DE-2930
First Year B. Sc. (Sem. I) Examination
March / April – 2016
Applied Electronics : Paper - I
(Component & Devices)

Time : Hours] [Total Marks : 50

Instructions :

(1) Fill up strictly the details of signs on your answer book.

Name of the Examination :
FIRST YEAR B. Sc. (SEM. I)

Name of the Subject :
APPLIED ELECTRONICS - 1

Subject Code No. : 2 9 3 0  Section No. (1,2,.....) 1,2,3

(2) This exam contains 28 multiple choice questions.

(3) Choose only ONE most appropriate answer per question.

(4) Do not crease or fold the answer sheet.

(5) Q. 1 to 12 Multiple choice questions each carry 1 mark.
Q. 13 to 22 Multiple choice questions each carry 2 marks.
Q. 23 to 28 Multiple choice questions each carry 3 marks.

O.M.R. Sheet भरवा अंगेली अनुसारी सूचनाओ अपेक्ष
O.M.R. Sheet-ली पात्र आपेक्ष छ।

Important instructions to fill up O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.
1 Reverse current _____ very sharply after the Zener breakdown.
   (A) fall
   (B) rises
   (C) decreases
   (D) slide

2 Transition capacitance is prominent when Junction diode is :
   (A) forward bias
   (B) combination of Forward and Reverse bias
   (C) reverse bias
   (D) None of these

3 Diffusion capacitance is prominent in Junction diode when, is :
   (A) forward bias
   (B) combination of Forward and Reverse bias
   (C) reverse bias
   (D) None of these

4 Diffusion capacitance and transition capacitance are left out in ______ frequency model of Diode.
   (A) High
   (B) Medium
   (C) Low
   (D) None of these
5 Special purpose diode are:
(A) Tunnel Diode
(B) Schottky Diode
(C) Varactor diode
(D) All of these

6 Varactor diode is due to change in the ______ of diode.
(A) transition capacitance
(B) diffusion capacitance
(C) resistance
(D) diffusion inductance

7 Classification of IC by structure:
(A) Monolithic IC
(B) Thick and thin film IC
(C) Hybrid or Multichip IC
(D) All of these

8 Linear Integrated circuit are:
(A) Flip - Flop
(B) Operational amplifier
(C) Clock Chip
(D) Memory chip
Providing Ohmic contact and interconnection by evaporating Alumunium over the chip:

(A) Etching
(B) Metallization
(C) Dopping
(D) Scribing

Full Form of MOSFET:

(A) Metal Oxide Silicon Field Effect Transistor
(B) Metal Oxide Semiconductor Field Effect Transistor
(C) Metal Order Semiconductor Field Effect Transistor
(D) Methane Oxide Semiconductor Field Effect Transistor

In colour coding resistor, the fourth band indicates:

(A) tolerance percent
(B) multiplier
(C) first digit
(D) None of these

A circuit that converts ac in to dc is called:

(A) Rectifiers
(B) Regulators
(C) Thyristors
(D) Filters
13 A Battery has emf of 2 Volts when shorted gives a current of 4A. The terminal resistance of the battery is:
(A) 4 Ohms
(B) 0.5 Ohms
(C) 2 Ohms
(D) None of these

14 A certain wire has a resistance R, it is cut into two real parts and connected in parallel, the resistance of the combination is:
(A) R/2
(B) R/4
(C) R/8
(D) 2R

15 In Norton Equivalent circuit the current source is connected in Parallel with _______ and its unit is _______.
(A) Resistance, Ohms
(B) Resistance, Micro Farad
(C) Admittance, Mho
(D) Capacitance, Farad

16 A certain wire has a resistance of 1000 ohms and the voltage across the wire is 100 V the electric power in the wire is _______.
(A) 1 W
(B) 10 W
(C) 50 W
(D) 0.1 W

17 Classification of IC by function:
(A) Analog and Digital
(B) Calculus and Integral
(C) Linear and Non-Linear
(D) Theoretical and Practical
18 You have three resistance of value 2 ohm, 3 ohm, and 6 ohm. Then an effective resistance of 4 Ohms can be obtained by connecting:

(A) 3Ω and 6Ω in series and 2Ω in parallel
(B) 3Ω and 6Ω in parallel and 2Ω in series
(C) All in parallel
(D) 2Ω and 6Ω in parallel and 3Ω in series

19 Two most commonly used semiconductor are ______ and _____.

(A) Germanium, Copper
(B) Silicon, Almumium
(C) Silicon, Germanium
(D) Copper, Almumium

20 In a pure semiconductor number of ______ produced at temperature to number of free ______.

(A) holes, electron
(B) elements, compounds
(C) holes, elements
(D) All of these

21 Algebraic summation of current at a junction is ______ and this law is called ______.

(A) Zero, KVL
(B) Infinity, KVL
(C) Zero, KCL
(D) Infinity, KCL

22 Algebraic summation of Voltage in a closed loop is ______ and this law is called ______.

(A) Zero, KVL
(B) Infinity, KVL
(C) Zero, KCL
(D) Infinity, KCL
23. Monolithic IC most common. The component are part of one _____. Transistor, Diodes, Resistor are easy to fabricate in a monolithic IC, but _____ and _____ are not practical.

(A) Amplifier, Capacitor, Inductor

(B) Chip, Inductor, Capacitor

(C) Wafer, Inductor, Capacitor

(D) All of these

24. A wave shaping circuit are _____ and _____, and made using _____.

(A) Rectifiers, Filters, Regulators

(B) Transistors, Resistors, Diodes

(C) Clipping, Clamping, Diodes

(D) None of these

25. In an energy band diagram of Semiconductor the energy from lower to high is _____, _____ and _____ energy band.

(A) Deactive, Valance band, Forbidden gap

(B) Conduction, Valance band, Forbidden gap

(C) Conduction, Forbidden gap, Valance band,

(D) Active, Valance band, Forbidden gap
26 If $\alpha_{dc} = 0.99$ then, find $\beta_{dc}$.

(A) 99  
(B) 49  
(C) 24  
(D) 0.99

27 If $\beta_{dc} = 100$ then, find $\alpha_{dc}$.

(A) .99  
(B) 100  
(C) 0.01  
(D) 150

28 Find base current (IB) if transistor, If $\beta_{dc} = 50$ and emitter current is 10 mA.

(A) 20 mA  
(B) 200 mA  
(C) 0.2 mA  
(D) 0.002 mA