APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER LATERAL ENTRY MCA DEGREE EXAMINATION

RLMCA201- COMPUTER NETWORKS

MODEL QUESTION PAPER

Time : 3 Hours **Maximum. Marks : 60**

PART A

Answer All Questions

Each question carries 3 marks

1. Explain various types of cables and fibers available for network links
2. What is DNS? Why It's Important & Why We Need It?
3. What is meant by silly window syndrome?
4. What is IPV4? List the various reasons behind the transition from IPV4 to IPV6
5. What type of errors can be detected by Parity Check Code? How is it implemented?
6. Explain token ring protocol.
7. What is the application of SNMP?
8. How collision is resolved in wireless LAN?

PART B

Answer any one question from each module. Each question carries 6 marks

MODULE I

9. What is layered architecture? How layers of OSI model exchange information to establish a connection? Describe with the help of neat diagram.

OR

10. What do you mean by reliable transmission? Explain various security threats in computer networking.

MODULE II

11. Describe with an example how does HTTP request retrieves the document usr/users/doc/doc1. Show the response for

(A) if the document is moved to usr/doc

(B) If there is syntax error

OR

12. Explain the file sharing mechanism in P2P networks with an example. What are its advantages and disadvantages?

MODULE III

13. Explain different error control mechanisms in TCP with neat diagram

OR

14. Explain connection establishment and connection termination in TCP

MODULE IV

15. Explain why routing is very important in networking. Illustrate link state routing algorithm used in networks

OR

16. Differentiate virtual circuits and datagram

MODULE V

17. Explain in detail about IEEE 802.3 with its access protocol and addressing mechanism.

OR

18. A series of 8 –bit message blocks to be transmitted across a data link using a CRC for error detection. A generator polynomial of 11001 is to be used. Message is given as 11100110. Explain the FCS generation.

MODULE VI

19. Write short note on

(A) Wi-Fi

(B) Bluetooth

OR

20. Explain different traffic analyzing tools.

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER LATERAL ENTRY MCA DEGREE EXAMINATION

RLMCA203- SOFTWARE ENGINEERING

MODEL QUESTION PAPER

Time : 3 Hours **Maximum. Marks : 60**

PART A

Answer All Questions

Each question carries 3 marks

1. Discuss the role of software engineering principles in developing quality software.
2. State the principles of rapid application development.
3. Differentiate predictive and adaptive software engineering model.
4. Explain agile design practices.
5. Discuss need and significance of refactoring.
6. Explain Bum down chart.
7. Explain code maintainability.
8. Discuss role of release management in final production deployment.

PART B

Answer any one question from each module. Each question carries 6 marks

MODULE I

9. Explain different phases in software engineering.

OR

10. Explain in detail COCOMO model for cost estimation.

MODULE II

11. Discuss the various software development life cycle models in brief. What model is preferred when the design requirements keep on changing and rapid prototyping is required.

OR

12. Discuss how each SDLC model differ from each other in terms of the flexibility to change design requirements, development cost, time duration, reusability, maintenance and the risk involved.

MODULE III

13. Explain any three agile development methodologies.

OR

14. Explain any three Agile design principles for ensuring maintainable code.

MODULE IV

15. Explain various Agile scrum phases and processes.

OR

16. Explain various roles defined in Scrum framework.

MODULE V

17. Explain assertive programming approach.

OR

18. Discuss ruthless testing, mention its importance in software engineering.

MODULE VI

19. How to unify processes and improve collaboration between development and operations?

OR

20. Discuss i) continuous integration ii) continuous testing iii) continuous deployment.

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER LATERAL ENTRY MCA DEGREE EXAMINATION

RLMCA205- DATABASE MANAGEMENT SYSTEMS

MODEL QUESTION PAPER

Time : 3 Hours **Maximum. Marks : 60**

PART A

(Answer All Questions. Each question carries 3 marks)

1. What is data model? Write briefly on various data models.
2. Briefly write on Natural-Join operation. Give an example.
3. List the various aggregate functions in SQL.
4. What is a 'view' in SQL? How is it created in SQL ?
5. Write the important inference rules for functional dependencies.
6. Define 1NF. Give suitable example.
7. What do you mean by ACID properties of transactions?
8. What is 2PL? Mention its variants.

PART B

(Answer any one question from each module. Each question carries 6 marks)

MODULE I

9. Write in detail the purpose of database systems.

OR

10. Discuss the ER data model. Illustrate ER diagrams for a Hospital Management System.

MODULE II

11. Illustrate outer join operation in relational algebra.

OR

12. Explain fundamental relational-algebra operations.

MODULE III

13. Given the relational Scheme

ENROL(Stud No, course No, Section)

TEACH(Professor, Course No, Section)

ADVICE(Professor, Stud No)

PRE_REQ(Course No, Pre-req-course-no)

GRADES(Stud No, Course No, Grade, Year)

STUDENT(Stud No, Name)

Express the following queries in SQL:

i) List all students taking courses with Prof. Shaji.
ii) List all students taking at least one course that their advisor teaches
iii) List those Professors who teach more than one section of the same course.

OR

14. Consider the following relations

EMPLOYEE (Emp id, Name, City, DOB, Designation, Dept. No.)
DEPARTMENT(Dept No, Dept Name, Manager, Emp id)
PROJECT(Proj no, Proj Name, Dept No)
WORKS ON(Emp id, Proj No, Hours worked)
SALARY(Emp id, salary)

Write SQL statement using nested queries

i) List the name of employees whose salary is greater than the salary of all the employees working under dept 5.
ii) List all employees who reside in the same city as that of their manager.

MODULE IV

15. Define first, second and third normal forms when only primary keys are considered.

OR

16. Define Boyce-Codd Normal Form. How does it differ from 3NF?

MODULE V

17. Write notes on time-stamp ordering protocol.

OR

18. Write notes on an optimistic concurrency control scheme.

MODULE VI

19. Explain association rules in data mining.

OR

20. Explain data-warehouse architecture.

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER LATERAL ENTRY MCA DEGREE EXAMINATION

RLMCA207- DESIGN AND ANALYSIS OF ALGORITHM

MODEL QUESTION PAPER

Time : 3 Hours **Maximum. Marks : 60**

PART A

Answer All Questions

Each question carries 3 marks

1. Solve T(n)=2T(n/2+17)+n using Master's theorem.
2. Find maximum and minimum for the following numbers using divide and conquer.
   25, 14, -7, -10, -20, 28, 65, 18, 38, 50, 75
3. Explain job sequencing problem.
4. Explain dynamic programming.
5. Explain how algorithms can be designed by state space trees.
6. Explain backtracking. How is control abstraction for backtracking done?
7. Explain subset sum problem.
8. Compare P and NP classes.

PART B

Answer any one question from each module. Each question carries 6 marks

MODULE I

9. Write an algorithm for finding maximum element of an array. Perform best and average case complexity with appropriate order notations.

OR

10. With a suitable example, explain the method of solving recurrence equations.

MODULE II

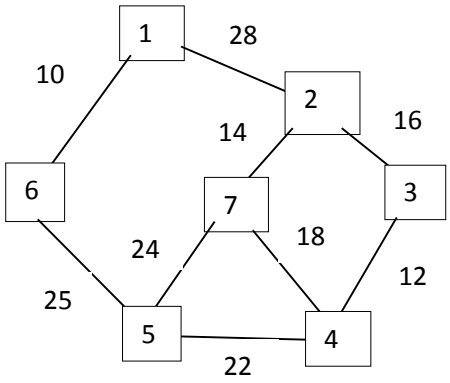
11. Write and explain the control abstraction algorithm of divide and conquer.

OR

12. Write a pseudo code for divide and conquer algorithm for merging two sorted arrays into a single sorted one - Explain with example.

MODULE III

13. Compute a minimum cost spanning tree for the graph given below using prim's algorithm.



OR

14. What is Greedy Strategy? Explain how greedy strategy works in Fractional Knapsack Problem.

MODULE IV

15. Explain the All Pair Shortest Path Problem with an algorithm.

OR

16. Explain Travelling Salesman Problem with a relevant example.

MODULE V

17. Explain any Branch and bound problem with example.

OR

18. Describe N^2-1 Puzzle Problem

MODULE VI

19. Compare SAT and 3-SAT Problem

OR

20. Explain Vertex Cover Problem with relevant examples.

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER LATERAL ENTRY MCA DEGREE EXAMINATION

RLMCA209- WEB PROGRAMMING

MODEL QUESTION PAPER

Time : 3 Hours **Maximum. Marks : 60**

PART A

Answer All Questions

Each question carries 3 marks

1. Write short notes on World Wide Web (WWW).
2. Write the general form of HTTP response message.
3. Explain how communication takes place between web browser and web server.
4. Explain any two event handling techniques in Java Script.
5. Discuss the tag and attribute which is used to define a link in HTML?
6. What are the components of a CSS Style?
7. Describe briefly the major differences between Java and JavaScript.
8. Explain about GET & POST methods.

PART B

Answer any one question from each module. Each question carries 6 marks

MODULE I

9. a. "HTTP is stateful protocol". Justify.

   b. Explain how communication takes place between a Server & a Client using HTTP.

OR

10. Explain Push & Pull Protocols used in E-mail communication with proper diagrams.

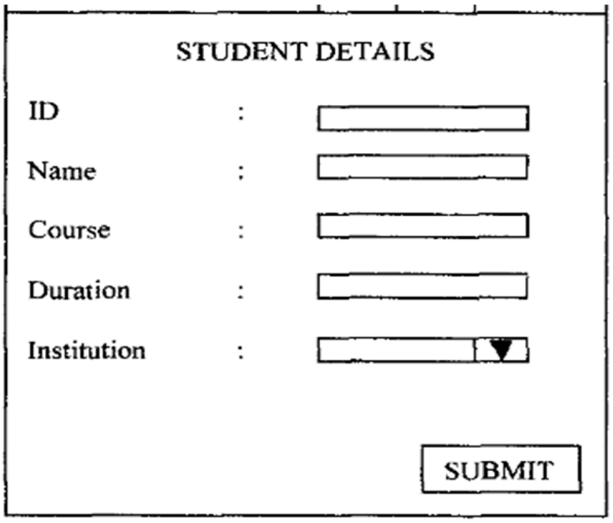
MODULE II

11. a. List some advantages of HTML5 over HTML ?

    b. Differentiate Local Storage Object & Session Storage Object in HTML5 with suitable examples.

OR

12. Design the following web form



MODULE III

13. Briefly explain different selector forms of Cascading Style Sheet (CSS). Illustrate the use of each with suitable examples.

OR

14. Create an HTML page which contains a Header (h1) & three links. Add an external style sheet to the created html page. The style sheet should do the following:

a. Display h1 elements in blue.

b. Display all links in blue without underlining them.

c. When the mouse hovers over the link, change the link's background color to yellow, and text's color to blue.

MODULE IV

15. Write a Java Script to accept three numbers, using the prompt method. Find and display the largest of three using alert method. Use predefined function Math.max.

OR

16. Explain how Windows & Frames are developed using Java Script.

MODULE V

17. Write a JavaScript that contains a function named validate - phone no, which tests the phone number of the format ddd - dddd - dddddd (091 -8256- 123456) and display whether the given number is valid or not using alert.

OR

18. a. Write notes on Character Classes.

b. Write short notes on AJAX & JQuery

MODULE VI

19. a. Consider the following entities and their relationships.

Customer (cust_no, name, address, city)
Account (acc_no, acc_type, balance)
Cust_Acc (cust_no, acc_no, w_amt, w_date)

Write php script to accept customer name from user and print his transaction details in tabular format.

b. Describe the steps to establish Database Connectivity in php pages.

OR

20. a. What is cookie and session tracking, how are they handled in PHP.

b. Explain how an email can be sent in PHP with example.