KUMARAGURU
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Register Number:……..

**B.E DEGREE EXAMINATIONS: NOV/DEC 2014**

(Regulation 2009)

Fifth Semester

**ELECTRONICS AND INSTRUMENTATION ENGINEERING**

EIE108: Communication Engineering

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

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. An amplitude modulated wave is e=50(1+0.4cos1000t+0.3cos10000t) cos10^7t. The modulation index is

   a) 0.5 b) 0.3

   c) 0.7 d) 0.4

2. Which of the following is present in both TRF receiver and Superheterodyne receiver

   a) Detector b) Mixer

   c) IF amplifier d) Local oscillator

3. FM broadcast is used in

   a) a) VHF range b) b) UHF range

   c) c) MF d) d) both (a) and (b)

4. Which of the following is analog?

   a) PCM b) PWM

   c) Delta modulation d) Differential PCM

5. For an ideal 3000 Hz channel, Nyquist rate is

   a) 3000bps b) 6000bps

   c) 9000bps d) 12000bps

6. In TDM each signal is allotted a fixed _____

   a) Frequency slot b) Time slot

   c) Amplitude slot d) Phase slot

7. . The quantization noise of PCM depends on

a) Number of quantization levels
b) Step size
c) Both (a) and( b)
d) Sampling rate

8. Quantizing error occurs in
a) TDM
b) FDM
c) PCM
d) PWD

9. Large Bandwidth optical Fibre is
a) Monomode Step Index Fibre
b) Multimode Step Index Fibre
c) Graded Index Fibre
d) Plastic Fibre

10. A geostationary satellite
a) a) Is located at the height of 36000 kms
b) b) Appears stationary over earth's magnetic pole
c) c) Is motionless in space and keeps spinning.
d) d) Orbits the earth within a 12 hr period

**PART B (10 x 2 = 20 Marks)**

11. An AM transmitter radiates 10 KW of carrier power. What will be the total radiated power at 70% modulation?
12. What are the advantages of super heterodyne receiver over single tuned receivers?
13. The equation of an angle modulated voltage is $v=5\sin(10^8 t + 2 \sin 10^4 t)$.Find the carrier and modulating frequencies, the modulation index.
14. What is the need of Pre-emphasis and De-emphasis in FM transmission and Reception?
15. What is meant by Nyquist rate?
16. Distinguish between Quantization noise and Granular noise.
17. Draw the Constellation diagram of BPSK and QPSK Systems.
18. What do mean by Probability of Error?
19. List the Frequency Band used for satellite services.
20. Distinguish between Step index fiber and Graded index fiber.

**PART C (5 x 14 = 70 Marks)**

21. a) (i) Draw the block diagram of AM Transmitter and Explain. (7)
(ii) Drive the expression for AM and also drive the power relation, current relation, (7)

**(OR)**

b) (i) Distinguish between Low level Transmitter and High level Transmitter. (4)
(ii) Draw the block diagram of super heterodyne receiver and explain the function of each block. (10)

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| 22. | a) | (i) | List the advantages and disadvantages of FM over AM | (4) |
| | | (ii) | Explain the Direct FM Transmitter with block diagram. | (10) |
| | | | **(OR)** | |
| | b) | (i) | Explain the Indirect FM Transmitter with block diagram. | 10 |
| | | (ii) | Compare the Performances of AM with FM | 4 |
| 23. | a) | (i) | Explain the difference between uniform and non-uniform quantization. | (4) |
| | | (ii) | Draw the block diagram of FDM of signals and explain the function of each block. | (10) |
| | | | **(OR)** | |
| | b) | (i) | Compare the performance of PCM, DPCM and DM. | (4) |
| | | (ii) | Explain the principle of TDM. | (10) |
| 24. | a) | (i) | Explain (i) Optimum Filter and (ii) Matched Filter | (10) |
| | | (ii) | Compare the Probability Error of QPSK and DPSK | 4 |
| | | | **(OR)** | |
| | b) | (i) | Explain the principle of QPSK with constellation diagram. | (8) |
| | | (ii) | Compare the Probability Error of ASK, FSK , and PSK | (6) |
| 25. | a) | (i) | Explain briefly about LEO, MEO and GEO | (6) |
| | | (ii) | Draw the basic satellite system with Space Segment and Ground Segment and Explain | (8) |
| | | | **(OR)** | |
| | b) | (i) | List the advantages of optical Communications | (4) |
| | | (ii) | Explain briefly (i) Light Propagation in optical Fibers and (ii) Losses in Optical fiber cables. | (10) |

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