

Reg. No. \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FIRST SEMESTER MCA (LATERAL ENTRY) DEGREE EXAMINATION, JULY 2017

**RLMCA201: COMPUTER NETWORKS**

Maximum Marks: 60

Duration: 3 Hours

**PART A***Answer All Questions. Each question carries 3 marks*

1. Highlight the importance of protocol layering with an example.
2. Explain the basic model of FTP. How FTP uses the services of TCP?
3. Differentiate connection oriented and connectionless transport with suitable example.
4. How routing happens through Border Gateway Protocol?
5. Explain the duties of data link Layer.
6. Compare any two random access protocols.
7. What are the various Wireless LAN requirements?
8. List out the goals of firewalls.

**PART B***Answer any one question from each module. Each question carries 6 marks.***MODULE I**

9. What are the components of basic communication model? Describe with the help of a neat diagram.

OR

10. Discuss about the history of Internet.

**MODULE II**

11. Describe with an example how an HTTP conversation happens between a Web client and server.

OR

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

**MODULE III**

13. Explain different principles of Congestion Control.

OR

14. Explain stop-and-wait and Go back-N protocol in detail.

**MODULE IV**

15. What are the performance criterias for selecting a routing algorithm? Illustrate distance vector routing algorithm used in networks.

OR

16. Differentiate virtual circuits and datagram.

**MODULE V**

17. Explain in detail about IEEE 802.3 MAC frame format with its access protocol.

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 1101 is to be used. Message is given as 100100. Explain how CRC check is implemented.

**MODULE VI**

19. Write short note on

- a. Troubleshooting
- b. SNMP

OR

20. Explain Bluetooth with its architecture and layers.

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**APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST SEMESTER MCA (LATERAL ENTRY) DEGREE EXAMINATION, JULY 2017**

**RL MCA 203: SOFTWARE ENGINEERING**

Maximum Marks: 60

Duration: 3 hours

**PART A**

*Answer all Questions. Each question carries 3 marks.*

1. What is the importance of requirement gathering?
2. List the features of sashimi model.
3. Compare predictive and adaptive software engineering model.
4. Define Liscov substitution principle.
5. What is acceptance test?
6. Explain the process of retrospective daily scrum.
7. What is code maintainability?
8. State the benefits of continuous integration.

**PART B**

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

**Module I**

9. Explain the importance of software engineering and describe in detail the various phases associated with it.

**OR**

10. Write an essay on COCOMO model.

**Module II**

11. Explain different versions of waterfall model.

**OR**

12. Write notes on i) Feature driven development ii) Extreme Programming iii) Lean Software Development.(2 marks each)

**Module III**

13. Explain different types of testing in agile lifecycle.

**OR**

14. Write an essay on any three agile design principles.

**Module IV**

15. Explain in detail the role of Daily Scrum meeting and sprint in scrum framework.

**OR**

16. Write an essay on important scrum roles.

**Module V**

17. Explain design by contract in detail.

**OR**

18. Explain essential pragmatism in software engineering.

**Module VI**

19. Write an essay on the factors of devops in software industry.

**OR**

20. Write notes on i) Configuration management and its importance. (3)  
ii) Release management and its benefits. (3)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FIRST SEMESTER MCA (LATERAL ENTRY) DEGREE EXAMINATION, JULY 2017

Course Code: **RLMCA205**Course Name: **DATABASE MANAGEMENT SYSTEMS**

Maximum.Marks:60

Duration: 3 Hours

**PART A***Answer All Questions. Each question carries 3 marks.*

1. Write a note on weak entity sets. How they are represented in an ER model? How they are identified uniquely?
2. What is meant by Referential Integrity constraints?
3. What are the set operators in SQL?
4. What is 'view' in SQL? How is it managed in SQL?
5. Explain functional dependency with a suitable example.
6. Explain BCNF with an example.
7. What is a Transaction and what are the basic operations?
8. Explain Serial and Non Serial schedules with example.

**PART B***Answer ALL questions. Each question carries 6 marks.*

9. Write in detail the purpose of data base systems.

OR

10. What are the different types of database users? Explain the responsibilities of a Database Administrator.
11. Explain Basic Relational Algebra operations.

OR

12. Consider 3 tables:

- SAILORS (SID:INTEGER, SNAME:STRING, RATING:INTEGER,AGE:REAL)

- BOATS (BID:INTEGER, BNAME:STRING, COLOR:STRING)

•RESERVES(SID:INTEGER, BID:INTEGER, DAY:DATE)

Write a Relational algebra queries for the following:

- i) Find the names of sailors who have reserved at least one boat.
- ii) Find the names of sailors who have reserved a 'red' boat
- iii) Find the names of sailors who have reserved both red and green boats.

13. Write a procedure to print the prime numbers below 100.

OR

14. Explain about Triggers in SQL.

15. What is Normalization? Explain 1NF, 2NF and 3NF in detail.

OR

16. What is decomposition? What are the desirable properties of decomposition?

17. What is 2PL.Explain all the variants of 2PL.

OR

18. What is Deadlock? How can we deal with Deadlocks?

19. Explain Association rules in data mining.

OR

20. Explain the concept and characteristics of Data Warehouses.

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY****FIRST SEMESTER MCA (LATERAL ENTRY) DEGREE EXAMINATION, JULY 2017****RLMCA207: DESIGN AND ANALYSIS OF ALGORITHMS**

Max. Marks: 60

Duration: 3 Hours

**PART A***Answer All Questions. Each question carries 3 marks.*

- 1) Define the recurrence relation of Binary Search method and solve it using Master's Theorem.
- 2) Write the pseudo code of Quick Sort and also find the time complexity of the algorithm.
- 3) What is knapsack problem? Solve the following knapsack problem using greedy method  
N=5    M= 9  
  
(P1, P2, P3, P4, P5)=(10,10,15,12,4)(W1,W2,W3,W4,W5)=(2,4,7,4,1)
- 4) Differentiate between Divide and Conquer method and Dynamic Programming
- 5) Define the following terms with respect to solution space.
  - a. State Space Tree
  - b. Live Node
  - c. E- Node
  - d. Dead Node
- 6) Write down the control abstraction of branch and bound method
- 7) What is meant by bounding function? Write one example
- 8) What are tractable and intractable problems?

**PART B***Answer any one question from each module. Each question carries 6 marks.***MODULE I**

- 9) Define Space Complexity. State how to calculate the space complexity of an algorithm. Write the space complexity of the following algorithm.

Algorithm Sum (a, n)

// where 'a' is an array of size 'n'

{

```
s := 0.0;
for i := 1 to n do
    s := s + a[i] ;
for j := 1 to n do
    s := s + a[j] ;
return s;
}
```

**OR**

- 10) What is performance analysis of an algorithm? Analyze the following algorithm and calculate its average and worst case complexities.

Algorithm Sort (A,N)

```
//Sort the 'N' numbers in the array A
{
    i=1;
    while(i <= (N-1))
    {
        Temp=A[i];
        j=i;
        while((Temp < A[j-1] && (j>=0))
        {
            A[j] = A[j-1];
            j--;
        }
        A[j]=Temp;
        i++;
    }
    Return A;
}
```



**MODULE II**

- 11) A bag contains 16 coins and one of the coin is counterfeit and lighter than others. Design an algorithm to detect the counterfeit coin and also state the time complexity of the algorithm if number of coins is 'n'.

**OR**

- 12) Consider the following array with eleven numbers

$A[1:11] = (310, 285, 179, 654, 349, 420, 851, 263, 440, 520, 367)$

Sort these numbers using Merge Sort. Write down the Merge Sort algorithm and also compute its best and worst case time complexities.

**MODULE III**

- 13) What is minimum spanning tree? Give an example and solve it using Kruskal's algorithm.

**OR**

- 14) Write the pseudo code of Job sequencing problem using greedy method. Give an example and solve it using greedy method.

**MODULE IV**

- 15) What is Travelling Salesman Problem? Write down TSP algorithm by dynamic programming method and also specify its time complexity.

**OR**

- 16) Define the term principle of optimality. Write an algorithm to solve all pairs shortest path problem and also compute the time complexity of the algorithm

**MODULE V**

- 17) What is  $N^2 - 1$  puzzle problem? With an example solve 15-puzzle problem

**OR**

- 18) Write an algorithm to solve N Queens problem using Backtracking method.

**MODULE VI**

- 19) Explain the different types of complexity classes. Give examples of NP Hard and NP Complete problems

**OR**

- 20) What is clique problem? Explain the clique problem as an optimization problem and as a decision problem.

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY****FIRST SEMESTER MCA (LATERAL ENTRY) DEGREE EXAMINATION, JULY 2017****Course Code: RLMCA209****Course Name: WEB PROGRAMMING**

Max. Marks: 60

Duration : 3 Hours

**PART A***Answer All Questions. Each question carries 3 marks.*

1. Write short notes on POP3.
2. Write the general form of HTTP request message.
3. Explain the following tags with an example.
  - a. <a>
  - b. <img>
  - c. <pre>
4. Describe the following positioning elements with example.
  - a. Absolute positioning
  - b. Relative positioning
5. Describe the difference between primitives and objects in JavaScript.
6. Explain navigator object with an example.
7. Discuss the concept of encapsulation in JavaScript.
8. State about cookies in PHP.

**PART B***Answer any one question from each module. Each question carries 6 marks.***MODULE I**

9. What is hypertext? Explain its phases. Mention various methods and status codes of *http*.

**OR**

10. Which are the various mail transfer protocols in web? Explain any one in detail.

**MODULE II**

11. Differentiate the features of HTML and HTML5.

**OR**

12. Design the following web form.

**Employee Details**  
  

ID	<input type="text"/>
Name	<input type="text"/>
Gender	<input type="radio"/> Male <input type="radio"/> Female
Designation	<input type="text" value="▼"/>
Salary	<input type="text"/>

  

Submit

### MODULE III

13. What are the different types of CSS? Explain with an example.

**OR**

14. Create a web page that uses external style sheet for formatting the body tag attributes, heading tags and lists.

- Display body elements with blue background, white font color and all visited links in yellow color.
- Display all listing elements in green color and set font size to x-large.
- Display the heading element in red color and use decoration tags.

### MODULE IV

15. a. Explain Java Script arrays with example. (3)

b. Write a JavaScript to find the square root of a number. (3)

**OR**

16. Explain the basic concept of event handling. List the events and their tag attribute.

**MODULE V**

17. a. Discuss about Ajax in detail (3)  
b. Write notes on JQuery and JSON. (3)

**OR**

18. Write a JavaScript that contain a function named validate\_Email\_Id, which test the Email\_Id and display whether it is valid or not using alert.

**MODULE VI**

19. Explain sort, assort and ksort array functions in PHP with examples.

**OR**

20. Discuss form handling in PHP. Develop a login form and check whether the entered user is valid or not.

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