Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

EX-601

B.E. VI Semester

Examination, December 2016

Communication Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Write ten properties of Fourier Transform with mathematical description. 7

   b) Define Convolution. State and prove time convolution theorem. 7

2. a) What is Double-Side Band-Suppressed Carrier (DSB-SC) modulation? Explain the basic principle of DSB-SC modulation. 7

   b) Explain demodulation of AM wave by envelope detector. Draw the circuit and necessary wave forms. 7

3. a) Explain the generation of narrow band FM with block diagrams. 7

   b) A modulating signal $5\cos(2\pi \times 15 \times 10^3 t)$ angle modulates a carrier A cos $w_c t$. Find the modulation index and bandwidth for FM and PM systems. 7

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4. a) What are the limitations of conventional tubes at microwave frequencies? Explain the working principle of reflex klystron with the help of a block diagram. 7

   b) Write a brief note on LASER. What is a negative resistance phenomenon? 7

5. a) Compare TRAPATT and IMPATT. 7

   b) Discuss sampling theorem. Explain the generation of sampled signal and how the original signal is recovered from a sampled signal. Also focus on aliasing effect. 7

6. a) Explain PCM technique. Explain why PCM technique is noise resistant than other forms of pulse modulation. 7

   b) Draw the schematic diagram of QPSK generating system and explain its working. Give its merits and demerits over BPSK. 7

7. a) Explain the working principle of a satellite communication system with suitable block diagram. 7

   b) Compare CDMA, TDMA and FDMA. 7

8. Write short notes on any two of the following : 14

   a) Energy and Power signals

   b) Central limit theorem

   c) FM transmitters

   d) PIN diodes and their applications

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