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C09-AEI-605

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**BOARD DIPLOMA EXAMINATION, (C-09)**

**MARCH/APRIL—2014**

**DAEI—SIXTH SEMESTER EXAMINATION**

**PRINCIPLES OF COMMUNICATIONS AND  
LINEAR IC APPLICATIONS**

*Time : 3 hours ]*

*[ Total Marks : 80*

**PART—A**

3×10=30

**Instructions :** (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State the need for modulation in communication system.

2. List the different types of modulation.

3. Define (a) selectivity and (b) sensitivity. 1½+1½

4. List the different types of pulse modulation methods.

5. State the basic requirements of operational amplifiers.

6. List the limitations of differential amplifiers using discrete components.

7. List the effects of negative feedback of an amplifier.

- \* 8. Draw the diagram of square generator using 555 IC.
- 9. Draw the diagram of Schmitt trigger.
- 10. Draw the diagram of sawtooth wave generator.

**PART—B**

10×5=50

**Instructions :** (1) Answer *any five* questions.  
 (2) Each question carries **ten** marks.  
 (3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11. (a) Explain the operation of AM transmitter using the block diagram. 6  
 (b) Distinguish between AM and FM. 4
- 12. (a) Explain the operation of Fosters-Seely demodulator. 6  
 (b) List FM demodulator circuits. 4
- 13. (a) Explain the principle of pulse modulation. 5  
 (b) Sketch the waveforms of PAM and PPM. 5
- 14. Draw and explain the block diagram of typical operational amplifier.
- 15. Explain the operation of inverting amplifier with a neat sketch.
- 16. Explain the operation of (a) high-pass filter and (b) low-pass filter circuits using operational amplifier. 5+5
- \* 17. Explain the operation of 555 IC block diagram with a neat sketch.
- 18. Explain the operation of Wien's bridge oscillator using operational amplifier.

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