



**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 CMOS
  - (A) Corrosive Metal Oxide Semiconductor
  - (B) Correspondent Metal Film Oxide Semiconductor
  - (C) Compulsory Metal Oxide Semiconductor
  - (D) Complementary Metal Oxide Semiconductor
  
- 2 GAIN-Bandwidth product of amplifier with feedback and without feedback
  - (A) Both Equal and Unequal
  - (B) None of these
  - (C) Equal
  - (D) Unequal
  
- 3 Condition required for oscillation
  - (A) Barcation Criteria and Negative Feedback
  - (B) Negative and Positive Feedback
  - (C) Barkhausen Criteria and Positive Feedback
  - (D) Amplifier and Negative Feedback
  
- 4 Cross over distortion occurs in \_\_\_\_\_ amplifier
  - (A) Class-C
  - (B) Class-AB
  - (C) Class-B Push-pull
  - (D) Class-A

- 5 The dc load line of transistor circuit
- (A) does not contain Q point
  - (B) None of these
  - (C) has negative slope
  - (D) is a curved line
- 6 The maximum peak-to-peak output voltage swing is obtained when the Q-point of a circuit located
- (A) at the center of the load line
  - (B) at least on the load line
  - (C) Near the saturation point
  - (D) Near cut-off point
- 7 For oscillator circuit
- (A) Input required, feedback not required
  - (B) No input and feedback
  - (C) Input and frequency determining network is required
  - (D) No input, frequency determining network / Tank circuit is required
- 8 CE amplifier is characterised by
- (A) Signal Phase Reversal
  - (B) Very high output resistance
  - (C) Low Voltage Gain
  - (D) Moderate Power Gain

- 9 In oscillator the negative feedback is used for
- (A) Stabilizing the output amplitude
  - (B) Decreasing the output impedance
  - (C) Increasing the output amplitude
  - (D) Decreasing the output amplitude
- 10 Full form of BJT
- (A) Bi-junction transformer
  - (B) Bi-polar junction transformer
  - (C) Bi-junction transistor
  - (D) Bi-polar junction transistor
- 11 Full form of JFET
- (A) Junction field effect transformer
  - (B) Joint field effect transformer
  - (C) Joint field effect transistor
  - (D) Junction field effect transistor
- 12 Full form of MOSFET
- (A) Metal oxygen semiconductor field effect transistor
  - (B) Metal oxygen semiconductor field effect transformer
  - (C) Metal oxide semiconductor field effect transformer
  - (D) Metal oxide semiconductor field effect transistor

- 13 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 Emitter, Emitter Follower  
 (B) Common Collector, Emitter-Follower  
 (C) Emitter – Follower, Common Collector  
 (D) Common Base, Emitter Follower
- 14 The ac collector voltages  $180^\circ$  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) Base, Phase  
 (B) None of these  
 (C) Phase, Base  
 (D) Phase, Base
- 15 If Transistors,  $\alpha_{dc} = 0.98$ , the value of  $\beta_{dc}$
- (A) .049  
 (B) .0049  
 (C) 49  
 (D) .49
- 16 If transistors  $\beta_{dc} = 100$ , then value of  $\alpha_{dc}$
- (A) 9.9  
 (B) 99  
 (C) .099  
 (D) .99
- 17 The  $\alpha$  (dc Alpha) of a transistor equal the ratio of \_\_\_\_\_ current to \_\_\_\_\_ current, and  $\beta$  (dc Beta) equals the ratio of \_\_\_\_\_ current to \_\_\_\_\_ current.
- (A) Both of these  
 (B) None of these  
 (C) Collector to emitter and collector to base  
 (D) Collector to base and collector to emitter

- 18 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) Transient, Steady
  - (B) Small signal, Large signal
  - (C) dc, ac
  - (D) ac, dc
- 19 A By-pass capacitor is similar to coupling capacitor except that it couples an undergrounded points to a \_\_\_\_\_ point. A by-pass capacitor produces an ac\_\_\_\_\_.
- (A) Supply, Ground
  - (B) Grounded, Supply
  - (C) Ground, Grounded
  - (D) Grounded, Ground
- 20 The conversion of \_\_\_\_\_ stress in to \_\_\_\_\_ potential by a crystal is called Piezoelectric effect.
- (A) Transcient, Longitudinal
  - (B) None of these
  - (C) Electrical, Mechanical
  - (D) Mechanical, Electric
- 21 Hartely Oscillator uses \_\_\_\_\_ feedback and \_\_\_\_\_ feedback is used in Colpitts Oscillator.
- (A) Resistive and Inductive
  - (B) Inductive, Capacitive
  - (C) Capacitive, Inductive
  - (D) Resistive, Capacitive
- 22 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)  $\beta$ , Base
  - (B)  $\alpha$ , Base
  - (C)  $\beta$ , Collector
  - (D)  $\alpha$ , Emitter

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

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