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**CODE NO:- Z-54**

**FACULTY OF ENGINEERING**  
**S.E (EC/ETC/E &C) Year Examination - May – 2015**  
**Communication Engineering**  
**(Revised)**

[Time: Three Hours]

[Max. Marks: 80]

“Please check whether you have got the right question paper.”

- i) Question No. 1 from section A and Q No 6 from section B is compulsory.
- ii) Solve any two questions from remaining questions of each section.
- iii) Figure to right indicates full marks.

**SECTION-A**

- Q.1 Solve any five questions. 10
- 1) Define fidelity and selectivity of a radio receiver.
  - 2) What is the function of mixer in radio receiver?
  - 3) Why direct method of FM generation is not useful as compared to indirect method of FM generation?
  - 4) Define quantization noise.
  - 5) State which power amplifier is mostly used in AM super heterodyne radio receiver?
  - 6) Draw the wave's forms for PPM, PWM & PAM.
  - 7) Explain three point tracking system.
  - 8) Define angle modulation? Where it is used?
- Q.2 a) Compare AM & FM with PM with suitable example. 07  
b) Explain ISB with block diagram. 08
- Q.3 a) Derive an expression for instantaneous value of AM wave. Draw the frequency spectrum of AM wave & explain with suitable example. 07  
b) What are the types of mixers used in the AM radio receiver. State advantages & limitation of the mixer. Draw & explain any one mixer diagram & explain it in brief. 08
- Q.4 a) Explain the direct method for generation of FM signal. State the limitations of direct method of FM generation. 08  
b) Why indirect method of FM generation is mostly used in FM transmission? Explain armstrong method for FM generation. 07
- Q.5 a) Draw the circuit diagram of delayed AGC and explain the function with appropriate wave forms. 07  
b) How the image of signal entered in AM superhet radio receiver. Explain the image frequency reject with appropriate formula for the same. 08

**SECTION-B**

- Q.6 Solve any five 10
- 1) Define TDM & FDM
  - 2) Draw the internal structure of loud speaker
  - 3) How microphone works as transducer
  - 4) Explain sampling theorem
  - 5) Explain PAM PWM in brief.
  - 6) Define quantization process
  - 7) What is the concept of magnetic recording & its reproduction.
  - 8) State the types of FM demodulators.

- Q.7 a) Draw the block diagram of TRF radio receiver & explain the functions of each block. Discuss on limitations of TRF radio receiver. 07
- b) Explain the delta modulation process. How the errors occur in delta modulation? How to minimize these errors in delta modulation? 08
- Q.8 a) Draw the internal structures of crystal type of microphone & explain the working principles of crystal type microphone. 07
- b) What is the use of baffles and enclosures for loud speaker? Give the types of enclosures used to produce good quality of sound. Explain any one in brief. 08
- Q.9 a) Draw the block diagram of P.A. system & explain the same. Give its advantages & disadvantages. State its applications. 07
- b) Draw the block diagram of differential pulse code modulation & explain the function of each block. 08
- Q.10 a) Explain the process of optical recording and reproduction. 07
- b) What are the different types of tone control circuit. Explain any one in detail. 08