Reg No.:_____ Name:_____

0520MCA104052301

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Second Semester MCA (Two Years) Degree (R, S) Examination May 2024

Course Code: 20MCA104

Course Name: ADVANCED COMPUTER NETWORKS

Max. Marks: 60 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1 With figures, explain the basic topologies used in computer networks. (3)

2 Calculate the propagation time and transmission time for a 5Mbytes message if the bandwidth of the network is 1Mbps. Assume that distance between the sender and receiver is 12000km and light travels at 2.4×10^8 m/s. (3)

3 Compare Frequency Division Multiplexing with Time Division Multiplexing (3)

4 With figure explain how Go-Back N ARQ works. (3)

5 Differentiate between virtual circuit and datagram approach used in packet switching. (3)

6 Explain distance vector routing used in packet routing. (3)

7 Write short note on Ethernet along with its frame format. (3)

8 Explain how token passing mechanism works in IEEE 802.5 standard. (3)

9 Explain how Simple Network Management Protocol manages devices in a network with figure. (3)

10 Why gateways are used in computer networks? list its features. (3)

PART B

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

Module I

11 With figure explain the responsibilities of various OSI protocol layers. (6)

OR

12 Write short notes on the following protocols used in computer network (6)

a) ARP b) ICMP c) POP3 d) SMTP

Module II

13 Elucidate TCP header structure and major transport layer services. (6)

OR

14 Explain congestion control. What are the factors which causes it? Explain each categories of congestion control in detail. (6)

Module III

15 a) Express how address depletion faced by classful addressing is overcome by classless addressing. (4)

b) A block of address is granted to a small organization. One of the address is 205.16.37.39/28. Find the starting and ending address given to organization (2)

OR

16 With suitable diagram explain IPv4 datagram packet format. (6)

Module IV

17 a) Explain briefly on error detection code technique checksum used in data communication. (3)

b) For this given data 11001100 10101010 11110000 11000011, perform check sum operation at sender site and receiver site and verify the data at receiver site. (3)

OR

18 Explain Carrier Sense Multiple Access with collision detection algorithm in detail. (6)

Module V

19 Explain Bluetooth technology with its architecture. (6)

OR

20 Explain various functions and protocols used by network management system. (6)

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0720MCA172122301

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Second Semester MCA (Two Years) Degree (R,S) Examination May 2024

Course Code: 20MCA172

Course Name: ADVANCED OPERATING SYSTEMS

Max. Marks: 60 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1	Differentiate between distributed operating system and real time operating systems?	(3)
2	Explain different states of a process with a neat diagram.	(3)
3	List out the requirements of Mutual Exclusion algorithms.	(3)
4	Write Rickart-Agarwala Algorithm.	(3)
5	Define a distributed file system. Explain its services?	(3)
6	Differentiate between load balancing and load sharing.	(3)
7	Discuss any two interconnection networks for multiprocessor systems.	(3)
8	Differentiate between UMA and NUMA architecture of multiprocessor Systems.	(3)
9	Differentiate between serial log and log equivalence.	(3)
10	What are the basic synchronization primitives for concurrency control algorithms in database systems?	(3)

PART B

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

Module I

11	What is meant by distributed operating systems? Explain in detail any three issues in distributed operating systems	(6)

OR

12	Write short notes on the following a. Monitor b. Serializer	

Module II

13 Explain any six Design Principles for Secure Systems. (6)

OR

14 Explain Access Matrix Model with its access control list method implementation. (6)

Module III

15 Explain Sender Initiated Algorithm and Receiver Initiated Algorithm. (6)

OR

16 Explain different algorithms for implementing distributed shared memory (6)

Module IV

17 Write short notes on the following. (6)

a. Swap Instruction

b. Fetch-and-Add Instruction

OR

18 a. Illustrate Virtualization in Operating Systems. (6)

b. Explain different type of hypervisors

Module V

19 Explain two Phase Locking (2PL) with example. Write down the major problems with 2 PL (6)

OR

20 Elaborate on the Optimistic concurrency control algorithms. (6)

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0520MCA192052303

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Second Semester MCA (Two Years) Degree (R,S) Examination May 2024

Course Code: 20MCA192

Course Name: IPR AND CYBER LAWS

Max. Marks: 60 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1	Categorize various patent applications.	(3)
2	Explain the importance of IP in terms of different people in the society	(3)
3	What is the role of copyrights in IT Industry?	(3)
4	How we can protect the Trademark? Explain the different steps.	(3)
5	Define the term Design as per Design Act section 2(d)	(3)
6	Explain the term geographical indications by giving suitable examples.	(3)
7	Define Hyperlinking and Deep Linking.	(3)
8	Explain the new trends in Cyber Laws. What is the relevance of these Laws?	(3)
9	Define a "secure system" as per the IT Act 2000.	(3)
10	Explain about offenses committed by intermediaries.	(3)

PART B

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

Module I

11 Write short notes on

I. International Treaties related to IP (6)

II. Importance and features of WIPO

OR

12 a) Describe the procedure for registration of patents. (3)

b) Draw the flowchart that illustrate the procedure for Patent application (3)

Module II

13 Explain about the different steps involved in copyright registration in India. (6)

OR

14 Explain the trademark registration process with a neat diagram. (6)

Module III

15 Explain about GI registration in India with a neat diagram. (6)

OR

16 Draw & explain the flowchart that illustrate the design application up to acceptance. (6)

Module IV

17 Explain cybersquatting with examples. Explain how cybersquatting can be recognized. (6)

OR

18 Explain the role of Cyber laws in IPR. (6)

Module V

19 What are the different types of Cybercrimes? Explain in detail about Cyber terrorism. (6)

OR

20 Explain the different sections in the IT Act 2000 related to women and children. (6)

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