



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 Diffusion capacitance and transition capacitance are left out in _____ frequency model of Diode.
- (A) Low
 - (B) None of these
 - (C) High
 - (D) Medium
- 2 Special purpose diode are :
- (A) Varactor diode
 - (B) All of these
 - (C) Tunnel Diode
 - (D) Schottky Diode
- 3 Varactor diode is due to change in the _____ of diode.
- (A) resistance
 - (B) diffusion inductance
 - (C) transition capacitance
 - (D) diffusion capacitance
- 4 Classification of IC by structure :
- (A) Hybrid or Multichip IC
 - (B) All of these
 - (C) Monolithic IC
 - (D) Thick and thin film IC

- 5 Linear Integrated circuit are :
- (A) Clock Chip
 - (B) Memory chip
 - (C) Flip - Flop
 - (D) Operational amplifier
- 6 Providing Ohmic contact and interconnection by evaporating Aluminium over the chip :
- (A) Dopping
 - (B) Scribing
 - (C) Etching
 - (D) Metallization
- 7 Full Form of MOSFET :
- (A) Metal Oxide Semiconductor Field Effect Transistor
 - (B) Methane Oxide Semiconductor Field Effect Transistor
 - (C) Metal Oxide Silicon Field Effect Transistor
 - (D) Metal Oxide Semiconductor Field Effect Transistor
- 8 In colour coding resistor, the fourth band indicates :
- (A) first digit
 - (B) None of these
 - (C) tolerance percent
 - (D) multiplier

- 9 A circuit that converts ac in to dc is called :
- (A) Thyristors
 - (B) Filters
 - (C) Rectifiers
 - (D) Regulators
- 10 Reverse current _____ very sharply after the Zener breakdown.
- (A) decreases
 - (B) slide
 - (C) fall
 - (D) rises
- 11 Transition capacitance is prominent when Junction diode is :
- (A) reverse bias
 - (B) None of these
 - (C) forward bias
 - (D) combination of Forward and Reverse bias
- 12 Diffusion capacitance is prominent in Junction diode when, is :
- (A) reverse bias
 - (B) None of these
 - (C) forward bias
 - (D) combination of Forward and Reverse bias

- 13 Algebraic summation of current at a junction is _____ and this law is called _____.
- (A) Zero , KCL
 - (B) Infinity, KCL
 - (C) Zero, KVL
 - (D) Infinity, KVL
- 14 Algebraic summation of Voltage in a closed loop is _____ and this law is called _____.
- (A) Zero, KCL
 - (B) Infinity, KCL
 - (C) Zero, KVL
 - (D) Infinity, KVL
- 15 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
- 16 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) $R/8$
 - (B) $2R$
 - (C) $R/2$
 - (D) $R/4$
- 17 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

- 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) 50 W
 - (B) 0.1 W
 - (C) 1 W
 - (D) 10 W
- 19 Classification of IC by function :
- (A) Linear and Non-Linear
 - (B) Theoretical and Practical
 - (C) Analog and Digital
 - (D) Calculus and Integral
- 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) 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
- 21 Two most commonly used semiconductor are _____ and _____.
- (A) Silicon, Germanium
 - (B) Copper, Aluminium
 - (C) Germanium, Copper
 - (D) Silicon, Aluminium
- 22 In a pure semiconductor number of _____ produced at temperature to number of free _____.
- (A) holes, electrons
 - (B) All of these
 - (C) holes, electron
 - (D) elements, compounds

- 23 If $\beta_{dc} = 100$ then, find α_{dc} .
- (A) 0.01
 - (B) 150
 - (C) .99
 - (D) 100
- 24 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
- 25 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) Wafer, Inductor, Capacitor
 - (B) All of these
 - (C) Amplifier, Capacitor, Inductor
 - (D) Chip, Inductor, Capacitor

- 26 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
- 27 In an energy band diagram of Semiconductor the energy from lower to high is _____, _____ and _____ energy band.
- (A) Conduction, Forbidden gap, Valance band,
 - (B) Active, Valance band, Forbidden gap
 - (C) Deactive, Valance band, Forbidden gap
 - (D) Conduction, Valance band, Forbidden gap
- 28 If $\alpha_{dc} = 0.99$ then, find β_{dc} .
- (A) 24
 - (B) 0.99
 - (C) 99
 - (D) 49