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212821

2nd Sem. / Automation and Robotics

Subject : Electronics Devices and Circuits - 1

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Atomic number of silicon is

a) 12 b) 14
c) 16 d) 32

Q.2 Bridge rectifier uses_____no. of diodes

a) 1 b) 2
c) 4 d) 8

Q.3 The commonly used configuration of transistor is_____

a) CB b) CC
c) CE

Q.4 In biasing circuit, the bypass capacitor_____

a) reduces the voltage gain
b) increases the voltage gain
c) stabilizes the Q point
d) causes thermal runway

Q.5 An amplifier has input voltage of 20 mv, gives 2 v output, its voltage gain will be_____

a) 40 b) 80

c) 100 d) 1000

Q.6 FET is a _____controlled device.

a) Voltage b) Current

c) Power d) Both a and b

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Give an example of pentavalent impurity.

Q.8 Define static resistance of diode.

Q.9 Draw symbol of NPN transistor.

Q.10 Define ripple factor.

Q.11 Define thermal runaway.

Q.12 What is the full form of MOSFET?

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 How temperature affects intrinsic semiconductors?

Q.14 Differentiate between drift & diffusion current.

Q.15 Draw & explain a positive clipper circuit.

Q.16 Write the mechanism of current flow in transistor.

Q.17 Draw & explain the output CE characteristics.

Q.18 Define biasing, why it is needed in transistors?

Q.19 What are the factors which affect the operating point?

Q.20 Compare the features of BJT & FET.

Q.21 Show how DC load line is drawn?

Q.22 Draw & explain the characteristics of JFET.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain in detail the working of bridge rectifier circuit.

Q.24 Draw the energy band diagram of metals, insulators & semiconductors.

Q.25 Explain the operation of single stage amplifier.