G 609 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2014

First and Second Semesters

BASIC ELECTRONICS ENGINEERING

(Old Scheme—Supplementary/Mercy Chance—Prior to 2010 admissions)

[Common for all branches]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 4 *marks.*

1. Explain the constructional details of paper capacitor.
2. List any *four* merits and *four* demerits of IC.
3. Define ripple factor. Write the values for half wave, centre tapped and bridge rectifier circuits.
4. If the emitter current of BC 107 is measured as 2.5 mA when its base current was 12.5 μA, calculate its α and β.
5. List the merits and demerits of FM compared to AM.
6. List any *four* frequency bands and their frequency ranges, used in microwave communication.
7. Explain the working principle and applications of a thermistor.
8. Convert the following decimal numbers into Octal and then binary (i) 199.03 ; (ii) 0.0125.
9. Compare and contrast High level and assembly level languages.
10. Explain the working principle of a mouse.

(10 × 4 = 40 marks)

Part B

Answer **all** *questions.*
Each full question carries 12 *marks.*

11. Describe, with neat diagrams the constructional details of any *three* types of fixed resistors. Explain how resistance is marked using the colour codes.

Or

12. Describe the construction and working of a Zener diode. Explain the Zener breakdown mechanism. Differentiate it from Avalanche breakdown.

Turn over

13. Draw the complete circuit diagram of an eliminator which uses a bridge rectifier, capacitor filter and a Zener regulator. Explain how the regulator keeps the output voltage constant, when the input voltage decreases.

Or

14. Draw the circuit of a RC coupled BJT amplifier and explain the function of each component. Write expressions for the current gain and voltage gain of your circuit.

15. With neat waveforms, describe the principles of PAM, PWM, PPM and PCM.

Or

16. With a neat cross-sectional diagram, describe the parts in a CRT of TV receiver. Explain how interlaced scanning is effected.

17. With a neat diagram, explain the working of X-Y recorder. What are its applications ?

Or

18. With the help of truth-tables and logic diagrams, describe (i) AND ; (ii) OR ; (iii) NAND ; (iv) NOR ; (v) EX-OR ; and (vi) NOT gates.

19. With a neat sketch, describe the constructional details of a hard disk. Explain how data is read and written on it.

Or

20. Explain clearly the functions of :

    (i) System software.

    (ii) Compiler.

    (iii) Operating system in a digital computer.

(5 × 12 = 60 marks)