SE | EIX | sem-III | CBCGS | R-19 | c-scheme | ED&C-I | SH-24

Duration: 3 Hours **[Max Marks: 80]**

QP-10065597

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1 Attempt **any FOUR** **[20]**

a Draw energy band diagram of pn junction diode under forward bias and reverse bias. **[5]**

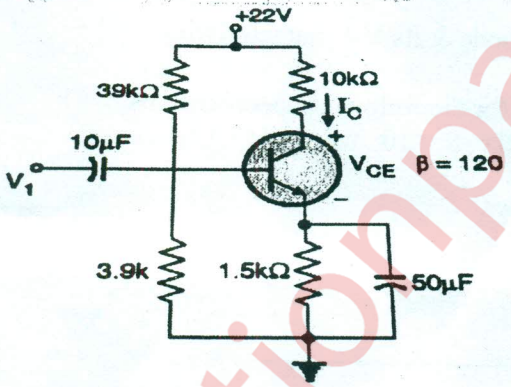
b Explain positive clamper circuit with proper waveforms. **[5]**

c Draw output characteristics of transistor in CB and CE mode **[5]**

d In dc analysis circuit capacitors acts as open circuit.- Justify **[5]**

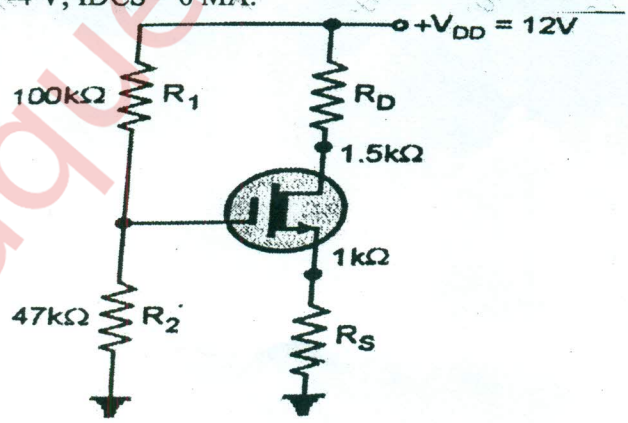
e Which biasing method can not be used for DMOSFET and why ? **[5]**

2 a Determine Q-point, VB,VC and VE for following circuit diagram and draw dc load line. **[10]**



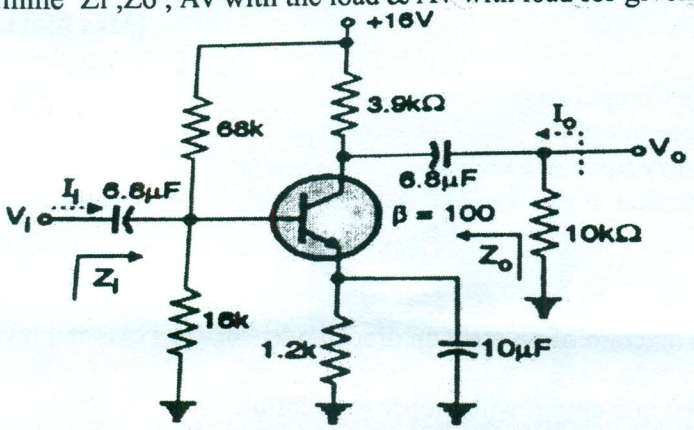
b Expain construction,operation and V/I characteristics of EMOSFET. **[10]**

3 a Determine VGSQ , IDQ & VDSQ for following circuit In Fig. VP = -4 V, IDCS = 6 MA. **[10]**



b Explain operation of Bridge rectifier & draw the o/p waveform for dc o/p voltage and current **[10]**

4 a Determine Zi ,Zo , Av with the load & Av with load for given circuit diagram [10]



b Draw CS amplifier circuit and derive the equation for voltage gain. [10]

5 a Write short notes **(any two)** [10]
i. Zener Diode as a Voltage Regulator
ii. L Filter
iii. Early effect in BJT

b Explain working of PN junction diode & its V-I characteristics. [10]

6 a Design Single stage CE amplifier for the following specifications [15]
Av ≥ 100 , Vo = 2.5 v FL = 20 Hz , S = 10 . use BC147A transistor.

b Compare CB , CC , & CE amplifier. [05]