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)