PAPER ID-310907

Subject Code: KOE038

Roll No: | | | | | | | | | | | | | |

B TECH
(SEM-III) THEORY EXAMINATION 2020-21
ELECTRONICS ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

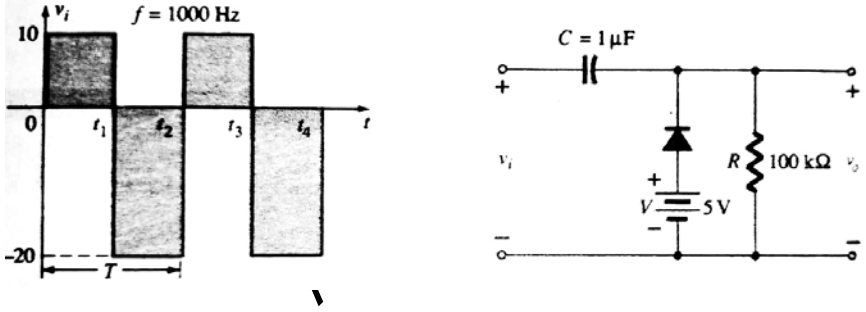
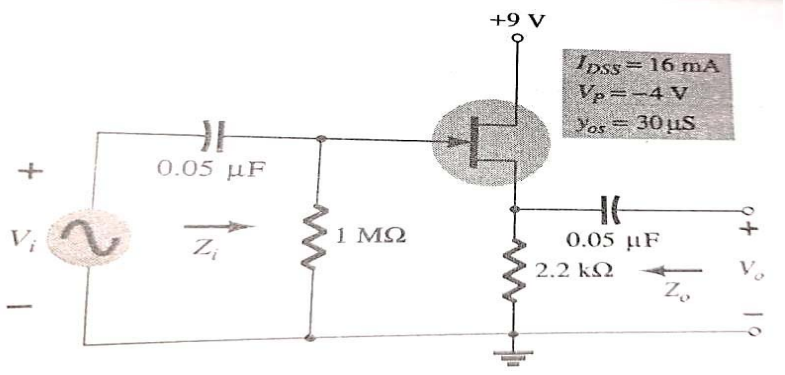
SECTION A

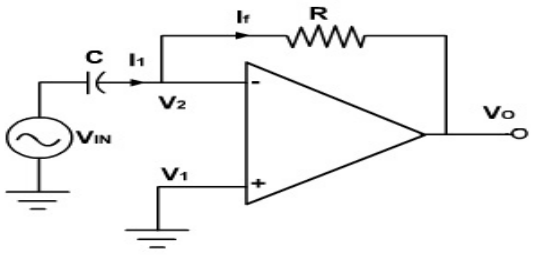
1. Attempt *all* questions in brief. **2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Compare drift current with diffusion current?	2	CO1
b.	State the advantages and disadvantages of LCD.	2	CO1
c.	Define ripple factor. List the values of ripple factor for HWR, FWR & Bridge rectifier?	2	CO2
d.	What is the significance of using regulator in power supplies?	2	CO2
e.	Define pinch off. Why do depletion regions do not touch of pinch off?	2	CO3
f.	What do you mean by stability factor?	2	CO3
g.	Define input offset voltage.	2	CO4
h.	What do you mean by summing amplifier?	2	CO4
i.	State the advantages of digital voltmeters.	2	CO5
j.	What are the applications of digital multimeter (DMM)?	2	CO5

SECTION B

2. Attempt any *three* of the following: **3 x 10 = 30**

Q no.	Question	Marks	CO
a.	Explain the Concepts of Transition capacitance, Diffusion capacitance with the suitable mathematical expression and diagrams.	10	CO1
b.	Determine v_o for the network of figure, for the input indicated. 	10	CO2
c.	A dc analysis of the source-follower network of figure results in $V_{GS_Q} = -2.86\,V$ and $I_{D_Q} = 4.56\,mA$ (i) Determine g_m (ii) Find r_d (iii) Determine Z_i (iv) Calculate Z_o with and without r_d (v) Determine A_v with and without r_d 	10	CO3
d.	Recognise the following circuit and explain it. Also find out expression for V_o. Give its advanages and disadvantages.	10	CO4

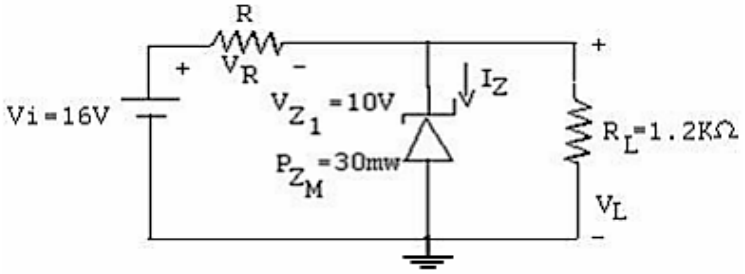
			
e.	Discuss of digital storage oscilloscope with its block diagram. List out the applications of digital storage oscilloscope.	10	CO5

SECTION C

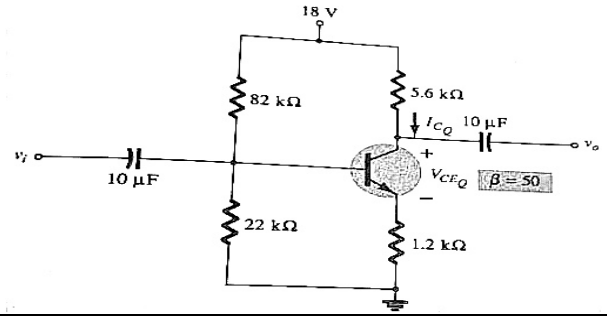
3. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Define Tunneling phenomenon. Explain the principle of operation of operation and characteristics of Tunnel Diode with the help of energy band diagrams.	10	CO1
b.	How LED is different with conventional diode? Explain its working principle with suitable diagrams.	10	CO1

4. Attempt any *one* part of the following:

a.	With a neat circuit diagram and waveforms explain the working of full wave bridge rectifier and show that its ripple factor is 0.48.	10	CO2
b.	For the Zener diode circuit shown in figure, determine V_L, V_R, I_Z & R . 	10	CO2

5. Attempt any *one* part of the following:

a.	Draw and explain construction and operation of Enhancement mode MOSFET with its Characteristics?	10	CO3
b.	What is the various biasing scheme for BJT? Which one is best among them and why? Determine the DC bias voltage VCE_Q and the current IcQ for the voltage-divider configuration of given figure: 	10	CO3

6. Attempt any *one* part of the following:

a.	What do you mean by inverting amplifier? For the inverting amplifier if the input voltages are $3V, 5V$ and $7V$ and corresponding resistances are $3K\Omega, 5K\Omega$ and $7K\Omega$ respectively and feedback resistor is $5K\Omega$. Calculate the output voltage.	10	CO4
b.	Draw the circuit of closed loop differential amplifier using one op-amp. Derive the expression of its output voltage.	10	CO4

7. Attempt any *one* part of the following:

a.	Explain the following in context of CR [illegible]nsitivity, (iii) Vertical and horizontal deflection plates, (iv) Lissajous figure., (v) CRT	10	CO5
b.	Explain RAMP type digital multimeters with suitable diagram. How it works State the advantages of ramp type DMM.	10	CO5