B-2155

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FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. S.Y (Sem-IV) Examination OCT/NOV 2019
Physics Paper-XI
(General Electronics)

[Time: 1:30 Hours]   [Max.Marks:50]

Please check whether you have got the right question paper.

N.B   i) Attempt all questions
       ii) Use of algorithmic table and calculator is allowed.

Q.1   a) Explain the construction and working of a FET.   10
       b) Draw the circuit diagram of transistor Astable multivibrator and explain its operation and   10
   waveforms.

OR

       a) Draw the circuit diagram of a single stage transistor amplifier and explain frequency response of it. 10
       b) For an amplitude modulated wave, obtain the equation for total power.   10

Q.2   a) Distinguish between zener diode and ordinary diode   05
       b) What is a feedback? Explain its different types in short.   05
       c) Calculate the frequency of Hartley oscillator having inductor of 1 mh and capacitor 0.1μF   05
       d) The total power content of an AM wave is 2.64 KW at a modulation percentage of 80% Determine   05
       the power content of the current wave.

OR

       a) A transistor has $\alpha = 0.98$, $I_B = 100\mu A$ and $I_{co}= 6\mu A$. Calculate I_c and I_E.
       b) Calculate the o/p voltage for the circuit
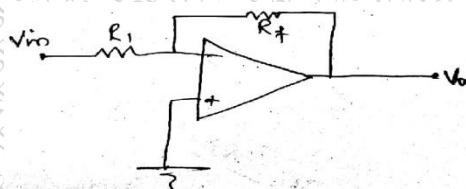
$V_i = 5v$
$V_o = ?$
$R_1 = 10K\Omega$
$R_{7=100K\Omega}$
       c) Explain the transistor h-parameters
       d) What are the advantages of frequency modulation over amplitude modulation

Q.3   Multiple Choice Questions   10
       1. 1 ev is equal to --------.
       a) 6.02×10^{23} J   b)1.6×10^{-19} J
       c) 6.25×10^{18}J   d)1.66×10^{-24} J

1

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2. A transistor is a ………. operated device.
   (a) Voltage   (b) Current
   (c) Both voltage and current (d) None of these

3. The process of modulation is carried out at ------.
a) Transmitter b) receiver c) oscillator d) amplifier.

4. In AM, power content is maximum when m equals
   a) 0   b) 1   c) 0.8   d) 0.5

5. In phase modulation, phase deviation depends upon
   a) modulating frequency   b) amplitude of the modulating signal
   c) the carrier frequency   d) amplitude of the carrier signal.

6. An ideal operational amplifier has
   a) infinite input impedance   b) Zero i/p impedance
   c) infinite output impedance   d) none of above

7. The gain of the amplifier with feedback is known as ------ gain.
      a) open loop   b) closed loop   c) resonant   d) none of these

8. The intersection of load line with the output characteristics is called as -----.
      a) Saturation point   b) depletion point
      c) operating point   d) transfer point

9. Multivibrators belong to the category of -------
a) Square wave oscillators   b) triangular wave oscillators
c) ramp wave oscillators   d) sinusoidal oscillators

10. The h_{fe} parameter is called ------- in CE configuration with output shorted.
a) Voltage gain   b) current gain
c) input impedance   d) none of the above.