



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)

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|---|----------------------------------|
| 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 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) 295 mH
 - (B) 150 mH
 - (C) 220 mH
 - (D) 325 mH
- 2 Zener breakdown occurs due to :
- (A) a high p and n doping
 - (B) very thin depletion layer
 - (C) a high electrostatic field
 - (D) All of these
- 3 A winding of wire can be called :
- (A) an inductor
 - (B) a coil
 - (C) a choke
 - (D) All of these
- 4 A zener diode is always used in zener regulator in
- (A) forward bias only
 - (B) forward and reverse bias
 - (C) reverse Bias
 - (D) All of these

- 5 One Ampere means :
- (A) flow of one coulomb of charge
 - (B) flow of one coulomb of charge in unit time through a cross section area
 - (C) flow of one coulomb of charge per unit area
 - (D) None of these
- 6 Two resistance of the same value are connected in parallel, then its equivalent resistance will be :
- (A) greater than the value of original resistance
 - (B) half the value of original resistance
 - (C) equal to the value of the original resistance
 - (D) None of these
- 7 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) 10 V and 2 V respectively
 - (B) 2 V and 10 V respectively
 - (C) 6 V and 6 V respectively
 - (D) None of these
- 8 Full form of SSI :
- (A) Small Size Integration
 - (B) Small Scale Integration
 - (C) Small Structure Integration
 - (D) Small Side Integration

- 9 Scale of Integration :
- (A) SSI < 30 circuit per chip
 - (B) MSI 30 to 100 circuit per chip
 - (C) LSI is 100 to 100000 circuit per chip
 - (D) All option are true
- 10 The Donor (n) type of impurity element has _____ valency.
- (A) Pentavalent
 - (B) Trivalent
 - (C) Tetra-valent
 - (D) All of these
- 11 The acceptor (p) type of impurity element has _____ valency.
- (A) Pentavalent
 - (B) Trivalent
 - (C) Tetra-valent
 - (D) All of these
- 12 The acceptor (p) type of impurity is :
- (A) gallium
 - (B) aluminium
 - (C) boron
 - (D) All of these

- 13 A 10,000 Ohms resistance has a tolerance band of 10% its value would be between :
- (A) 9000 ohms to 11000
 - (B) 9000 ohms to 10000 ohms
 - (C) 10000 to 11000 ohms
 - (D) 9500 to 10500 ohms
- 14 Electromagnetism induction is the generation of _____ from _____.
- (A) Magnetism, Electricity
 - (B) Electricity, Electricity
 - (C) Electricity, Magnetism
 - (D) Magnetism, Magnetism
- 15 A Battery has emf of 2 Volts when shorted gives a current of 4A. The terminal resistance of the battery is :
- (A) 4 Ohms
 - (B) 0.5 Ohms
 - (C) 2 Ohms
 - (D) None of these
- 16 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) $R/2$
 - (B) $R/4$
 - (C) $R/8$
 - (D) $2R$
- 17 In Norton Equivalent circuit the current source is connected in parallel with _____ and its unit is _____.
- (A) Resistance, Ohms
 - (B) Resistance, Micro Farad
 - (C) Admittance, Mho
 - (D) Capacitance , Farad

- 18 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) 1 W
 - (B) 10 W
 - (C) 50 W
 - (D) 0.1 W
- 19 Classification of IC by function
- (A) Analog and Digital
 - (B) Calculus and Integral
 - (C) Linear and Non Linear
 - (D) Theoretical and Practical
- 20 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) $3\ \Omega$ and $6\ \Omega$ in series and $2\ \Omega$ in parallel
 - (B) $3\ \Omega$ and $6\ \Omega$ in Parallel and $2\ \Omega$ in Series
 - (C) All in parallel
 - (D) $2\ \Omega$ and $6\ \Omega$ in parallel and $3\ \Omega$ in series
- 21 Two most commonly used semiconductor are _____ and _____.
- (A) Germanium, Copper
 - (C) Silicon, Germanium
 - (B) Silicon, Aluminium
 - (D) Copper, Aluminium
- 22 In a pure semiconductor number of _____ produced at temperature to number of free _____.
- (A) holes, electron
 - (B) elements, compounds
 - (C) holes, elements
 - (D) All of these

- 23 If $\beta_{dc} = 100$ then, find α_{dc}
- (A) 0.99
 - (B) 100
 - (C) 0.01
 - (D) 150
- 24 Find base current (I_B) if transistor, if $\beta_{dc} = 50$ and emitter current is 10 mA :
- (A) 20 mA
 - (B) 200 mA
 - (C) 0.2 mA
 - (D) 0.002 mA
- 25 A wave shaping circuit are _____ and _____, and made using _____.
- (A) rectifiers, filters, regulators
 - (B) transistors, resistors, diodes
 - (C) clipping, clamping, diodes
 - (D) None of these

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

(A) Conduction, Forbidden gap, Valance band

(B) Conduction, Valance band, Forbidden gap

(C) Deactive, Valance band, Forbidden gap

(D) Active, Valance band, Forbidden gap

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

(A) 490

(B) 49

(C) 0.49

(D) .049

28 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 μS

(B) 0.0002 μS

(C) 2000 $\mu\text{ Ohms}$

(D) None of these