**R1908**

# Final Scheme/ Answer Key for Valuation

*Scheme of evaluation (marks in brackets) and answers of problems/key*

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FIRST SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

**Course Code: BE101-04**

**Course Name: INTRODUCTION TO ELECTRONICS ENGINEERING**

Max. Marks: 100 Duration: 3 Hours

## PART A

***Answer all questions, each carries5 marks.*** Marks

1 Specifications of a resistor (any four) -2 marks

Value of resistor and tolerance percentage- 680KΩ±5% --2 marks (5)

The minimum and maximum resistance values -546 KΩ and 714 KΩ -1 mark

2 V-I characteristics of an ideal diode and piecewise linear model- 4 marks (5)

Explanation-1 mark

3 3 different configurations with figure-3 marks (1 mark each) (5)

Input resistance comparison-1 mark

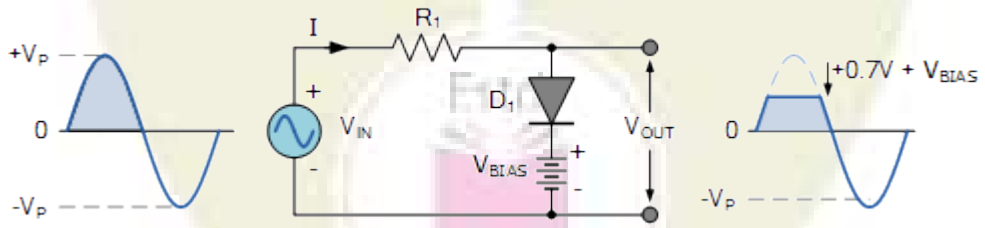
output resistance comparison-1 mark

4 3 parameters of a JFET –3 marks(1 mark each) (5)

Finding relation connecting JFET parameters-2 marks

5 Circuit Diagram – 3 marks

Waveform- 2 marks




(5)

$V_{BIAS}$=4.3V

Marks may be given if diode drop is not considered and take $V_{BIAS}$=5V

6 Any five parameters of (1) Half Wave Rectifier- 2.5 marks (5)

(2) Half Wave Rectifier- 2.5 marks

7 Diagram-3 marks

Working-2 marks (5)

8 Accuracy- 1 mark
Precision-2 mark
Resolution -2 marks (5)

## PART B

***Answer six questions, one full question from each module and carries10marks.***

### Module 1

9 Any four types with the dielectric and plate materials mentioned- 2 marks
Construction of any two(4 marks each)- 8 marks (10)

**OR**

10 a) Any 3 classification-(1/2 mark each)-1.5 marks
Features(type of core) and uses of each-(1.5 marks each)-4.5 marks (6)

b) Operating principle(2 marks)
Classification(2 marks) (4)

### Module 1I

11 a) Explanation –Zener break down - 2.5 marks
Avalanche breakdown- 2.5 marks (5)

b) What is doping-2 mark
Mechanism of current flow in a P type semiconductor- 3 marks (5)

**OR**

12 (a) Solar cell
Diagram -2 marks, Explanation-3 marks
(b) Photo diode
Diagram -2 marks, Explanation-3 marks (10)

### Module 1II

13 a) Diagram-2marks
Explanation-3 marks (5)

b) Define the parameters β and α (1 each)- 2 marks
Derivation of the relation -3 marks (5)

**OR**

14 a) Circuit diagram -3 marks
Explanation of different components-3 marks (6)

b) Equations-

$Ic=\beta I_B$ , $\alpha=\beta/(1+\beta)$ -1 mark

The value of $\alpha_{dc}$ - 1.5 marks

New value of $I_C$ - 1.5 marks (4)

Ans: $\alpha_{dc}$ =0.99

New Ic =1mA

**Module 1V**

15 Sketch -3 marks

Explanation-4 marks (10)

Drain characteristics with explanation-3 marks

**OR**

16 a) Equivalent circuit of UJT-2 marks

Explanation-2 marks (6)

Intrinsic stand-off ratio-2 marks

b) Any four comparisons-(1 mark each)- 4marks (4)

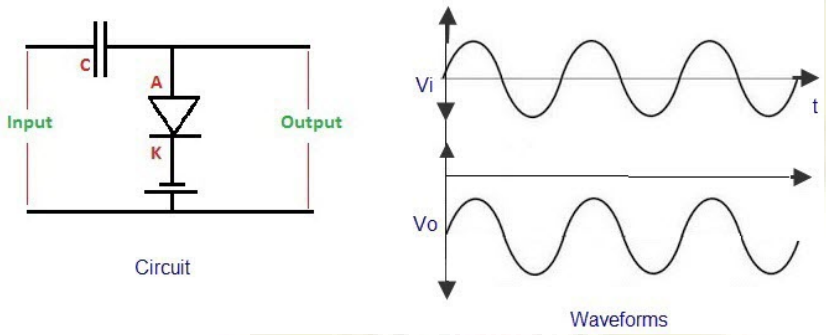
**Module V**

17 a) Positive clamping circuit diagram -2 marks

Explanation -2 marks (4)

b) Circuit -3 marks

Input and output waveforms- 3 marks




(6)

Vi between -5V and +5V

Vo between -15 and -5V

Voltage source is -3.7 V (-3V if diode drop neglected)

**OR**

18 Block diagram of a DC power supply-4 marks

Explanation of each block - 6 marks (10)

**Module VI**

| | | | |
|---|---|---|---|
| 19 | a) | Block diagram of CRO -3 marks<br>Explanation the functions of each block-3 marks | (6) |
| | b) | Measurement voltage and frequency-(2 each)-4 marks | (4) |

**OR**

| | | | |
|---|---|---|---|
| 20 | | Block diagram-4 marks<br>Measurement of voltage, current and resistance-(2 marks each)-6 marks | (10) |

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