C 41176 **(Pages : 2)** **Name.....**

Reg. No.....

FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2023

Common Course (Language Reduced Pattern)

A13—DATA COMMUNICATION AND OPTICAL FIBERS

(2019 Admission onwards)

Time : Two Hours and a Half Maximum : 80 Marks

Section A

Answer the following Questions (1-15) *each carrying* 2 *marks.*

1. What is the difference between analog and digital data ?
2. What are the functions of DTE ? Give an example of a DTE.
3. What is the purpose of carrier signal in modulation ?
4. How is WDM similar to FDM ? How are they different ?
5. What are framing bits ?
6. What multiplexing schemes are used in GSM and for what purpose?
7. List two key features of GSM.
8. How are asynchronous protocols primarily used ?
9. What are the two types of switches used in circuit switching ?
10. What types of transmission media are used in LANs ?
11. What is Piggybacking ?
12. Define critical angle. Obtain an equation to find the critical angle ?
13. What is spontaneous emission ?
14. Define population inversion.
15. Why is Si not used as a material for the manufacturing of LEDs ?

(Ceiling : 25 Marks)

Turn over

Section B

Answer the following Questions (16-23) *each carrying* 5 *marks.*

16. What is the purpose of null modem ? Describe the data pins of a null modem.
17. What are the different transmission impairments ?
18. Explain synchronous TDM in detail.
19. Describe the functions of the MS and SIM. Why does GSM separate the MS and SIM ?
20. What are the two popular approaches of packet switching ?
21. Whatare the different bit-oriented protocols ?
22. What are the different types of optical fibers ?
23. Explain in detail a double heterostructure.

(Ceiling : 35 Marks)

Section C

Answer any **two** *questions* (24-27) *each carrying* 10 *marks.*

24. Explain the three major classes of guided media.
25. Explain how localization and calling is done in GSM systems ?
26. Explain the three main functions of data link layer.
27. Briefly discuss the working of :
    a) Photo-diode ; and
    b) Avalanche Photo-diode.

(2 × 10 = 20 marks)