Total No. of Questions—**4**] [Total No. of Printed Pages—**3**

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T.Y. B.Sc. (Sem. III) EXAMINATION, 2017

COMPUTER SCIENCE

Paper III

(CS-333 : Computer Network—I)

(2013 PATTERN)

Time : Two Hours **Maximum Marks : 40**

***N.B.* :—** (*i*) *All* questions are compulsory.

(*ii*) *All* questions carry equal marks.

(*iii*) Neat diagram must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

1. Attempt *all* of the following : [10×1=10]

(*a*) Define protocol with its key elements.

(*b*) Define mesh topology.

(*c*) What is port address ?

(*d*) List the applications of coaxial cable.

(*e*) What is the purpose of line testing tool ?

(*f*) Which devices operate at physical layer ?

(*g*) Define Bit rate and Baud rate.

P.T.O.

(*h*) Which error detection method uses one's complement arithmetic ?

(*i*) Define piggybacking.

(*j*) State *three* types of MAC protocols.

2. Attempt any *two* of the following : [2×5=10]

(*a*) State the difference between LAN and WAN.

(*b*) Explain fiber optic cable with their types and applications.

(*c*) Calculate the total delay for a frame of size 5 million bits which is sent on a link with 10 Routers, each having queuing time of 2 μs and a processing time of 1 μs. The length of the link is 2000 km and speed of light is 2×10^8 m/s in the link. The link has bandwidth 5 Mbps.

3. Attempt any *two* of the following : [2×5=10]

(*a*) What are the responsibilities of session and presentation layer ?

(*b*) What is parallel transmission ? State their advantages of disadvantages.

(*c*) Generate the CRC code for message 1001101010. Give generator polynomial $g(x) = x^4 + x^2 + 1$.

4. Attempt any *one* (A *or* B) of the following :

(A) (*i*) What is framing ? Explain any *two* framing methods with example. [4]

(*ii*) Explain FDMA in detail. [4]

(*iii*) Using diagram, write the protocol stack of TCP/IP model. [2]

Or

(B) (*i*) What are Random access methods ? Explain any *one* mechanism. [4]

(*ii*) Write notes on :

(*a*) PPP [2]

(*b*) Thermal and Induced noise. [2]

(*iii*) Explain star topology with their advantages. [2]