B.Tech. (Sem. - 3rd)
ELECTRONIC DEVICES AND CIRCUITS
SUBJECT CODE : EC - 201
Paper ID : [A0301]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours   Maximum Marks : 60

Instruction to Candidates:

1) Section - A is **Compulsory**.

2) Attempt any **Four** questions from Section - B.

3) Attempt any **Two** questions from Section - C.

Section - A

Q1)   (10 × 2 = 20)

a) What will be the PIV of non-conducting diode if V_m is the peak voltage across secondary of the transformer in a half-wave rectifier and a shunt capacitor filter is also used?

b) Write any two applications of Photo diode.

c) What are characteristics of a good amplifier?

d) In what respect FETs better than BJTs?

e) Define photosensitivity of a photo transistor.

f) What happens to the drain current of a n-channel JFET when a negative voltage is applied on its gate?

g) Why it is always considered better to fix Q-point in the middle of active region?

h) Explain why fixed bias circuit, inspite of its simplicity, is not much used in practice?

i) Define $h_{12} = \dfrac{v_1}{v_2} / i = 0$

j) Why common collector amplifier called emitter follower?

Section - B

Q2) Show that rectification efficiency for a half wave rectifier is 40.6%?

Q3) What is LCD? Discuss its advantages, disadvantages and applications?

Q4) Explain with equivalent circuit working of Photo transistor.

Q5) Discuss determination of h-parameters from transistor characteristics.

Q6) Describe construction, working and characteristics o n-channel JFET?

Section - C

(2 × 10 = 20)

Q7) a) Why there is a need for bias stabilization?
   b) Explain working of Voltage divider bias circuit.

Q8) a) Discuss analysis of transistor amplifier using h-parameter in CB configuration?
   b) What will the affect of an emitter bypass capacitor on frequency response of an amplifier?

Q9) Describe analysis of emitter follower using Miller's theorem?

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2