Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

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		With a neat diagram, explain the constructional features of an electrolytic capacitor.	(5)
2	a)	Explain how a varactor diode can be used in tuned circuits?	(3)
	b)	Explain the term peak inverse voltage (PIV) of a diode.	(2)
3		Draw the output V-I characteristicsofa common emitter amplifier and mark theoperating point on the load line for $V_{CE} = 6V$ and base current $I_b = 0.2mA$, take β as 50.	(5)
4		Give the structure of an enhancement typeMOSFET and why it is called so.	(5)
5		Draw the voltage transfer characteristics of a general limiter circuit and explain how it act as clipper.	(5)
6		Draw the circuit diagramof a voltage doubler and explain the working.	(5)
7		Define the terms accuracy and precision of a measuring device?	(5)
8		How do you test an NPN as well as a PNP transistor using multimeter?	(5)

PART B

Answer six questions, one full question from each module and carries 10 marks.

Module I

9	a)	What are the advantage of carbon film resistor over carbon composition resistors.	(4)
	b)	Give the constructional features of carbon film resistor with a neat diagram.	(6)
		OR	
10	a)	How cooling is effected in high power wire wound resistors.	(4)
	b)	Explain the constructional features of a wire wound resistor with a diagram.	(6)

Module II

11	a)	Draw the V-I characteristics of a Silicon diode. The above diode is forward biased with a dc supply voltage of 5 V. Find the Q points for 1.1 kΩ and 2.2 kΩ of load resistance. (Assume cut in voltage of diode is 0.6 v).	(5)
	b)	With the help of a diagram, explain the working of a photo diode.	(5)
		OR	
12	a)	What is drift current and diffusion current in a semiconductor?	(5)
	b)	How the barrier potential is developed across a PN Junction?	(5)

Module III

13	a)	Distinguish between common emitter and common base current gain of a transistor and derive a relation between them.	(5)
	b)	Explain the biasing condition applied across different junctions of a transistor in active, saturation and cut-off regions.	(5)

OR

14 a) Draw and explain the circuit of a common emitter RC coupled amplifier using NPN transistorwith voltage divider biasing. (6)

b) Draw the frequency response of a RC coupled amplifier and explain how gain reduces at low and high frequencies. (4)

Module IV

15 a) Draw the V_{DS} v/s I_D curve of an enhancement MOSFET and mark different operating regions. (3)

b) With help of neat sketches, explain how an increase in V_{DS} affects channel field and drain current in a MOSFET. (7)

OR

16 a) Draw the structure of N channel depletion MOSFET. (3)

b) Explain the working of a depletion mode MOSFET. (7)

Module V

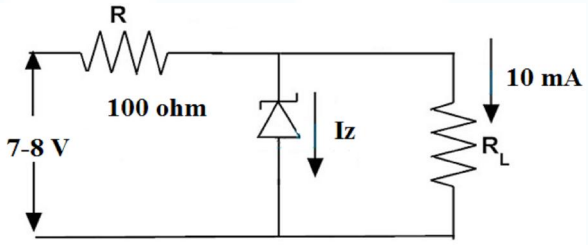
17 a) Draw the circuit of a full wave bridge rectifier and derive the equations for V_{rms}, V_{dc} and ripple factor. (7)

b) Explain the term rectifier efficiency. (3)

OR

18 a) Draw the block diagram of a DC power supply and explain the working of each stage. (5)

b) Find the minimum and maximum current flowing through the Zener diodeas shown in figurefor a regulated output of 5 V. Choose proper value for R_L. (5)



Module VI

19 a) Draw the block diagram and explain the working of a CRO. (6)

b) Explain with help of diagrams, how phase difference between two signals can be measured using CRO. (4)

OR

20 a) Draw the block diagram and explain the working of a digital storage oscilloscope. (6)

b) List and describe the various types of measurement errors. (4)

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