

1B3N18154

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester B.Sc Degree Examination, November 2018

BCSS3B04 – Data Structures

(2017 Admission onwards)

Max. Time: 3 hours

Max. Marks: 80

PART – A

Answer *all* questions.

Each question carries **One** mark.

1. ADT stands for
2. is an example for static data structure.
3. The number of elements in an array $a[l:u]$ is
4. is a LIFO data structure.
5. A data structure where elements can be added or removed at either end but not in the middle is
6. The prefix form of the expression $A+B*(C-D)$ is
7. A terminal node in a binary tree is known as.....
8. Which data structure is used in BFS to hold nodes?
9. Prim's algorithm is used for
10. Adjacency lists are used for representing
11. What do you call the selected key in the quick sort algorithm?
12. The method of arranging the elements in ascending or descending order is know as.....

12 x 1 = 12

PART – B

Answer any *seven* questions.

Each question carries **Two** marks.

13. Is random access possible in a linked list? Why?
14. What is an array?
15. What are the possible exceptions during stack operation?
16. What is indirect recursion?
17. Define AVL tree.

18. Adjacency matrix is good for representing dense graph. Why?
19. List various graph traversal techniques.
20. What is the necessary condition to implement insertion sort?
21. What are the characteristics of a good hash function?

$7 \times 2 = 14$

PART - C

Answer any **six** questions.
Each question carries **Five** marks.

22. Differentiate array and linked list.
23. Explain different categories of data structure in detail.
24. Write a note on prefix, infix and postfix expressions.
25. Briefly explain queue and its basic operations.
26. Write a note on threaded binary tree.
27. Briefly explain about graph representation methods.
28. Briefly explain binary search with an example.
29. Explain Merge sort with an example.

$6 \times 5 = 30$

PART - D

Answer any **three** questions.
Each question carries **Eight** marks.

30. What are the various linked list operations? Explain.
31. Explain any two applications of stack in detail.
32. Construct a BST from the given values. Consider the first value as the root node.
Values : 45, 23, 29, 85, 92, 7, 11, 35, 49, 51
33. Explain the concept of DFS on a graph in detail with example.
34. Explain different types of hash functions in detail.

$3 \times 8 = 24$

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester B.Sc Computer Science Degree Examination, November 2018

BCSS3B05 –Operating Systems

(2017 Admission onwards)

Max. Time: 3 hours

Max. Marks: 80

Part A*Answer all questions.**Each question carries 1 mark.*

1. List the major functions of operating system.
2. What is process control block?
3. What is meant by mutual exclusion?
4. What is deadlock?
5. What is TLB (Translation Look aside Buffer) hit ratio?
6. What are temporal locality and spatial locality?
7. What is the advantage of using 'Round Robin' scheduling?
8. What is meant by Real Time Operating System?
9. Differentiate between Protection and Security.
10. Name any two mobile OS.
11. What is meant by 'access matrix'?
12. Differentiate between 'policy' and 'mechanism'.

(12 x 1 = 12 marks)**Part B***Answer any 7 questions.**Each question carries 2 marks.*

13. Compare and contrast parallel and distributed systems.
14. List the major contents of PCB.
15. What is the idea behind using feedback queue process scheduling?
16. What do you mean by 'thrashing'?
17. Explain access matrix.
18. Explain Real Time System.
19. Which are the mechanisms available for inter-process communication?
20. What is Synchronization in OS? What are the different Synchronization mechanisms?
21. Differentiate between paging and demand paging.

(7 x 2 = 14 marks)

Part C

*Answer any six questions.
Each question carries 5marks.*

22. What are the advantages of time sharing OS over batch systems?
23. Explain FIFO page replacement algorithms and find the number of page faults, by simulating the algorithm using three frames, considering the following page references.

2, 4, 3, 4, 2, 6, 3, 2, 1, 5, 4, 3, 2, 3, 4, 2

24. What are three requirements of any solution to the critical sections problem? Why are the requirements needed?
25. What are the different methods to deal with deadlocks?
26. Describe the sequence of steps that occurs when a timer interrupt occurs that eventually results in a context switch to another application.
27. Name and describe any two processor scheduling algorithms. Critically compare them with each other by taking suitable examples and find out average waiting time and average turn around time (assume required values suitably).
28. Explain indexed file access methods.
29. Explain the differences between traditional OS and mobile OS.

(6 x 5 = 30 marks)

Part D

*Answer any three questions.
Each question carries 8 marks.*

30. Describe about the evolution of Operating system.
31. Explain Bankers algorithm.
32. Detail about allocation and free space management in file systems.
33. Differentiate dynamic loading and dynamic linking.
34. Discuss about different authentication and authorization methods.

(8 x 3 = 24 marks)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Third Semester B.Sc Degree Examination, November 2018
A11 - Fundamentals of Digital Electronics
(2017 Admission onwards)

Max. Time: 3 hours

Max. Marks: 80

PART - A**Answer all questions. Each question carries one mark**

1. What is the largest number that can be represented by using a 3-digit octal code?
2. How many representations are there for zero in 1's complement method?
3. How many 2:1 multiplexers are required to construct a 32:1 multiplexer?
4. When an OR gate is followed by a NOT gate, the combination acts like a gate.
5. A is used to add two bits along with a carry bit.
6. Combinatorial circuit with one input and many output is known as
7. How many entries will be in the truth table of a 3 input NAND gate?
8. Complement of NOR and OR gate is and respectively.
9. The output of SR Flip flop will change from 0 to 1 when S = and R =
10. An example for sequential circuit is
11. A sequential circuit used to store one bit of information is known as
12. A decoder with x input lines will have output lines.

(12 x 1 = 12 Marks)**PART - B****Answer any seven questions. Each question carries two marks**

13. What do you mean by Gray code?
14. Give the truth table for the expression $\sim(a.b)+c$
15. Define minterm.
16. Define half adder.
17. What do you mean by shift register?
18. Define EXOR gate with the help of a truth table.
19. What you mean by fan in?
20. What is Master Slave JK Flip flop?
21. What do you mean by D-flip flop.

(7 x 2 = 14 Marks)

PART - C

Answer any six questions. Each question carries five marks

22. Find X and Y in the following equations.
(a) $(31C)_{16} = (X)_{10}$
(b) $(225)_8 = (Y)_{10}$
23. Represent decimal number -121 in
(a) Sign and magnitude form
(b) 2's Complement form
24. Simplify the following expression by using the laws of logic.
 $(A + C)(AD + AD) + AC + C$
25. State and prove Associative Law.
26. Show that NOR gate is a universal gate.
27. Briefly explain the working of T-Flip flop.
28. Explain the working of Ring Counter with neat diagram.
29. Briefly explain the working of Decoder.

(6 x 5 = 30 Marks)

PART - D

Answer any three questions. Each question carries eight marks

30. Explain in detail about Hamming code with appropriate example.
31. Explain the working of a full adder in detail.
32. Simplify the following expressions by using K-map
(a) $f(A,B,C) = \sum (1,3,6,7)$
(b) $f(A,B,C) = \sum (0,2,4,6,7)$
33. Construct a 2-bit synchronous counter.
34. Explain in detail about the rules and laws of boolean algebra.

(3 x 8 = 24 Marks)

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Third Semester B.Sc Degree Examination, November 2018

A12 – Web Designing

(2017 Admission onwards)

Max. Time: 3 hours

Max. Marks: 80

PART – A

Answer *all* questions.

Each question carries **One** mark.

1. The tag <TR> is used for
2. tag is used for a bulleted list.
3. Which HTML attribute is used to define inline styles?
4. Name the javascript file extension.
5. Name an attribute of <SCRIPT> tag.
6. The logical OR operator in javascript is
7. is the function which is used to check whether a value is a number or not.
8. Name any semantic element in HTML5.
9. Which property is used to change the font face?
10. LAMP stands for.....
11. SEO stands for.....
12. Joomla make use of server technology.

12 x 1 = 12

PART – B

Answer any *seven* questions.

Each question carries **Two** marks.

13. What do you mean by container tag?
14. What are the different attributes of tag?
15. Which are the formatting tags in HTML?
16. Define document object model.
17. Which are the datatypes supported by javascript?
18. Why javascript is known as client side scripting language?

19. What are the features of LAMP?
20. What are the differences between Menus and Menu Items?
21. What is the role of article manager?

7 x 2 = 14

PART - C

Answer any *six* questions.
Each question carries **Five** marks.

22. Give the structure of an HTML document.
23. How do we incorporate different types of lists in HTML?
24. What are the advantages of HTML5 over HTML?
25. Give a brief description about background properties and positioning properties.
26. Write a javascript program to find the area of a circle.
[Get the radius as input from the user during runtime]
27. Briefly explain the features of Drupal.
28. Write a note on Media manager.
29. Explain the Joomla templates in detail.

6 x 5 = 30

PART - D

Answer any *three* questions.
Each question carries **Eight** marks.

30. Create an HTML form for Bus Ticket Booking.
31. Explain the different ways of including CSS in a webpage.
32. Explain in detail about event handling methods in javascript.
33. Compare WAMP with XAMPP. Bring out at least 5 features five features of each.
34. Explain the role of Joomla in E-commerce websites.

3 x 8 = 24