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Roll No .....

EX-601 (GS)

B.E. VI Semester

Examination, December 2017

Grading System (GS)

Communication Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) State and prove the following properties of Fourier transform.
   i) Time scaling property
   ii) Time shifting property
   b) Distinguish between
   i) Energy and power signals
   ii) Analog and discrete signals

2. a) Define modulation and give its need in communication systems.
   b) Draw and explain the circuit for generating AM using balanced modulator.

3. a) Define phase modulation and frequency modulation and give relationship between PM and FM.
   b) A carrier A $\cos\omega_c t$ is frequency modulated by a single tone modulating signal $f(t) = E_m \cos\omega_m t$. Find an expression for the FM wave.

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4. a) Describe the reflex Klystron oscillator with the aid of a suitable schematic diagram.
   b) Explain fully Gunn effect. Sketch a Gunn diode construction and describe it briefly.

5. a) Briefly discuss the operation and relative merits of PIN photodiode.
   b) Give the merits of superheterodyne receiver over TRF receiver. Draw the block diagram of superheterodyne receiver and explain its working.

6. a) Explain the working PCM transmitter and receiver with the help of block diagram.
   b) Define and explain FSK and PSK and compare the two.

7. a) Give the satellite system block diagram and explain the function of each block.
   b) Explain briefly the satellite multiple access techniques TDMA and FDMA.

8. Write short on any two of the following:
   a) AM transmitter
   b) FM generation
   c) Magnetron
   d) Quantization and quantization error
   e) Satellite transponder, earth station

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