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. 1)
Name of the Subject :
APPLIED ELECTRONICS - 1
Subject Code No. : 2930 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 अंश-अंश अनुसारी सूचनाओ अनुसार O.M.R. Sheet-ल पाउन आवश्यक छ.
Important instructions to fill up O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.
1. Diffusion capacitance and transition capacitance are left out in ______ frequency model of Diode.
   (A) Low
   (B) None of these
   (C) High
   (D) Medium

2. Special purpose diode are:
   (A) Varactor diode
   (B) All of these
   (C) Tunnel Diode
   (D) Schottky Diode

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

4. Classification of IC by structure:
   (A) Hybrid or Multichip IC
   (B) All of these
   (C) Monolithic IC
   (D) Thick and thin film IC
5 Linear Integrated circuit are :
   (A) Clock Chip
   (B) Memory chip
   (C) Flip - Flop
   (D) Operational amplifier

6 Providing Ohmic contact and interconnection by evaporating Almunium over the chip :
   (A) Dopping
   (B) Scribing
   (C) Etching
   (D) Metallization

7 Full Form of MOSFET :
   (A) Metal Order Semiconductor Field Effect Transistor
   (B) Methane Oxide Semiconductor Field Effect Transistor
   (C) Metal Oxide Silicon Field Effect Transistor
   (D) Metal Oxide Semiconductor Field Effect Transistor

8 In colour coding resistor, the fourth band indicates :
   (A) first digit
   (B) None of these
   (C) tolerance percent
   (D) multiplier
9 A circuit that converts ac in to dc is called:
   (A) Thyristors
   (B) Filters
   (C) Rectifiers
   (D) Regulators

10 Reverse current _____ very sharply after the Zener breakdown.
   (A) decreases
   (B) slide
   (C) fall
   (D) rises

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

12 Diffusion capacitance is prominent in Junction diode when, is:
   (A) reverse bias
   (B) None of these
   (C) forward bias
   (D) combination of Forward and Reverse bias
13 Algebraic summation of current at a junction is _____ and this law is called _____.
   (A) Zero, KCL
   (B) Infinity, KCL
   (C) Zero, KVL
   (D) Infinity, KVL

14 Algebraic summation of Voltage in a closed loop is _____ and this law is called _____.
   (A) Zero, KCL
   (B) Infinity, KCL
   (C) Zero, KVL
   (D) Infinity, KVL

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

16 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/8
   (B) 2R
   (C) R/2
   (D) R/4

17 In Norton Equivalent circuit the current source is connected in Parallel with _______ and its unit is _______.
   (A) Admittance, Mho
   (B) Capacitance, Farad
   (C) Resistance, Ohms
   (D) Resistance, Micro Farad
18 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) 50 W
   (B) 0.1 W
   (C) 1 W
   (D) 10 W

19 Classification of IC by function:
   (A) Linear and Non-Linear
   (B) Theoretical and Practical
   (C) Analog and Digital
   (D) Calculus and Integral

20 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) All in parallel
   (B) $2\Omega$ and $6\Omega$ in parallel and $3\Omega$ in series
   (C) $3\Omega$ and $6\Omega$ in series and $2\Omega$ in parallel
   (D) $3\Omega$ and $6\Omega$ in parallel and $2\Omega$ in series

21 Two most commonly used semiconductor are _____ and _____.
   (A) Silicon, Germanium
   (B) Copper, Almunium
   (C) Germanium, Copper
   (D) Silicon, Almunium

22 In a pure semiconductor number of _____ produced at temperature to number of free ______.
   (A) holes, elements
   (B) All of these
   (C) holes, electron
   (D) elements, compounds
23 If $\beta_{dc} = 100$ then, find $\alpha_{dc}$.

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

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

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

25 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) Wafer, Inductor, Capacitor
(B) All of these
(C) Amplifier, Capacitor, Inductor
(D) Chip, Inductor, Capacitor
26 A wave shaping circuit are _____ and _____, and made using ______.

(A) Clipping, Clamping, Diodes

(B) None of these

(C) Rectifiers, Filters, Regulators

(D) Transistors, Resistors, Diodes

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

(A) Conduction, Forbidden gap, Valance band,

(B) Active, Valance band, Forbidden gap

(C) Deactive, Valance band, Forbidden gap

(D) Conduction, Valance band, Forbidden gap

28 If $\alpha_{dc} = 0.99$ then, find $\beta_{dc}$.

(A) 24

(B) 0.99

(C) 99

(D) 49