Total No. of Questions : 4]

SEAT No. :

PC396

[Total No. of Pages : 2

[6359]-516

S.E. (Electronics & Computer Engineering) (Insem)

ELECTRONIC CIRCUITS

(2019 Pattern) (Semester - III) (204202)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, & Q.3 or Q.4.***
2) ***Figures to the right indicate full marks.***
3) ***Draw neat diagram wherever necessary.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain construction and working of N channel Enhancement MOSFET. **[5]**

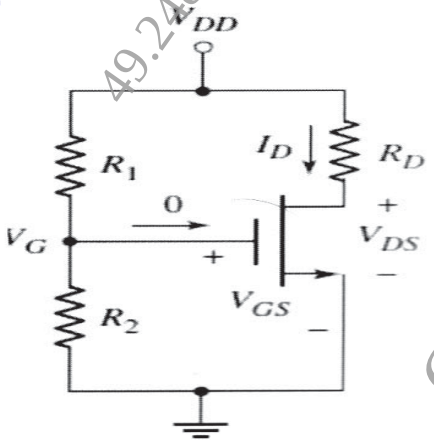
b) Explain the following parameters for MOSFET. **[5]**

i) Body Effect

ii) Subthreshold Conduction

c) Calculate the drain current and drain-to-source voltage of a common source circuit with an n-channel enhancement-mode MOSFET. **[5]**

Assume that R1 = 30kΩ, R2 = 20kΩ, *RD* = 20KΩ, *VDD* = 5V, *VTN* = 1V, and *Kn* = 0.1 mA/V^2.



OR

P.T.O.

Q2) a) Draw and explain drain and transfer characteristics of N channel Enhancement MOSFET. **[5]**

b) Explain the different breakdown effects in MOSFET. **[5]**

c) Draw the circuit diagram of single stage CS amplifier and obtain it's AC equivalent circuit mentioning the rules to draw AC equivalent diagram. **[5]**

Q3) a) Draw MOSFET current source and explain in detail. **[5]**

b) Compare the different negative feedback topologies for block diagram, input & output resistance. **[5]**

c) Draw circuit diagram of RC phase shift oscillator and calculate the operating frequency if R = 10kΩ and C = 5nF. **[5]**

OR

Q4) a) Draw MOSFET current mirror circuit and explain in detail. **[5]**

b) Enlist the advantages of negative feedback. **[5]**

c) Draw circuit diagram of wein bridge oscillator and explain in detail. What is the frequency of oscillation? **[5]**

❋ ❋ ❋