DE-2908
First Year B. Sc. (Sem. I) Examination
March / April – 2016
Electronics for Computer Science : 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 :
Electronics for Computer Science : Paper - I

Subject Code No. : 2 9 0 8 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 बरवा अंगे-अंगे अगत-अगत सूचनाऐ आवेद
O.M.R. Sheet-मार पावे आवेद भी.

Important instructions to fillup O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.
1 Full form of SSI:
   (A) Small Side Integration
   (B) Small Size Integration
   (C) Small Scale Integration
   (D) Small Structure Integration

2 Scale of Integration:
   (A) All option are true
   (B) SSI < 30 circuit per chip
   (C) MSI 30 to 100 circuit per chip
   (D) LSI is 100 to 100,000 circuit per chip

3 The Donor (n) type of impurity element has _____ valency.
   (A) All of these
   (B) Pantavallent
   (C) Trivallent
   (D) Tetra-vallent

4 The acceptor (p) type of impurity element has _____ valency.
   (A) All of these
   (B) Pantavallent
   (C) Trivallent
   (D) Tetra-vallent
5 The acceptor (p) type of impurity is:
   (A) All of these
   (B) gallium
   (C) almunium
   (D) boron

6 If 4 Inductors connected in series and \( L_1, L_2, \) and \( L_4 \) is equal to 120 mH, 45 mH, 25 mH and the total inductance \( L \) equal to 340mH , then find \( L_3 \).
   (A) 325 mH
   (B) 295 mH
   (C) 150 mH
   (D) 220 mH

7 Zener breakdown occurs due to:
   (A) All of these
   (B) a high p and n doping
   (C) very thin depletion layer
   (D) a high electrostatic field

8 A winding of wire can be called:
   (A) All of these
   (B) an inductor
   (C) a coil
   (D) a choke
9 A zener diode is always used in zener regulator in

(A) All of these
(B) forward bias only
(C) forward and reverse bias
(D) reverse Bias

10 One Ampere means :

(A) None of these
(B) flow of one coulomb of charge
(C) flow of one colour of charge in unit time through a cross section area
(D) flow of one coulomb of charge per unit area

11 Two resistance of the same value are connected in parallel, then its equivalent resistance will be :

(A) None of these
(B) greater than the value of original resistance
(C) half the value of original resistance
(D) equal to the value of the original resistance

12 Two resistance of the same value with colour code Brown, Black, Red are connected in series to a power supply of 12V the voltage across each resistance would be :

(A) None of these
(B) 10 V and 2 V respectively
(C) 2 V and 10 V respectively
(D) 6 V and 6 V respectively
13 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) 0.1 W
   (B) 1 W
   (C) 10 W
   (D) 50 W

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

15 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) 2Ω and 6Ω in parallel and 3Ω in series
   (B) 3Ω and 6Ω in series and 2Ω in parallel
   (C) 3Ω and 6Ω in Parallel and 2Ω in Series
   (D) All in parallel

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

17 In a pure semiconductor number of _____ produced at temperature to number of free _____.
   (A) All of these
   (B) holes, electron
   (C) elements, compounds
   (D) holes, elements
18. A 10,000 Ohms resistance has a tolerance band of 10% its value would be between:
   (A) 9500 to 10500 ohms
   (B) 9000 ohms to 11000
   (C) 9000 ohms to 10000 ohms
   (D) 10000 to 11000 ohms

19. Electromagnetism induction is the generation of _____ from _____.
   (A) Magnetism, Magnetism
   (B) Magnetism, Electricity
   (C) Electricity, Electricity
   (D) Electricity, Magnetism

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

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

22. In Norton Equivalent circuit the current source is connected in parallel with _____ and its unit is ______.
    (A) Capacitance, Farad
    (B) Resistance, Ohms
    (C) Resistance, Micro Farad
    (D) Admittance, Mho
23 A wave shaping circuit are _____ and _____, and made using _____.

(A) None of these

(B) rectifiers, filters, regulators

(C) transistors, resistors, diodes

(D) clipping, clamping, diodes

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

(A) Active, Valance band, Forbidden gap

(B) Conduction, Forbidden gap, Valance band

(C) Conduction, Valance band, Forbidden gap

(D) Deactive, Valance band, Forbidden gap

25 If $\alpha_{dc} = .98$ then, find $\beta_{dc}$

(A) .049

(B) 490

(C) 49

(D) 0.49
26. If in a JFET the change in Drain current is 0.2 mA for 0.001 V of Gate to source volts, then find Transconductance:

(A) None of these

(B) 2000 μS

(C) 0.0002 μS

(D) 2000 μ Ohms

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

(A) 150

(B) 0.99

(C) 100

(D) 0.01

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

(A) 0.002 mA

(B) 20 mA

(C) 200 mA

(D) 0.2 mA