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 47MΩ with10% 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 base output characteristics of 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 to 6V delivering an output current of 30mA. (7)