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C14–EC–302

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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2016

DECE—THIRD SEMESTER EXAMINATION

ELECTRONIC DEVICES AND CIRCUITS

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

PART—A 3×10=30

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

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

1. Define Alpha ( ), Beta ( ) and Gamma ( ).

2. What is meant by thermal runaway?

3. Explain the working of CS amplifier.

4. Draw the hybrid equivalent of transistor in CE mode.

5. List the advantages of negative feedback.

6. Distinguish between Voltage Amplifier and Power Amplifier.

7. Give the reasons for instability in oscillators.

8. Distinguish between JFET and MOSFET.

9. List the applications of varactor diode.

10. Explain the working of current source using JFET.

PART—B

10×5=50

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

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

11. Draw and explain input and output characteristics of transistor in CE mode.

12. *(a)* Define stability factor. Derive the expression for stability factor in CE configuration. 7

(b) State the need of multistage amplifier. 3

13. Explain the working of single-tuned amplifiers and double-tuned amplifiers.

14. What is the need for push-pull amplifier? Explain the working of class B push-pull amplifier with a neat circuit diagram.

15. Draw the circuit diagram of RC phase shift oscillator and explain. Also list its advantages and disadvantages.

16. Explain the principle of operation, construction and working of photo diode.

17. *(a)* Explain the working of seven-segment display. 5

(b) Explain the construction and working of CMOSFET. 5

18. Explain how a transistor works as a switch in CE mode.

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