E 9311 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH 2020

Sixth Semester

Core Course—RADIO AND FIBRE OPTIC COMMUNICATION

[For B.Sc. Electronics]

(2013—2016 Admissions)

Time : Three Hours Maximum Marks : 80

Part A

Answer **all** *questions briefly.*
Each question carries 1 *mark.*

1. Define ground waves.
2. What do you meant by MUF ?
3. A radar is to have a maximum range of 50km. What is the maximum allowable pulse repetition frequency for unambiguous reception ?
4. List the advantages and application of CW doppler radar.
5. What are the advantages of microwave communication ?
6. Write short note on line of sight.
7. What do you meant by orbit ?
8. Define orbital sparing.
9. List the different mechanisms which causes absorption in optical fiber.
10. What are the requirements for selecting optical fiber manufacturing materials.

(10 × 1 = 10)

Part B

Answer any **eight** *questions.*
Each question carries 2 *marks.*

11. What do you meant by VLF propagation ?
12. At 20km in free space from a point source, the power density is 200 μ,W/m^2. What is the power density 25km away from this source ?
13. Explain the terms : (a) virtual height (b) fading.
14. Write short notes on radar beacons.

Turn over

15. Draw the block diagram of FMCW radar.
16. What are the main applications of microwave communication ?
17. Name the various modulation methods which are used in the field of microwave communication.
18. What do you meant by path loss in satellite communication ?
19. List the specifications of C band satellite receiving system.
20. What are the difference between intermodel dispersion and intra model dispersion ?
21. Explain the concept of WDM.

(8 × 2 = 16)

Part C

Answer any **six** *questions.*
Each question carries 4 *marks.*

22. What are the different layers of ionosphere ? Give brief notes on each layer.
23. In connection with space wave propagation, what is the radio horizon ? How does it differ from the optical horizon ?
24. Explain about different factors which effect the radar performance.
25. Differentiate antenna scanning and antenna tracking.
26. Explain about the working of V band satellite receiving system.
27. What do you meant by microwave repeaters ? Explain with the help of suitable diagrams.
28. Explain the working of microwave relay system.
29. Write short notes on : (a) bending loss (b) dispersion in optical fibers.
30. What are the different attenuation losses obtained in optical fibers ?
31. With the help of ray diagrams explain the working of single mode step index fiber.

(6 × 4 = 24)

Part D

Answer any **two** *questions.*
Each question carries 15 *marks.*

32. Draw the block diagram of MTI radar using power amplifier output. Explain each block with necessary diagrams.
33. Draw the block diagram of microwave transmitters and explain each block.
34. Explain about the various multiple access methods used in satellite communication.
35. What are the applications and advantages of fiber over other communication medium ? What are the classification of fibers ? Explain their characteristics with suitable diagrams.

(2 × 15 = 30)