UG Odd Semester (CBCS) Exam., December—2016

COMPUTER SCIENCE

(5th Semester)

Course No. : MCS–502 (C)

(Data Communication)

Full Marks : 75
Pass Marks : 30

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. *(a)* Explain the following terms : 2×3=6

(i) Parallel and Serial transmission

(ii) Asynchronous and Synchronous transmission

(iii) Simplex and Duplex communications

(b) Explain Shannon capacity. Consider an extremely noisy channel in which the value of signal-to-noise ratio is almost zero. Calculate the capacity of this channel. 5+4=9

2. *(a)* The power we use at home has a frequency of 60 Hz. Find its period. 2

(b) Describe the term 'phase'. With a diagram, explain different types of phase for the same sine wave. 7

(c) Explain wavelength. What is the wavelength of red light, if its frequency is ($4 \quad 10^{14}$) in air? 4+2=6

UNIT—II

3. *(a)* Define and explain the following : 4×2=8

(i) Data integrity

(ii) Detection and correction

(iii) Forward error correction and recorrection

(iv) Redundancy

(b) Explain the concepts of CHECKSUM with proper examples. 7

4. *(a)* What is block coding? Explain its concept. 8

(b) Explain any *one* of the following : 7

(i) Linear block code

(ii) Cyclic code

UNIT—III

5. *(a)* Write short notes on the following : 4+4=8

(i) RS-232

(ii) Handshaking

(b) Discuss about packet data networks. 7

6. *(a)* What is modem? Explain short-wave modem in detail. 7

(b) Write short notes on the following : 4+4=8

(i) Fax modem

(ii) RS-432

UNIT—IV

7. *(a)* Discuss about polling and selecting in detail. 8

(b) Discuss about OSI model in detail. 7

8. *(a)* What is binary synchronous control (BSC)? Discuss about BSC frame. 8

(b) Discuss the TCP/IP protocol in detail. 7

UNIT—V

9. *(a)* Discuss about addressing in detail. 6

(b) Discuss the connection establishment and termination. 9

10. *(a)* What is flow control? Discuss the stop-and-wait flow control. 2+6=8

(b) Discuss the sliding window flow control. 7

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