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IV Semester B.C.A. UG Examination, September -2020

DESIGN AND ANALYSIS OF ALGORITHM

(Repeater)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

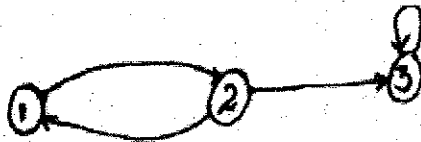
All Sections are Compulsory.

SECTION-A

1. Answer any Ten questions of the following.

(10×2=20)

- Define Algorithm?
- What is best case and worst case time complexity?
- Define spanning tree? Give an example.
- What is debugging?
- Define sorting? List various sorting techniques.
- What is searching? List various searching techniques?
- With neat diagram explain directed and undirected graph.
- What is feasible solution?
- State the indegree and outdegree of node '1' and '3'.



- What is sum of subset?
- Define Dead node and Live node.
- What is principle of optimality?

P.T.O.

**SECTION-B**

Answer any **Four** questions of the following.

(4×5=20)

2. Explain characteristics of an algorithm.
3. With an example explain merge sort technique.
4. Write note on Knapsack problem.
5. Draw a tree and describe the tree traversal techniques.
6. Explain the flow shop scheduling problem with respect to
 - i) Preemptive scheduling
 - ii) Non-preemptive scheduling
7. Write a note on graph coloring?

SECTION-C

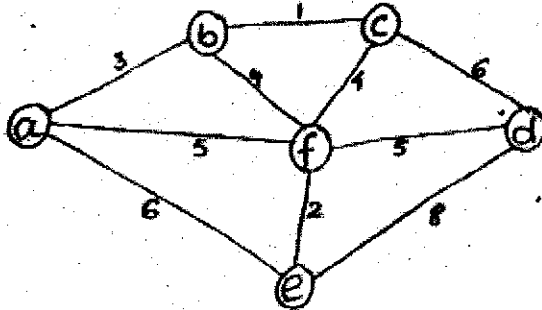
Answer any **Four** questions of the following.

(4×10=40)

8.
 - a) Write an algorithm for Binary Search.
 - b) Explain in brief factors contributing to
 - i) Time complexity/efficiency
 - ii) Space efficiency
9.
 - a) Write a note on strassen's Matrix Multiplication?
 - b) Differentiate between Dynamic Programming and Greedy method.



10. a) Briefly explain various types of asymptotic notations.
b) Find the minimum cost spanning tree for given graph using Kruskal's algorithm?



11. a) Write short note on Depth first search.
b) Draw the tree of recursive calls of MaxMin for the given elements.
 $a[1:9]$ 22, 13, -5, -8, 15, 60, 17, 31, 47
12. a) Draw a figure and explain hamiltonian Cycle.
b) Write note on Travelling sales person problem.
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IV Semester B.C.A. U.G Examination, September - 2020
ADVANCED COMPUTER NETWORKS AND SECURITY

(Regular)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) *All sections are compulsory.*
- 2) *Draw neat diagrams wherever necessary.*

Section - A

1. Answer the following :

(10×2=20)

- a) Define the term Computer Network.
- b) Mention the various network topologies.
- c) What is the function of a routing algorithm?
- d) What is an IP address?
- e) What is RPC?
- f) List the various transport service primitives.
- g) What is HTTP?
- h) What are resource records?
- i) Define firewall.
- j) What is a digital signature?

Section - B

Answer any **four** of the following.

(4×5=20)

2. Explain the SONET devices and configuration.
3. Discuss Hierarchical routing with an example.

P.T.O.



4. Describe Real Time Protocol (RTP).
5. Write a note on DNS - name space.
6. Explain SNMP protocol.

Section - C

Answer any **four** of the following :

(4×10=40)

7. Explain the OSI reference model in detail.
 8. Describe the IPv₄ header with a neat diagram.
 9. Explain the following with reference to TCP
 - a) Connection Establishment.
 - b) Silly window syndrome.
 10. Discuss the e-mail architecture and services.
 11. How is message confidentiality ensured using symmetric and asymmetric key using cryptography? Explain.
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IV Semester B.C.A. UG Examination, September - 2020**ADVANCED JAVA PROGRAMMING****(Regular)****Time : 3 Hours****Maximum Marks : 80****Instructions to Candidates:**

- 1) All sections are Compulsory
- 2) Draw diagrams wherever necessary.

SECTION - A**1. Answer all the questions****(10×2=20)**

- a. Define Event. What are the types of Events?
- b. List the methods of Mouse Listener Interface.
- c. Define Container and Component.
- d. Differentiate between AWT and Swings.
- e. Define JDBC Driver.
- f. Differentiate between JDBC and ODBC.
- g. Differentiate between Java Servlet and JSP.
- h. Define Cookie. List arguments used to define a Cookie.
- i. Define Datagram.
- j. Define Inet Address.

SECTION - B**Answer any four questions.****(4×5=20)**

2. Explain Adapter Class with an example.
3. Explain JTabbedPane and JRadioButton.
4. Explain Prepared Statement object with an example.
5. Explain JSP Tags.
6. Explain URL Connection with an example.

P.T.O.

**SECTION -C**

Answer any four questions.

(4×10=40)

7. Write a Java program to implement Keyboard Events.
 - 8
 - a. Explain Swing Key features.
 - b. Write a Java program containing a Combobox displaying the entries “ India ”, “ Newzealand ”, “ USA ”, “ Israel ”, “ Russia ”.
 - 9
 - a. Explain JDBC Architecture.
 - b. Explain JDBC Process.
 - 10
 - a. Explain anatomy of Java Servlet.
 - b. Write a program to add two nos using JSP.
 - 11
 - a. Write a Java Program to find the IP address of a given website specified by the user.
 - b. What is Message DrivenBean? Explain the process of creating MDB.
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