

**D****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 CE amplifier is characterised by
 - (A) Moderate Power Gain
 - (B) Signal Phase Reversal
 - (C) Very high output resistance
 - (D) Low Voltage Gain

- 2 In oscillator the negative feedback is used for
 - (A) Decreasing the output amplitude
 - (B) Stabilizing the output amplitude
 - (C) Decreasing the output impedance
 - (D) Increasing the output amplitude

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

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

- 5 Full form of MOSFET
- (A) Metal oxide semiconductor field effect transistor
 - (B) Metal oxygen semiconductor field effect transistor
 - (C) Metal oxygen semiconductor field effect transformer
 - (D) Metal oxide semiconductor field effect transformer
- 6 Full form of CMOS
- (A) Complementary Metal Oxide Semiconductor
 - (B) Corrosive Metal Oxide Semiconductor
 - (C) Correspondent Metal Film Oxide Semiconductor
 - (D) Compulsory Metal Oxide Semiconductor
- 7 GAIN-Bandwidth product of amplifier with feedback and without feedback
- (A) Unequal
 - (B) Both Equal and Unequal
 - (C) None of these
 - (D) Equal
- 8 Condition required for oscillation
- (A) Amplifier and Negative Feedback
 - (B) Barkhausen Criteria and Negative Feedback
 - (C) Negative and Positive Feedback
 - (D) Barkhausen Criteria and Positive Feedback

- 9 Cross over distortion occurs in _____ amplifier
- (A) Class-A
 - (B) Class-C
 - (C) Class-AB
 - (D) Class-B Push-pull
- 10 The dc load line of transistor circuit
- (A) is a curved line
 - (B) does not contain Q point
 - (C) None of these
 - (D) has negative slope
- 11 The maximum peak-to-peak output voltage swing is obtained when the Q-point of a circuit located
- (A) Near cut-off point
 - (B) at the center of the load line
 - (C) at least on the load line
 - (D) Near the saturation point
- 12 For oscillator circuit
- (A) No input, frequency determining network / Tank circuit is required
 - (B) Input required, feedback not required
 - (C) No input and feedback
 - (D) Input and frequency determining network is required

- 13 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 base and collector to emitter
 - (B) Both of these
 - (C) None of these
 - (D) Collector to emitter and collector to base
- 14 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) ac, dc
 - (B) Transient, Steady
 - (C) Small signal, Large signal
 - (D) dc, ac
- 15 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) Grounded, Ground
 - (B) Supply, Ground
 - (C) Grounded, Supply
 - (D) Ground, Grounded
- 16 The conversion of _____ stress in to _____ potential by a crystal is called Piezoelectric effect.
- (A) Mechanical, Electric
 - (B) Transcient, Longitudinal
 - (C) None of these
 - (D) Electrical, Mechanical
- 17 Hartely Oscillator uses _____ feedback and _____ feedback is used in Colpitts Oscillator.
- (A) Resistive, Capacitive
 - (B) Resistive and Inductive
 - (C) Inductive, Capacitive
 - (D) Capacitive, Inductive

- 18 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) α , Emitter
 - (B) β , Base
 - (C) α , Base
 - (D) β , Collector
- 19 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) Common Base, Emitter Follower
 - (B) Common Emitter, Emitter Follower
 - (C) Common Collector, Emitter-Follower
 - (D) Emitter – Follower, Common Collector
- 20 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) Base, Phase
 - (C) None of these
 - (D) Phase, Base
- 21 If Transistors, $\alpha_{dc} = 0.98$, the value of β_{dc}
- (A) .49
 - (B) .049
 - (C) .0049
 - (D) 49
- 22 If transistors $\beta_{dc} = 100$, then value of α_{dc}
- (A) .99
 - (B) 9.9
 - (C) 99
 - (D) .099

- 23 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) Reverse, Forward, Voltage
 - (B) Forward, Reverse, Voltage
 - (C) Forward, Forward, Voltage
 - (D) Forward, Reverse, Current
- 24 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 n-type, Smaller
 - (B) Gate, Drain, Depletion, Smaller
 - (C) Gate, Drain, Depletion, Larger
 - (D) Gate, Drain, P-Type, Smaller
- 25 BMV has two absolutely _____ states. It can remain in any one of its state _____. It's a _____ Oscillator.
- (A) Stable, Indefinitely, Untriggered
 - (B) Stable, Indefinitely, Triggered
 - (C) Stable, definitely, Triggered
 - (D) Unstable, Indefinitely, Triggered

- 26 In JFET the change in drain current of 0.2 mA and corresponding change of 0.001 V, then g_m is,
- (A) $2000 \mu S$
- (B) $200 \mu S$
- (C) $20 \mu S$
- (D) $0.0002 \mu S$
- 27 An electronic oscillator is a circuit which converts dc energy into _____ energy and Oscillator in an _____ with _____ feedback.
- (A) AC, amplifier, negative
- (B) Electrical, amplifier, negative
- (C) Electrical, amplifier, positive
- (D) AC, amplifier, positive
- 28 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) Floating-Gate, Depletion, On
- (B) Insulated-Gate, Depletion, On
- (C) Both Floating-Gate, Depletion, On and Insulated-Gate, Depletion, On
- (D) Insulated-Gate, Enhancement, Off