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C16–EC–302

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BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2018

DECE—THIRD SEMESTER EXAMINATION

ELECTRONIC CIRCUITS

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. List the factors affecting the *Q*-point.

2. What is thermal runaway?

3. Draw the small signal model of a FET.

4. Draw the frequency response of:

(a) RC coupled amplifier

(b) Transformer coupled amplifier

5. List the advantages of negative feedback amplifier.

6. What is cross-over distortion?

7. What is Barkhausen criterion?

8. List any three applications of clamper circuits.

9. Draw the circuit diagram of RC differentiator circuit.

10. Draw the *V-I* characteristics of photo diode.

PART—B

5×10=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) The answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain DC load line and AC load line.

12. *(a)* Explain collector to base biasing circuit of BJT.

(b) List the advantages and disadvantages of collector to factor base bias.

13. Derive the formulae for A_I and A_v of a CE transistor circuit using its *h*-model.

14. Explain the working of direct coupled amplifier with circuit diagram.

15. Explain the working of class AB push-pull power amplifier circuit.

16. Explain the working of Colpitts' oscillator with a circuit diagram and give the expression for frequency of oscillations.

17. Draw the circuit diagram of transistor collector coupled monostable multivibrator and explain its working with waveforms.

18. Explain the operation of transistor shunt voltage regulator.

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