D 103007 **(Pages : 2)** **Name.....**

Reg. No.....

FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2024

Common Course—(Language Reduced Pattern)

A13—DATA COMMUNICATION AND OPTICAL FIBERS

(2019 Admission onwards)

Time : Two Hours and a Half Maximum : 80 Marks

Section

Answer the following questions (1-15).
Each question carries 2 *marks.*

1. What is a Protocol ? Give an example.
2. What are important characteristics of a periodic signal ?
3. Name any *two* modulation techniques used in data communication.
4. How do guided media differ from unguided media ?
5. What is Ethernet ?
6. What is Multiplexing ? Write any *two* applications of it.
7. List the advantages and disadvantages of WDM.
8. Distinguish between IMSI and IMEI.
9. What is the different between single bit error and burst error ?
10. What are the different types of switching techniques ?
11. What do you mean by token bus protocol ?
12. What is total internal refection ? Under what conditions does it occur ?
13. Write a short note on optical fiber waveguides.
14. Differentiate multimode and single mode fibers.
15. What is mode field diameter ?

(Ceiling = 25 marks)

Turn over

Section B

Answer the following questions (16-23).
Each question carries 5 *marks.*

16. Distinguish between point-to-point and multipoint connections ? Give suitable diagrams.
17. What is cable modem ? How upstream and downstream data transfer is done in cable modem ?
18. With suitable diagram explain how synchronous time division multiplexing works.
19. Discuss the various supplementary services offered in a GSM network.
20. What do you mean by character oriented protocols ? Explain.
21. Briefly explain how ISDN works.
22. Discuss the advantages and disadvantages of optical fiber over conventional communication transmission media.
23. Sketch the cross - section of a typical photo-diode and explain its operation.

(Ceiling = 35 marks)

Section C

Answer any **two** *questions* (24-27).
Each question carries 10 *marks.*

24. Describe two multilevel binary digital-to-digital encoding techniques.
25. Draw the functional architecture of a GSM system and explain each block.
26. Explain with a suitable diagram any flow control protocol used in data communication.
27. Explain the working principle of LASER diode and compare it with LED using neat diagrams.

(2 × 10 = 20 marks)