b. Describe about error detection and error correction codes with example.

32. a. Draw and explain about IEEE 802.11 frame format and its functionalities.

(OR)

b. Discuss about different types of guided and unguided transmission media with diagrams.

* * * * *

Reg. No.															

B.Tech. DEGREE EXAMINATION, DECEMBER 2017
Third/ Fourth/ Fifth Semester

15IT303J – COMPUTER NETWORKS
(For the candidates admitted during the academic year 2015 – 2016 onwards)

Note:
(i) **Part - A** should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45th minute.
(ii) **Part - B** and **Part - C** should be answered in answer booklet.

Time: Three Hours Max. Marks: 100

PART – A (20 × 1 = 20 Marks)
Answer **ALL** Questions

1. A _____ is a set of rules that governs data communication.
   (A) Protocol (B) Forum
   (C) Standard (D) Logic

2. The _____ address identifies a process on a host.
   (A) Specific (B) Port
   (C) IP (D) Physical

3. An unauthorized user is a network _____ issue.
   (A) Security (B) Reliability
   (C) Performance (D) Delay

4. The _____ layer adds a header to the packet coming from the upper layer that includes the logical address of the sender and receiver.
   (A) Data link (B) Network
   (C) Physical (D) Transport

5. What range of addresses can be used in the first octet of a class B network address?
   (A) 1-126 (B) 1-127
   (C) 128-190 (D) 128-191

6. Which class of IP address provides a maximum of only 254 host addresses per network ID?
   (A) A (B) B
   (C) C (D) D

7. If you wanted to have 12 subnets with a class C network ID which subnet mask would you use.
   (A) 255.255.255.252 (B) 255.255.255.248
   (C) 255.255.255.240 (D) 255.255.255.255

8. What is the broadcast address of the subnet address 172.16.99.99 255.255.192.0?
   (A) 172.16.99.255 (B) 172.16.127.255
   (C) 172.16.255.255 (D) 172.16.64.127

9. In _____ forwarding the mask and destination address are both 0.0.0.0 in the routing table.
   (A) Next hop (B) Network specific
   (C) Host specific (D) Default

10. The _____ routing uses the Dijikstra algorithm to build a routing table.
   (A) Distance vector (B) Link state
   (C) Path vector (D) Anonymous

11. What is the administrative distance of OSPF?
   (A) 90 (B) 100
   (C) 110 (D) 120

12. A network administrator needs to configure a router with a distance vector protocol that allows classless routing. Which of the following satisfies those requirements?
   (A) IGRP (B) OSPF
   (C) RIPVI (D) EIGRP

13. Which ARQ mechanism deals with the transmission of only damaged or lost frames despite the other multiple frames by increasing the efficiency and its utility in noisy channels?
   (A) Go back-N ARQ (B) Selective repeat ARQ
   (C) Stop and wait ARQ (D) Generic ARQ

14. What is the purpose of the preamble in an Ethernet frame?
   (A) Is used as a padding for data (B) Is used for timing synchronization
   (C) Is used to identify the source address (D) Is used to identify the destination address

15. The hamming distance between 100 and 001 is
   (A) 2 (B) 0
   (C) 1 (D) 4

16. What is the Start Frame Delimiter (SFD) in the Ethernet frame?
   (A) 10101010 (B) 10101011
   (C) 00000000 (D) 11111111

17. What is the maximum data rate for the 802.11A standard?
   (A) 6 Mbps (B) 11 Mbps
   (C) 22 Mbps (D) 54 Mbps

18. _____ cable consists of an inner copper core and a second conducting outer steath.
   (A) Twisted pair (B) Coaxial cable
   (C) Fibre optic (D) Shielded twisted pair

19. What is the major factor that makes coaxial cable less susceptible to noise than twisted pair cable?
   (A) Inner conductor (B) Diameter of cable
   (C) Outer conductor (D) Insulating material

20. _____ cable is used for data communications.
   (A) Coaxial (B) Fiber optic
   (C) Twisted pair (D) Filled cable

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

21. Write any four difference between OSI and TCP-IP layer model.

22. Explain the types of network topologies.

23. From the given address 192.168.100.0/24, create 16 subnets. Find the usable IP address in each subnet.

24. List the types of OSPF packet.

25. Explain the hamming code error correction technique used in data link layer.

26. Write the range of classful addressing and its default mask.

27. Draw the frame format for IEEE 802.11.

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

28. a. Explain in detail about OSI layer model with neat diagram.

(OR)

b. Explain the TCP/IP layer model in detail.

29. a. An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 11 subnets as shown below.
   (i) Two subnets each with 64 addresses
   (ii) Two subnets each with 32 addresses
   (iii) Three subnets each with 16 addresses
   (iv) Four subnets each with 4 addresses
   Compute the subnet mask, first address and last address of each subnet.

(OR)

b. An organization is granted the block 130.34.12.64/26. The organization needs 4 subnets. What is the subnet prefix length? What are the subnet addresses and the range of addresses for each subnet? Find the first and last address of the first and last subnet.

30. a. Explain the operation of OSPF protocol in detail.

(OR)

b.i. Explain the RIP protocol message types and its timers.

ii. Write the three node instability problem in distance vector routing.

31. a.i. Draw and explain the IEEE 802.3 frame format.

ii. Discuss about the types of ARQ.

(OR)