B. Tech. Sem - III (Electronics) 2014 COURSE) (CBCS) : SUMMER - 2019

SUBJECT: ANALOG ELECTRONICS

Day : Saturday
Date : 11/05/2019

Time : 02.30 PM TO 05.30 PM
Max. Marks : 60

S-2019-2566

N. B. :

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data, if necessary.

Q. 1 **a)** Design fixed bias circuit for CE amplifier with following parameters, I_C=1.5mA, V_{CE}=6V, β=50 V_{CC}=9V Draw the circuit diagram for fixed bias Circuit. **(06)**

b) Describe need of biasing circuits. **(04)**

OR

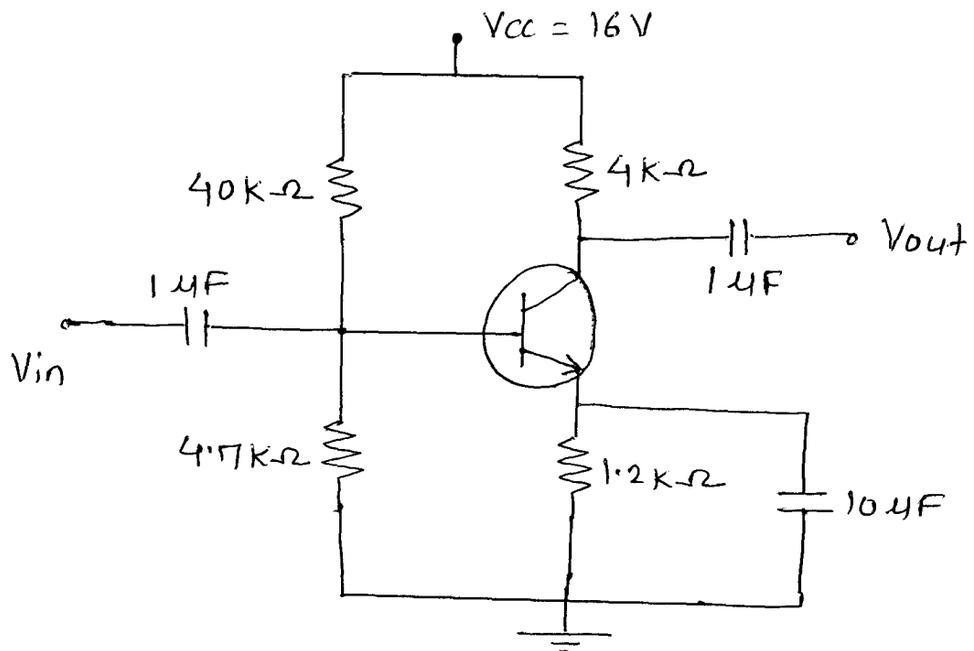
a) Discuss Transistor as an Amplifier with diagram. **(06)**

b) Derive stability factor for fixed bias circuit. **(04)**

Q.2 A CE amplifier has internal resistance Rs=800Ω and load resistance R_L=1KΩ the h-paramerers are hie=1KΩ, hre=2X10^{-4}, hfe= 50 , hoe= 25μA/V
Calculate A_I, R_I, A_V, R_O using Exact Analysis. **(10)**

OR

Determine input impedance, output impedance, voltage gain, current gain of CE amplifier using h-parameters with
hie=3.2KΩ, hfe=100 at operating conditions



P. T. O.

Q.3 **a)** Discuss the construction of n-channel JFET **(06)**

b) Differentiate between BJT and FET **(04)**

OR

What is mean by pinch-off state? Discuss the pinch-off condition in n-channel JFET with diagram. Draw JFET output characteristic graph. **(10)**

Q.4 Discuss the phenomenon of channel formation in n- channel enhancement type MOSFET with diagram. Draw output characteristic graph. **(10)**

OR

a) Describe the operation of CMOS as inverter. **(06)**

b) Describe MOSFET as VLSI device. **(04)**

Q.5 **a)** Draw negative clamper circuits with input and output waveforms **(06)**

b) Draw and explain voltage doubler circuit **(04)**

OR

Draw and discuss the operation of Astable multivibrator circuit in detail with waveforms **(10)**

Q.6 **a)** Differentiate between LED and Photodiode. **(06)**

b) Draw and explain operation of opto-coupler with diagram **(04)**

OR

Discuss in detail following PCB types with suitable diagram **(10)**

i) Single sided PCB
ii) Double sided PCB
iii) Multilayer PCB

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