**Reg. No. \_\_\_\_\_\_\_\_**

**Karunya University**

**(Karunya Institute of Technology and Sciences)**

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination - June 2011**

**Subject Title: FUNDAMENTALS OF ELECTRONIC COMMUNICATION**

**Time: 3 hours**

**Subject Code: MT233 Maximum Marks: 100**

#### **Answer ALL questions**

**PART – A (10 x 1 = 10 MARKS)**

1. What is shot noise?

2. Define Noise factor.

3. Draw the block diagram of frequency synthesizer.

4. An AM broadcast receiver has an IF frequency of 465 kHz and is tuned to 1000kHz. Find the Image frequency.

5. The rms antenna current of an AM radio transmitter is 10A when modulated. Calculate the modulation index.

6. Mention the three methods used for SSB generation.

7. What is TDM?

8. What is Phase modulation?

9. Write the equation for bit error probability for a bipolar signal.

10. What is slope overload distortion?

**PART – B (5 x 3 = 15 MARKS)**

11. Calculate the thermal noise power available from any resistor at room temperature (290k)for a bandwidth of 1MHz. Calculate also the corresponding noise voltage, given that R=50 ohm.

12. Determine the minimum beta required for a BJT RC phase shift oscillator, for which the small-signal output resistance is 40 KΩ,and the collector bias resistor is 10KΩ.The required operating frequency is 400Hz. Determine also the individual R and C values.

13. In a FM broadcast the maximum deviation allowed is 75 KHz and the maximum modulation frequency allowed is 15KHz.Calculate the maximum bandwidth requirements.

14. Write short notes on Varactor diode modulation for FM.

15. What is meant by quantization error?

**PART – C (5 x 15 = 75 MARKS)**

16. What are the different types of power amplifiers? Which amplifier has maximum efficiency? Which amplifier is preferred for AM transmitters? Explain.

(OR)

17. Explain the principle and operation of stagger tuning of transformer-coupled IF amplifiers.

18. Derive the expression for condition of start of oscillation of Colpitt’s oscillator.

(OR)

19. Describe the features of AM super heterodyne receivers with block diagram.

20. With a neat block diagram, explain in detail SSB reception method.

(OR)

[P.T.O]

21. Explain in detail the following.

a. Diagonal peak clipping b. Negative peak clipping.

22. With a neat circuit diagram explain detail Foster –Seeley discriminator.

(OR)

23. Bring out the significance of pre-emphasis and de-emphasis.

24. Discuss in detail about PCM transmission and reception. Mention its merits and demerits.

(OR)

25. Explain error detection and correction codes.