



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 A zener diode is always used in zener regulator in
- (A) reverse Bias
 - (B) All of these
 - (C) forward bias only
 - (D) forward and reverse bias
- 2 One Ampere means :
- (A) flow of one coulomb of charge per unit area
 - (B) None of these
 - (C) flow of one coulomb of charge
 - (D) flow of one coulomb of charge in unit time through a cross section area
- 3 Two resistance of the same value are connected in parallel, then its equivalent resistance will be :
- (A) equal to the value of the original resistance
 - (B) None of these
 - (C) greater than the value of original resistance
 - (D) half the value of original resistance
- 4 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) 6 V and 6 V respectively
 - (B) None of these
 - (C) 10 V and 2 V respectively
 - (D) 2 V and 10 V respectively

- 5 Full form of SSI :
- (A) Small Structure Integration
 - (B) Small Side Integration
 - (C) Small Size Integration
 - (D) Small Scale Integration
- 6 Scale of Integration :
- (A) LSI is 100 to 100000 circuit per chip
 - (B) All option are true
 - (C) SSI < 30 circuit per chip
 - (D) MSI 30 to 100 circuit per chip
- 7 The Donor (n) type of impurity element has _____ valency.
- (A) Tetra-valent
 - (B) All of these
 - (C) Pentavalent
 - (D) Trivalent
- 8 The acceptor (p) type of impurity element has _____ valency.
- (A) Tetra-valent
 - (B) All of these
 - (C) Pentavalent
 - (D) Trivalent

- 9 The acceptor (p) type of impurity is :
- (A) boron
 - (B) All of these
 - (C) gallium
 - (D) aluminium
- 10 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) 220 mH
 - (B) 325 mH
 - (C) 295 mH
 - (D) 150 mH
- 11 Zener breakdown occurs due to :
- (A) a high electrostatic field
 - (B) All of these
 - (C) a high p and n doping
 - (D) very thin depletion layer
- 12 A winding of wire can be called :
- (A) a choke
 - (B) All of these
 - (C) an inductor
 - (D) a coil

- 13 Two most commonly used semiconductor are _____ and _____.
- (A) Silicon, Aluminium
 - (B) Copper, Aluminium
 - (C) Germanium, Copper
 - (D) Silicon, Germanium
- 14 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
- 15 A 10,000 Ohms resistance has a tolerance band of 10% its value would be between :
- (A) 10000 to 11000 ohms
 - (B) 9500 to 10500 ohms
 - (C) 9000 ohms to 11000
 - (D) 9000 ohms to 10000 ohms
- 16 Electromagnetism induction is the generation of _____ from _____.
- (A) Electricity, Magnetism
 - (B) Magnetism, Magnetism
 - (C) Magnetism, Electricity
 - (D) Electricity, Electricity
- 17 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

- 18 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) $R/8$
 - (B) $2R$
 - (C) $R/2$
 - (D) $R/4$
- 19 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
- 20 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
- 21 Classification of IC by function
- (A) Linear and Non Linear
 - (B) Theoretical and Practical
 - (C) Analog and Digital
 - (D) Calculus and Integral
- 22 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

23 If $\alpha_{dc} = .98$ then, find β_{dc}

(A) 0.49

(B) .049

(C) 490

(D) 49

24 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) 2000 μ Ohms

(B) None of these

(C) 2000 μ S

(D) 0.0002 μ S

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

(A) 0.01

(B) 150

(C) 0.99

(D) 100

- 26 Find base current (I_B) 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
- 27 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
- 28 In an energy band diagram of Semiconductor the energy from lower to high is _____, _____ and _____ energy band.
- (A) Deactive, Valance band, Forbidden gap
 - (B) Active, Valance band, Forbidden gap
 - (C) Conduction, Forbidden gap, Valance band
 - (D) Conduction, Valance band, Forbidden gap