaScript.
17. Explain the basic table tags with the different attributes.
18. What is the difference between an article and a module in Joomla?
19. Write an HTML script to create a table with two columns (Name and Age) and two rows for the table.

20. What is the purpose of the "confirm" function in JavaScript?
21. Briefly explain how to control fronts in CSS.
22. Describe the steps involved in creating a menu item that links to a specific Joomla article.
23. Explain the process of including JavaScript within an HTML document.

PART C

Answer any Two questions.
Each question carries Ten marks.

24. Explain the following: HTML, XHTML, DHTML and HTTP.
25. Explain embedded CSS, external CSS and inline CSS with examples.
26. Explain Arithmetic, Assignment, Relational, Logical operators in JavaScript and provide examples of their use.
27. Explain the following five content types in Joomla: Articles, Categories, Tags, Menus and Components.

(2 x 10 = 20Marks)

29

2B3N24042 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester B.Sc Computer Science Degree Examination, November 2024

BCS3B04 – Data Structures

(2022 Admission onwards)

Time: 2 hours Max. Marks: 60

Part A
Answer all questions.
Each question carries Two marks.
Ceiling - 20 Marks

1. Differentiate Depth first Spanning Tree and Breadth first Spanning Tree.
2. What is a Data structure? Write the need for Data structure.
3. What is a Path? What is mean by length of a Path?
4. Briefly explain various operations on Array.
5. What is mean by Big-O notation? Compare any three sorting technique on the basis of Time complexity.
6. What is the significance of the term "top of the stack"?
7. With an example, briefly explain the Sequential and Linked representation of Binary Tree
8. Briefly explain different methods of collision handling
9. Evaluate the given postfix expression using Stack

   P : 5, 6, 2, +, *, 12, 4, /, -

10. Define Double Linked List.
11. Briefly explain different traversal methods in Binary Tree.
12. Differentiate Binary Tree and Binary search Tree.

PART B

Answer all questions.
Each question carries Five marks.
Ceiling - 30 Marks

13 What is a Heap Tree? Briefly explain its types.

14 What is a Spanning Tree? With an example, explain Breadth first Spanning Tree

15. Briefly explain about Deletion operation in Binary Search Tree.

16. What is Hashing? Explain any two hashing functions.

17. What is a Graph? Briefly explain its representation .

18. Convert the expression$((A+B)*D)^{(E-F)}$ to postfix form using

a) Direct Conversion (2)

b) With Stack (3)

19. What is a Two-dimensional Array? Briefly explain its representation

Part C

Answer any one questions.
Each question carries Ten marks.

20. Explain the following (4 x 2.5 = 10)

(a) Circular Queue

(b) De-Queue

(c) Priority Queue

(d) Applications of Queue

21. (a) Draw a Binary tree with the following elements and then find the in-order and Post-order Traversal

P , S, A, T, W, H , B, M , R (5)

(b) Differentiate Full Binary Tree and Complete Binary Tree (5)

(1 x 10 = 10 Marks)

30

2B3N24043 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester B.Sc Computer Science Degree Examination, November 2024

BCS3B05 – Operating System Concepts

(2022 Admission onwards)

Time: 2 hours Max. Marks: 60

Part A
Answer all questions.
Each question carries two marks.
Ceiling – 20 Marks

1. Discuss the functions of an operating system.
2. Explain the concept of Batch processing.
3. Compare parallel and distributed systems.
4. What are the different states of a process?
5. What is meant by concurrency?
6. Which are the key process scheduling criteria?
7. Discuss about multi level feedback queue scheduling.
8. What do you mean by 'internal fragmentation'?
9. What do you mean by 'external fragmentation'?
10. Explain the concept of overlays.
11. What is meant by `access matrix`?
12. How are 'protection' and 'security' related?

Part B
Answer all questions.
Each question carries five marks.
Ceiling – 30 Marks

13. How virtual memory is implemented?
14. What are the available mechanisms for inter-process communication?
15. Explain any one classical synchronization problem along with its solution.
16. Explain file protection.
17. Briefly mention the history of android operating systems.
18. Explain Semaphores with a suitable example.
19. Discuss about different authentication and authorization methods.

Part C

Answer any one question.
Each question carries ten marks.

20. Explain various deadlock handling techniques.

21. Explain the working and architecture of the UNIX operating System.

(1 x 10 = 10 marks)