



DF-3003

Second Year B. Sc. (Sem. III) Examination

March / April – 2016

Electronics (Electronics for C.S.) : Paper - III

Electronics Devices & Circuit

Time : 2 Hours]

[Total Marks : 50

Instructions :

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
SECOND YEAR B. Sc. (SEM. 3)

Name of the Subject :
ELECTRONICS (ELECTRONICS FOR C.S.) - 3

Subject Code No.: **3 0 0 3** Section No. (1, 2,.....): **Nil**

Seat No. :
□ □ □ □ □ □

Student's Signature

Q. 1 to 12 Multiple choice questions : (1 mark)

Q. 13 to 22 Multiple Choise Questions : (2 marks)

Q. 23 to 28 Multiple Choice Questions : (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
are given on back side of provided O.M.R. Sheet.***

- 1 Full form of BJT
 - (A) Bi-junction transistor
 - (B) Bi-polar junction transistor
 - (C) Bi-junction transformer
 - (D) Bi-polar junction transformer

- 2 Full form of JFET
 - (A) Joint field effect transistor
 - (B) Junction field effect transistor
 - (C) Junction field effect transformer
 - (D) Joint field effect transformer

- 3 Full form of MOSFET
 - (A) Metal oxide semiconductor field effect transformer
 - (B) Metal oxide semiconductor field effect transistor
 - (C) Metal oxygen semiconductor field effect transistor
 - (D) Metal oxygen semiconductor field effect transformer

- 4 Full form of CMOS
 - (A) Compulsory Metal Oxide Semiconductor
 - (B) Complementary Metal Oxide Semiconductor
 - (C) Corrosive Metal Oxide Semiconductor
 - (D) Correspondent Metal Film Oxide Semiconductor

- 5 GAIN-Bandwidth product of amplifier with feedback and without feedback
- (A) Equal
 - (B) Unequal
 - (C) Both Equal and Unequal
 - (D) None of these
- 6 Condition required for oscillation
- (A) Barkhausen Criteria and Positive Feedback
 - (B) Amplifier and Negative Feedback
 - (C) Barcation Criteria and Negative Feedback
 - (D) Negative and Positive Feedback
- 7 Cross over distortion occurs in _____ amplifier
- (A) Class-B Push-pull
 - (B) Class-A
 - (C) Class-C
 - (D) Class-AB
- 8 The dc load line of transistor circuit
- (A) has negative slope
 - (B) is a curved line
 - (C) does not contain Q point
 - (D) None of these

- 9 The maximum peak-to-peak output voltage swing is obtained when the Q-point of a circuit located
- (A) Near the saturation point
 - (B) Near cut-off point
 - (C) at the center of the load line
 - (D) at least on the load line
- 10 For oscillator circuit
- (A) Input and frequency determining network is required
 - (B) No input, frequency determining network / Tank circuit is required
 - (C) Input required, feedback not required
 - (D) No input and feedback
- 11 CE amplifier is characterised by
- (A) Low Voltage Gain
 - (B) Moderate Power Gain
 - (C) Signal Phase Reversal
 - (D) Very high output resistance
- 12 In oscillator the negative feedback is used for
- (A) Increasing the output amplitude
 - (B) Decreasing the output amplitude
 - (C) Stabilizing the output amplitude
 - (D) Decreasing the output impedance

- 13 If Transistors, $\alpha_{dc} = 0.98$, the value of β_{dc}
- (A) 49
 - (B) .49
 - (C) .049
 - (D) .0049
- 14 If transistors $\beta_{dc} = 100$, then value of α_{dc}
- (A) .099
 - (B) .99
 - (C) 9.9
 - (D) 99
- 15 The α (dc Alpha) of a transistor equal the ratio of _____ current to _____ current, and β (dc Beta) equals the ratio of _____ current to _____ current.
- (A) Collector to emitter and collector to base
 - (B) Collector to base and collector to emitter
 - (C) Both of these
 - (D) None of these
- 16 If you reduce all ac sources to zero and open all capacitor, the circuit that remains is called _____ equivalent circuit. If you reduce all sources to zero and short all coupling and by-pass capacitors, the circuit that remains is the _____ equivalent circuit.
- (A) dc, ac
 - (B) ac, dc
 - (C) Transient, Steady
 - (D) Small signal, Large signal
- 17 A By-pass capacitor is similr to coupling capacitor except that it couples an undergrounded points to a _____ point. A by-pass capacitor produces an ac_____.
- (A) Ground, Grounded
 - (B) Grounded, Ground
 - (C) Supply, Ground
 - (D) Grounded, Supply

- 18 The conversion of _____ stress in to _____ potential by a crystal is called Piezoelectric effect.
- (A) Electrical, Mechanical
 - (B) Mechanical, Electric
 - (C) Transcient, Longitudinal
 - (D) None of these
- 19 Hartely Oscillator uses _____ feedback and _____ feedback is used in Colpitts Oscillator.
- (A) Capacitive, Inductive
 - (B) Resistive, Capacitive
 - (C) Resistive and Inductive
 - (D) Inductive, Capacitive
- 20 A darlington pair provides a very high value of _____ not provided by any single transistor and emitter current of one becomes _____ current of the next one.
- (A) β , Collector
 - (B) α , Emitter
 - (C) β , Base
 - (D) α , Base
- 21 When the collector is at AC ground is called a grounded-collector or _____ amplifier, stepping-up the impedance is the main reason for using CC amplifier, also known as _____.
- (A) Emitter – Follower, Common Collector
 - (B) Common Base, Emitter Follower
 - (C) Common Emitter, Emitter Follower
 - (D) Common Collector, Emitter-Follower
- 22 The ac collector voltages 180° out of phase with the ac base voltage this _____ inversion between base and collector happens in all base driven amplifiers. The phase of the emitter voltage is the same as the phase of ac _____ voltage.
- (A) Phase, Base
 - (B) Phase, Base
 - (C) Base, Phase
 - (D) None of these

- 23 Because the gate is insulated from the channel, a MOSFET is also known as _____ fet the D-MOSFET can operate in either the enhancement mode or the _____ mode. This type of MOSFET is also known as normally _____ MOSFET.
- (A) Insulated-Gate, Enhancement, Off
- (B) Floating-Gate, Depletion, On
- (C) Insulated-Gate, Depletion, On
- (D) Both Floating-Gate, Depletion, On and Insulated-Gate, Depletion, On
- 24 The key difference between a JFET and a Bipolar transistor is this the gate is _____ biased and whereas the base is _____ biased. The crucial difference means the JFET is a _____ controlled device.
- (A) Forward, Reverse, Current
- (B) Reverse, Forward, Voltage
- (C) Forward, Reverse, Voltage
- (D) Forward, Forward, Voltage
- 25 The three part of a JFET is the source, the _____ and the _____ the field effect is related to the _____ layer around each pn junction. The more negative the gate voltage, the _____ the drain current.
- (A) Gate, Drain, P-Type, Smaller
- (B) Gate, Drain n-type, Smaller
- (C) Gate, Drain, Depletion, Smaller
- (D) Gate, Drain, Depletion, Larger

- 26 BMV has two absolutely _____ states. It can remain in any one of its state _____. It's a _____ Oscillator.
- (A) Unstable, Indefinitely, Triggered
 - (B) Stable, Indefinitely, Untriggered
 - (C) Stable, Indefinitely, Triggered
 - (D) Stable, definitely, Triggered
- 27 In JFET the change in drain current of 0.2 mA and corresponding change of 0.001 V, then g_m is,
- (A) $0.0002 \mu S$
 - (B) $2000 \mu S$
 - (C) $200 \mu S$
 - (D) $20 \mu S$
- 28 An electronic oscillator is a circuit which converts dc energy into _____ energy and Oscillator in an _____ with _____ feedback.
- (A) AC, amplifier, positive
 - (B) AC, amplifier, negative
 - (C) Electrical, amplifier, negative
 - (D) Electrical, amplifier, positive