

**DipIETE – ET/CS (Current & New Scheme)**

Time: 3 Hours

**DECEMBER 2015**

Max. Marks: 100

*PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.*

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

**Q.1 Choose the correct or the best alternative in the following: (2×10)**

- a. \_\_\_\_\_ command is used to manipulate TCP/IP routing table.
- (A) route (B) Ipconfig  
(C) Ifconfig (D) Traceroute
- b. Which of the following devices modulates digital signals into analog signals in traditional telephone lines?
- (A) Router (B) Gateway  
(C) Switch (D) Modem
- c. Which one of the following is incorrect?
- (A) Full-duplex means simultaneous transmission and reception.  
(B) Simplex device cannot talk back.  
(C) One of the reliability measures of networks is the robustness in catastrophe.  
(D) Half-duplex means only half of the cable is duplex.
- d. The frame type that refers to High-level Data Link Control error detection field is
- (A) Frame Check Sequence field  
(B) Control field  
(C) flag field  
(D) information field
- e. A local telephone network is an example of a \_\_\_\_\_ network
- (A) Packet switched (B) Circuit switched  
(C) Both (A) and (B) (D) None of these
- f. Which of the following is not a guided media?
- (A) Fiber optical cable (B) Coaxial cable  
(C) Wireless LAN (D) Copper wire
- g. Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?
- (A) CDMA (B) CSMA/CA  
(C) ALOHA (D) None of these

- h. How long is an IPv6 address?  
 (A) 32 bits (B) 128 bits  
 (C) 128 bytes (D) 64 bits
- i. Simple mail transfer protocol (SMTP) utilizes \_\_\_\_\_ as the transport layer protocol for electronic mail transfer.  
 (A) TCP (B) UDP  
 (C) DCCP (D) SCTP
- j. SMTP uses the TCP port  
 (A) 22 (B) 23  
 (C) 24 (D) 25

**Answer any FIVE Questions out of EIGHT Questions.  
 Each question carries 16 marks.**

- Q.2** a. What is TCP/IP Model? Explain the functions, protocols and services of each layer. (10)  
 b. What is meant by Data Communication? Explain its characteristics. (6)
- Q.3** a. Explain guided and unguided transmission media. (6)  
 b. What is the advantage of synchronous transmission? (4)  
 c. Two computers using TDM take up turns to send 100- bytes packet over a shared channel that operates at 64000 bits per second. The hardware takes 100 microseconds after one computer stops sending before the other can begin. How long will it take for each computer to send one megabyte data file? (6)
- Q.4** a. Write the comparison between analog and digital signal. (8)  
 b. Explain various error detection techniques in digital data transmission. (8)
- Q.5** a. What is multiplexing? Explain the various types of multiplexing techniques. (8)  
 b. Write short notes on the following: (4×2)  
 (i) Flow control  
 (ii) High-Level Data Link Control (HDLC)
- Q.6** a. Why is packet switching important? Give at least two reasons. (4)  
 b. What is the chief advantage of using virtual packets instead of frames? (5)  
 c. How congestion is controlled in TCP? (7)
- Q.7** a. Explain the basic difference between IEEE 802.3 and switched Ethernet. (4)  
 b. Discuss various types of network topologies in computer network. (8)  
 c. Why does ethernet specify a minimum frame size? (4)
- Q.8** a. What is IPv6? Explain its advantages over IPv4. Also explain its frame format. (8)  
 b. What is the chief advantage of Classless Inter Domain Routing (CIDR) over the original classful addressing scheme? (8)
- Q.9** a. When web pages containing emails are sent out they are prefixed by MIME Header. Why? (8)  
 b. What is the advantage of dividing an email address into two parts? (4)  
 c. Can SMTP be used as transfer protocol for Web pages? Why? (4)