



DE-2930

First Year B. Sc. (Sem. I) Examination

March / April – 2016

Applied Electronics : 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"/>
<input type="checkbox"/> FIRST YEAR B. Sc. (SEM. 1)	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="checkbox"/> APPLIED ELECTRONICS - 1	<input type="text"/>
Subject Code No. : <input type="text"/> 2 <input type="text"/> 9 <input type="text"/> 3 <input type="text"/> 0	<input type="text"/>
Section No. (1, 2,.....) : <input type="text"/> 1,2,3	<input type="text"/>
	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 Reverse current _____ very sharply after the Zener breakdown.
- (A) fall
 - (B) rises
 - (C) decreases
 - (D) slide
- 2 Transition capacitance is prominent when Junction diode is :
- (A) forward bias
 - (B) combination of Forward and Reverse bias
 - (C) reverse bias
 - (D) None of these
- 3 Diffusion capacitance is prominent in Junction diode when, is :
- (A) forward bias
 - (B) combination of Forward and Reverse bias
 - (C) reverse bias
 - (D) None of these
- 4 Diffusion capacitance and transition capacitance are left out in _____ frequency model of Diode.
- (A) High
 - (B) Medium
 - (C) Low
 - (D) None of these

- 5 Special purpose diode are :
- (A) Tunnel Diode
 - (B) Schottky Diode
 - (C) Varactor diode
 - (D) All of these
- 6 Varactor diode is due to change in the _____ of diode.
- (A) transition capacitance
 - (B) diffusion capacitance
 - (C) resistance
 - (D) diffusion inductance
- 7 Classification of IC by structure :
- (A) Monolithic IC
 - (B) Thick and thin film IC
 - (C) Hybrid or Multichip IC
 - (D) All of these
- 8 Linear Integrated circuit are :
- (A) Flip - Flop
 - (B) Operational amplifier
 - (C) Clock Chip
 - (D) Memory chip

- 9 Providing Ohmic contact and interconnection by evaporating Aluminium over the chip :
- (A) Etching
 - (B) Metallization
 - (C) Dopping
 - (D) Scribing
- 10 Full Form of MOSFET :
- (A) Metal Oxide Silicon Field Effect Transistor
 - (B) Metal Oxide Semiconductor Field Effect Transistor
 - (C) Metal Order Semiconductor Field Effect Transistor
 - (D) Methane Oxide Semiconductor Field Effect Transistor
- 11 In colour coding resistor, the fourth band indicates :
- (A) tolerance percent
 - (B) multiplier
 - (C) first digit
 - (D) None of these
- 12 A circuit that converts ac in to dc is called :
- (A) Rectifiers
 - (B) Regulators
 - (C) Thyristors
 - (D) Filters

- 13 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
- 14 A certain wire has a resistance R, it is cut into two real parts and connected in parallel, the resistance of the combination is :
- (A) $R/2$
 - (B) $R/4$
 - (C) $R/8$
 - (D) $2R$
- 15 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
- 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) I W
 - (B) 10 W
 - (C) 50 W
 - (D) 0.1 W
- 17 Classification of IC by function :
- (A) Analog and Digital
 - (B) Calculus and Integral
 - (C) Linear and Non-Linear
 - (D) Theoretical and Practical

- 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) $3\ \Omega$ 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
- 19 Two most commonly used semiconductor are _____ and _____.
- (A) Germanium, Copper
 - (B) Silicon, Aluminium
 - (C) Silicon, Germanium
 - (D) Copper, Aluminium
- 20 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
- 21 Algebraic summation of current at a junction is _____ and this law is called _____.
- (A) Zero, KVL
 - (B) Infinity, KVL
 - (C) Zero, KCL
 - (D) Infinity, KCL
- 22 Algebraic summation of Voltage in a closed loop is _____ and this law is called _____.
- (A) Zero, KVL
 - (B) Infinity, KVL
 - (C) Zero, KCL
 - (D) Infinity, KCL

- 23 Monolithic IC most common. The components are part of one _____. Transistor, Diodes, Resistor are easy to fabricate in a monolithic IC, but _____ and _____ are not practical.
- (A) Amplifier, Capacitor, Inductor
 - (B) Chip, Inductor, Capacitor
 - (C) Wafer, Inductor, Capacitor
 - (D) All of these
- 24 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
- 25 In an energy band diagram of Semiconductor the energy from lower to high is _____, _____ and _____ energy band.
- (A) Deactive, Valance band, Forbidden gap
 - (B) Conduction, Valance band, Forbidden gap
 - (C) Conduction, Forbidden gap, Valance band,
 - (D) Active, Valance band, Forbidden gap

- 26 If $\alpha_{dc} = 0.99$ then, find β_{dc} .
- (A) 99
 - (B) 49
 - (C) 24
 - (D) 0.99
- 27 If $\beta_{dc} = 100$ then, find α_{dc} .
- (A) .99
 - (B) 100
 - (C) 0.01
 - (D) 150
- 28 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