

**B****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)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
First Year B. Sc. (Sem. I)	<input type="text"/>
Name of the Subject :	<input type="text"/>
Electronics for Computer Science : Paper - I	<input type="text"/>
Subject Code No. : 2 9 0 8	Section No. (1, 2,.....) : 1,2,3
Student's Signature	

- (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 ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ
O.M.R. Sheet-ની પાછળ છાપેલ છે.***

***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 100000 circuit per chip
- 3 The Donor (n) type of impurity element has _____ valency.
- (A) All of these
 - (B) Pentavalent
 - (C) Trivalent
 - (D) Tetra-valent
- 4 The acceptor (p) type of impurity element has _____ valency.
- (A) All of these
 - (B) Pentavalent
 - (C) Trivalent
 - (D) Tetra-valent

- 5 The acceptor (p) type of impurity is :
- (A) All of these
 - (B) gallium
 - (C) aluminium
 - (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 coulomb 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 Paralleland 2Ω in Series
 - (D) All in parallel
- 16 Two most commonly used semiconductor are _____ and _____.
- (A) Copper, Almunium
 - (B) Germanium, Copper
 - (D) Silicon, Germanium
 - (C) Silicon, Almunium
- 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 shapping 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 enrgy 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 β_{dc}

- (A) .049
- (B) 490
- (C) 49
- (D) 0.49

26 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) None of these

(B) 2000 μ S

(C) 0.0002 μ S

(D) 2000 μ Ohms

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

(A) 150

(B) 0.99

(C) 100

(D) 0.01

28 Find base current (I_B) 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