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. 2930 Section No. (1, 2,......) 1,2,3

Seat No.:

(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 बरचा अंगाने अग्रणी सूचनांचा आपेक्ष
O.M.R. Sheet-ले पावण आपेक्ष छ.
Important instructions to fill up O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.
1. In colour coding resistor, the fourth band indicates:
   (A) multiplier
   (B) first digit
   (C) None of these
   (D) tolerance percent

2. A circuit that converts ac in to dc is called:
   (A) Regulators
   (B) Thyristors
   (C) Filters
   (D) Rectifiers

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

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

6 Diffusion capacitance and transition capacitance are left out in ______ frequency model of Diode.
   (A) Medium
   (B) Low
   (C) None of these
   (D) High

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

8 Varactor diode is due to change in the ______ of diode.
   (A) diffusion capacitance
   (B) resistance
   (C) diffusion inductance
   (D) transition capacitance
9 Classification of IC by structure:
   (A) Thick and thin film IC
   (B) Hybrid or Multichip IC
   (C) All of these
   (D) Monolithic IC

10 Linear Integrated circuit are:
   (A) Operational amplifier
   (B) Clock Chip
   (C) Memory chip
   (D) Flip - Flop

11 Providing Ohmic contact and interconnection by evaporating Aluminium over the chip:
   (A) Metallization
   (B) Doping
   (C) Scribing
   (D) Etching

12 Full Form of MOSFET:
   (A) Metal Oxide Semiconductor Field Effect Transistor
   (B) Metal Order Semiconductor Field Effect Transistor
   (C) Methane Oxide Semiconductor Field Effect Transistor
   (D) Metal Oxide Silicon Field Effect Transistor
13 In Norton Equivalent circuit the current source is connected in Parallel with _______ and its unit is _______.
   (A) Resistance, Micro Farad
   (B) Admittance, Mho
   (C) Capacitance, Farad
   (D) Resistance, Ohms

14 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) 10 W
   (B) 50 W
   (C) 0.1 W
   (D) 1 W

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

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

17 Two most commonly used semiconductor are _______ and _______.
   (A) Silicon, Almunium
   (B) Silicon, Germanium
   (C) Copper, Almunium
   (D) Germanium, Copper
18 In a pure semiconductor number of _____ produced at temperature to number of free _______.
   (A) elements, compounds
   (B) holes, elements
   (C) All of these
   (D) holes, electron

19 Algebraic summation of current at a junction is _____ and this law is called _______.
   (A) Infinity, KVL
   (B) Zero, KCL
   (C) Infinity, KCL
   (D) Zero, KVL

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

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

22 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/4
   (B) R/8
   (C) 2R
   (D) R/2
23 A wave shaping circuit are _____ and _____, and made using _____.

(A) Transistors, Resistors, Diodes

(B) Clipping, Clamping, Diodes

(C) None of these

(D) Rectifiers, Filters, Regulators

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

(A) Conduction, Valance band, Forbidden gap

(B) Conduction, Forbidden gap, Valance band,

(C) Active, Valance band, Forbidden gap

(D) Deactive, Valance band, Forbidden gap

25 If $\alpha \text{ dc } = 0.99$ then, find $\beta \text{ dc }$.

(A) 49

(B) 24

(C) 0.99

(D) 99
26 If $\beta_{dc} = 100$ then, find $\alpha_{dc}$.

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

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

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

28 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) Chip, Inductor, Capacitor  
(B) Wafer, Inductor, Capacitor  
(C) All of these  
(D) Amplifier, Capacitor, Inductor