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. : 2908
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 भरणा अवश्यक अवस्यं शून्यांना अपेक्षा
O.M.R. Sheet-ी पायलत करें.

Important instructions to fillup O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.
1. The acceptor (p) type of impurity element has _____ valency.
   (A) Trivalent
   (B) Tetra-valent
   (C) All of these
   (D) Pentavalent

2. The acceptor (p) type of impurity is:
   (A) aluminium
   (B) boron
   (C) All of these
   (D) gallium

3. 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) 150 mH
   (B) 220 mH
   (C) 325 mH
   (D) 295 mH

4. Zener breakdown occurs due to:
   (A) very thin depletion layer
   (B) a high electrostatic field
   (C) All of these
   (D) a high p and n doping
5 A winding of wire can be called:
(A) a coil
(B) a choke
(C) All of these
(D) an inductor

6 A zener diode is always used in zener regulator in
(A) forward and reverse bias
(B) reverse Bias
(C) All of these
(D) forward bias only

7 One Ampere means:
(A) flow of one coloumb of charge in unit time through a cross section area
(B) flow of one coulomb of charge per unit area
(C) None of these
(D) flow of one coulomb of charge

8 Two resistance of the same value are conected in parallel, then its equivalent resistance will be:
(A) half the value of original resistance
(B) equal to the value of the original resistance
(C) None of these
(D) greater than the value of original resistance
9 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) 2 V and 10 V respectively
(B) 6 V and 6 V respectively
(C) None of these
(D) 10 V and 2 V respectively

10 Full form of SSI :

(A) Small Scale Integration
(B) Small Structure Integration
(C) Small Side Integration
(D) Small Size Integration

11 Scale of Integration :

(A) MSI 30 to 100 circuit per chip
(B) LSI is 100 to 100000 circuit per chip
(C) All option are true
(D) SSI < 30 circuit per chip

12 The Donor (n) type of impurity element has _____ valency.

(A) Trivalent
(B) Tetra-vallent
(C) All of these
(D) Pantavalent
13. 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

14. 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) R/4
   (B) R/8
   (C) 2R
   (D) R/2

15. 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

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

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

19 Two most commonly used semiconductor are _____ and _____.

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

20 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

21 A 10,000 Ohms resistance has a tolerance band of 10% its value would be between:

(A) 9000 ohms to 10000 ohms
(B) 10000 to 11000 ohms
(C) 9500 to 10500 ohms
(D) 9000 ohms to 11000

22 Electromagnetism induction is the generation of _____ from _____.

(A) Electricity, Electricity
(B) Electricity, Magnetism
(C) Magnetism, Magnetism
(D) Magnetism, Electricity

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23 Find base current (IB) if transistor, if β dc = 50 and emitter current is 10 mA:

(A) 200 mA

(B) 0.2 mA

(C) 0.002 mA

(D) 20 mA

24 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

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

(A) Conduction, Valance band, Forbidden gap

(B) Deactive, Valance band, Forbidden gap

(C) Active, Valance band, Forbidden gap

(D) Conduction, Forbidden gap, Valance band
26 If $\alpha_{dc} = .98$ then, find $\beta_{dc}$

(A) 49

(B) 0.49

(C) .049

(D) 490

27 If in a JFET the change in Drain current is 0.2mA for 0.001 V of Gate to source volts, then find Transconductance :

(A) 0.0002 $\mu$S

(B) 2000 $\mu$ Ohms

(C) None of these

(D) 2000 $\mu$S

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

(A) 100

(B) 0.01

(C) 150

(D) 0.99