KUMARAGURU college of technology
character is life

Register Number:……..

B.E DEGREE EXAMINATIONS:MAY 2015

(Regulation 2009)

Fifth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

ECE260: Communication Engineering

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. If frequency f=3 MHz, then the corresponding wavelength is _____
   a) 1 metre b) 10 metre
   c) 100 metre d) 200.45 metre
2. Commercial FM broadcasting frequency range is _____
   a) 80 to 108 MHz b) 88 to 108 MHz
   c) 86 to 108 MHz d) 80 to 110 MHz
3. If L=0.118 µH and C=21 pF, then the characteristic impedance is _____
   a) 75 Ω b) 100 Ω
   c) 120 Ω d) 130.25 Ω
4. To obtain a maximum transmission distance of 48.7 KM from a transmitting antenna of 40m height, the height of the receiving antenna should be _____
   a) 30 m b) 40 m
   c) 46 m d) 48.8 m
5. A T1 carrier system time division multiplexes PCM encoded samples from _____ voice band channels.
   a) 8 b) 32
   c) 16 d) 24
6. For an SNR of 1000 and a bandwidth of 2.7 KHz, Shannon limit for information capacity is ___
   a) 1270 Kbps b) 26.9 Kbps
   c) 635 Kbps d) 2540 Kbps
7. ASCII uses ____ bits for encoding a character while EBCDIC uses _____ bits for the same.
   a) 6,7 b) 7,8

c) 8,8 d) 8,7

8. _____ layer is responsible for error free communication across a physical link.
   a) Physical b) Data link
   c) Network d) Session
9. Light frequencies used in optical fiber communication are in the range of _____
   a) KHz b) MHz
   c) THz d) GHz
10. Iridium is a _____ system.
   a) LEO b) MEO
   c) GEO d) KEO

PART B (10 x 2 = 20 Marks)

11. Give two reasons for the necessity of modulation.
12. Write the advantages of FM over AM.
13. What is meant by Baluns?
14. What is the significance of white Gaussian noise?
15. Differentiate between bit rate and baud rate.
16. What is meant by digital modulation? List the various forms of digital modulation.
17. Write the modulation techniques used follow in modems.
18. Write the data rate for the three basic types of ISDN channels.
19. Define Apogee and Perigee.
20. List the advantages of optical fiber systems..

PART C (5 x 14 = 70 Marks)

21. a) Describe the method of generating an amplitude modulated signal and comment on its frequency spectrum and bandwidth.

(OR)

b) Draw the block diagram of super heterodyne radio receiver and explain its operation. What are its advantages?

22. a) What is meant by standing waves? Define standing-wave ratio and derive an expression for reflection coefficient in terms of SWR.

(OR)

b) With a neat diagram, explain the propagation of surface waves. Write its drawbacks.

23. a) Draw the block diagram of digital radio system and explain its working?

(OR)

b) Explain the operation of BPSK transmitter and receiver with neat diagrams.

24. a) Describe about various types of LAN topologies. List the advantages and disadvantages of each such topology.

(OR)

b) What is meant by redundancy checking? With examples, explain the four basic types of redundancy checking.

25. a) With neat diagrams, explain the working of satellite up-link model, transponder and down-link model.

(OR)

b) With neat diagrams, explain how PIN diodes and APDs are used for light detection.

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