



WEST BENGAL STATE UNIVERSITY
B.Sc. General Part-III Examination, 2022

COMPUTER SCIENCE

PAPER: CMSSG-IV-A

Time Allotted: 2 Hours

Full Marks: 50

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

Answer Question No. 1 and any *five* questions from the rest

1. Answer any *five* questions from the following: 2×5 = 10
 - (a) What are the three criteria necessary for an effective and efficient network?
 - (b) What are the differences between bit rate and baud rate?
 - (c) What is S/N (Signal to Noise) ratio?
 - (d) Define channel capacity.
 - (e) Compare between analog and digital signal.
 - (f) What is the relationship between period and frequency?
 - (g) Distinguish between digital signal and analog signal.
 - (h) What do you mean by network security?

2. (a) Briefly describe the components of a data communication system. 5
(b) If a periodic signal is decomposed into four sine waves with frequencies of 200 Hz, 300 Hz, 700 Hz and 800 Hz, what is the bandwidth? 3

3. (a) State Nyquist bit rate and Shannon's Capacity. 3+3
(b) What are the differences between Coaxial Cable and Optical Fiber? 2

4. (a) Describe the working principle of fiber-optic cable. 6
(b) What is Ethernet? 2

5. (a) Briefly discuss the functions of physical and data link layers of TCP/IP model. 3+3
(b) What do you mean by http protocol? 2

6. (a) Define multiplexing. 3
(b) Explain Time Division Multiplexing with the help of a diagram. 5
7. (a) What do you mean by routing? 2
(b) Explain the RSA algorithm for network security. 6
8. Write short notes on any *two* of the following: 4+4
(a) Network security
(b) E-mail system
(c) Token ring
(d) DNS.

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

—×—