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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIRST SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017
Course Code: BE101-04
**Course Name: INTRODUCTION TO ELECTRONICS ENGINEERING**

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries 5 marks.   Marks

1   Explain the constructional details of carbon composition resistors. Mention its features.   (5)

2   Explain the V-I characteristics of a PN junction diode. How temperature influences the diode characteristics.   (5)

3   Compare CE, CB and CC configurations of transistor.   (5)

4   Briefly explain the V-I characteristics of SCR.   (5)

5   Draw the circuit diagram for the given transfer characteristics and explain its working.   (5)
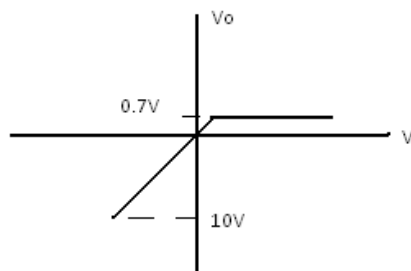
6   With a neat diagram explain the working of a capacitor filter.   (5)

7   Briefly explain the block diagram of function generator.   (5)

8   Explain any three performance parameters of instruments.   (5)

PART B
Answer six questions, one full question from each module and carries10 marks.
Module I

9   a)   Explain with necessary diagrams, construction, working and applications of electrolytic capacitors.   (5)

    b)   Discuss any two types of variable resistors.   (5)

OR

10   a)   With suitable diagram, describe the working of an electromechanical relay.   (5)

     b)   Compare the electrical behaviour of capacitors and inductors.   (5)

Module II

11   a)   Discuss the formation of "barrier potential" in a PN junction.   (5)

     b)   Explain the working principle of LED.   (5)

OR

12   a)   Differentiate between zener and avalanche breakdown.   (5)
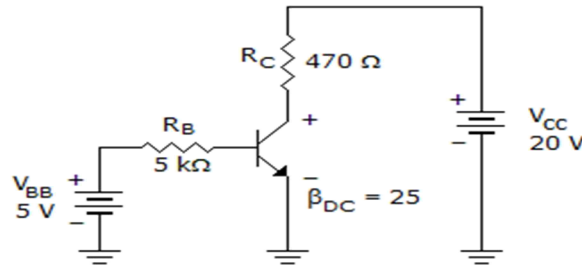
b) Draw the piece-wise linear model of diode and explain. (5)

Module III

13 a) Explain the output characteristics of transistor in CE configuration and 3 regions (5) of operation.

    b) Determine the operating point for the above circuit. (5)

OR

14 a) With a neat circuit diagram, explain the working of RC coupled amplifier. (7)

    b) Explain the need for biasing and stabilisation of transistors. (3)

Module 1V

15 Explain the construction and principle of operation of an enhancement type (10) MOSFET with its V-I characteristics.

OR

16 With the aid of V-I characteristics, explain the working of N-channel JFET. (10)

Module V

17 a) Derive the expressions for I_{rms}, I_{dc}, ripple factor and rectification efficiency of a (7) half wave rectifier.

    b) Draw the circuit to clamp a sine wave of 20Vp-p positively at 5V. (3)

OR

18 a) The input voltage applied to the primary of a 4:1 step down transformer of a full- (7) wave center-tap rectifier is 230V, 50Hz. If the load resistance is 600Ω and forward resistance is 20Ω. Determine dc power output, rectification efficiency and PIV.

    b) Explain how a zener diode can be used as voltage regulator. (3)

Module VI

19 a) With a neat block diagram explain the working of a CRO. (7)

    b) Explain the uses of CRO as a measuring instrument. (3)

OR

20 a) With a neat block diagram, explain the working of a DSO. (7)

    b) Draw the block diagram of digital multimeter and explain. (3)

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