Reg. No. Name:

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017

Course Code: BE 101-04

Course Name: INTRODUCTION TO ELECTRONICS ENGINEERING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions. Each question carries 2 marks

- 1. What are the specifications of capacitors?
- 2. Write the colour coding of a resistor having a value $47M\Omega$ with 10% tolerance.
- 3. Draw the structure of carbon composition resistors.
- 4. Draw the piecewise linear model of a practical diode.
- 5. What is a varactor diode? Where it is used?
- 6. Specify two important characteristics of zener breakdown.
- 7. Specify typical doping details of a BJT.
- 8. Compare any two features of a photodiode and a phototransistor.
- 9. Define trans-conductance of an FET.
- 10. How depletion MOSFET differ from enhancement type MOSFET?
- 11. Draw the dc loadline characteristics of a BJT with suitable bias.
- 12. Draw the frequency response of an RC couple amplifier starting with zero frequency.
- 13. Draw the circuit of a clipper that clips a sinusoidal signal at +3V. Assume practical diodes.
- 14. Define Ripple factor.
- 15. Draw the circuit of a voltage doubler.
- 16. Specify two major advantages of SMPS.
- 17. Define accuracy and precision of a measuring instrument.
- 18. How do you convert a moving coil meter into a mulirange voltmeter?
- 19. How DSO differs from a CRO?
- 20. How can you verify the condition of an electrolytic capacitor using analog multimeter?

PART B

Answer any 4 complete questions each having 10 marks

21. Draw the common l	base output characteristics o	f a transistor and Explain.	Indicate all regions
of operation on it.			(10)

- 22. Explain the working principle of mica and electrolytic capacitors. (10)
- 23. Describe the working principles of (a) LED (b) Solar cell (5+5)
- 24. Draw the structure of depletion mode MOSFET and explain its working with the help of drain and transfer characteristics. (10)
- 25. Write notes on (a) relays (b) type numbering of transistors. (5+5)

PART C

Answer any 2 complete questions each having 10 marks

26.	With the help of block diagram, explain the principle of (a) analog multimeter	
	(b) digital multimeter.	(5+5)
27.	Design a two level clipping circuit that clips a sinusoidal signal of 1KHz, 10V	peak so
	that output is flat for 90% of input cycle time. Assume ideal diodes.	(10)
28.	(a) How CRO can be used to measure phase angle between two signals?	(3)
	(b) Design a simple zener regulator to regulate an input varying from 10 to 17V	V to 6V
	delivering an output current of 30mA.	(7)