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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

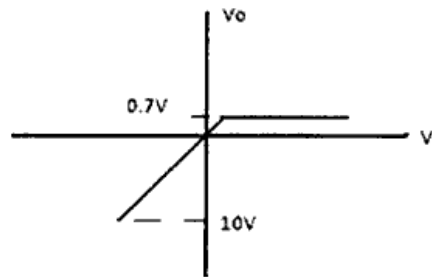
Duration: 3 Hours

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) |



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|---|--|-----|
| 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 carries 10 marks.

Module I

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|---|--|-----|
| 9 | a) Explain with necessary diagrams, construction, working and applications of electrolytic capacitors. | (5) |
| | b) Discuss any two types of variable resistors. | (5) |

OR

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|----|---|-----|
| 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

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|----|---|-----|
| 12 | a) Differentiate between zener and avalanche breakdown. | (5) |
|----|---|-----|

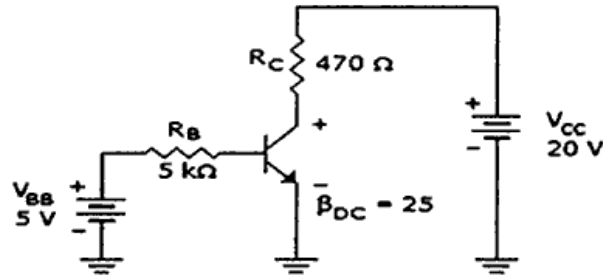
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- b) Draw the piece-wise linear model of diode and explain. (5)

Module III

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

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

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 half wave rectifier. (7)
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-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. (7)
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)
