Printed Pages: 6 **NEC-201/NEC-101**

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 199226	Roll No.

B.TECH.

Theory Examination (Semester-II) 2015-16

ELECTRONICS ENGINEERING

Time : 3 Hours ***Max. Marks : 100***

Section-A

Q1. Attempt all questions. **(2×10=20)**

(a) Describe breakdown mechanisms of diode.

(b) Calculate the dynamic forward and reverse resistance of pn junction diode when the applied voltage is 0.50 V at temperature of 120degree Celsius and reverse saturation current of 5 microampere.

(c) Explain why BJT is bipolar device.

(d) Explain FET as voltage variable resistor.

(e) An operational amplifier has a differential gain of 103 and CMRR of 100, input voltages are 120μV and 80μV, Determine output voltage.

(f) List the ideal characteristics of OP-AMP.

(g) Explain signals and what are its types.

(h) A 400 Watt carrier is modulated to a depth of 75%. Calculate total power in modulated wave.

(i) Explain the role of trigger circuit in CRO.

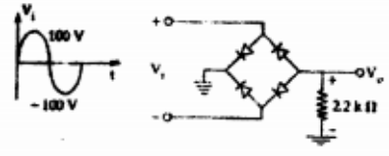
(j) Draw the lissajous pattern for $f_v=3f_h$.

Section-B

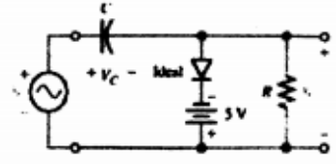
Q2. Attempt any five parts from the following. (10×5=50)

(a) Sketch and find output voltage of the circuit:

(i)



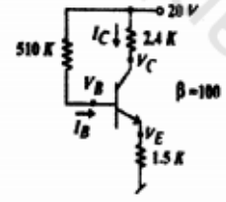
(ii) Sketch and find output voltage of the circuit, when peak value of input voltage is 10V



(b) Explain the block diagram of communication system. What is modulation and why it is required.

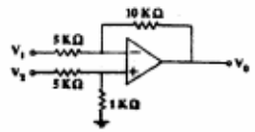
(c) What is transistor biasing. Why is it required. Explain ithe various schemes of transistor biasing.

(d) (i) Determine I_C and V_{CE} of the circuit

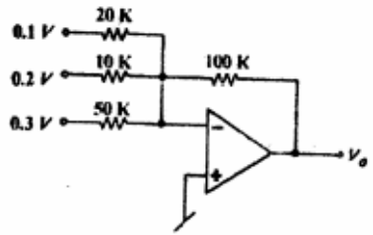


(ii) Draw the input and output characteristics of common base configuration.

(e) (i) Find output voltage of the op-amp



(ii) Find output voltage of the op-amp



(f) Explain the following:

(a) Voltage Follower

(b) Non inverting amplifier

(c) Differential amplifier in two modes of operation

(g) With the help of block diagram explain the working of digital multimeter.

(h) With the help of block diagram explain the working of CRO.

Section-C

(ATTEMPT ANY TWO QUESTIONS) **(15×2=30)**

Q3. (a) Explain full wave rectifier with circuit diagram. Also find ripple factor for it.

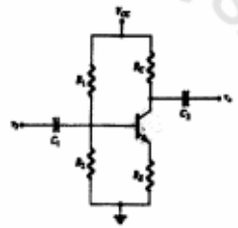
(b) Explain voltage multipliers.

(c) Explain difference between LCD and LED.

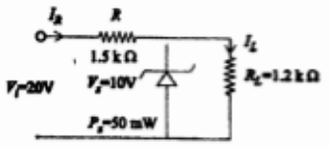
Q4. (a) Explain the construction, working and characteristics of Depletion type MOSFET.

(b) Determine $I_C, I_B, V_C, V_{CE}, V_B$ for the circuit, given R_1=82KΩ, R_2=16KΩ,

R_C=2.2KΩ, R_E=0.75KΩ, β=220



(c) For the given zener diode network determine V_L, V_R, I_L, I_R



Q5. (a) Calculate the percentage saving when the carrier and one of the sidebands are suppressed in AM modulated wave to a depth of (a)100% and (b)50%.

(b) In an FM system when the audio frequency is (AF) is 500Hz and the AF voltage is 2.4V,deviation is 4.8KHZ.If the AF voltage is now increased to 7.2v,what is the new deviation? If the AF voltage is raised to 10V while the AF is dropped to 200Hz,what is the deviation? Find modulation index in each case.

(c) Explain frequency measurement using lissajous pattern.