

**B****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. :
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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 The dc load line of transistor circuit
 - (A) None of these
 - (B) has negative slope
 - (C) is a curved line
 - (D) does not contain Q point

- 2 The maximum peak-to-peak output voltage swing is obtained when the Q-point of a circuit located
 - (A) at least on the load line
 - (B) Near the saturation point
 - (C) Near cut-off point
 - (D) at the center of the load line

- 3 For oscillator circuit
 - (A) No input and feedback
 - (B) Input and frequency determining network is required
 - (C) No input, frequency determining network / Tank circuit is required
 - (D) Input required, feedback not required

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

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

- 9 Full form of CMOS
- (A) Correspondent Metal Film Oxide Semiconductor
 - (B) Compulsory Metal Oxide Semiconductor
 - (C) Complementary Metal Oxide Semiconductor
 - (D) Corrosive Metal Oxide Semiconductor
- 10 GAIN-Bandwidth product of amplifier with feedback and without feedback
- (A) None of these
 - (B) Equal
 - (C) Unequal
 - (D) Both Equal and Unequal
- 11 Condition required for oscillation
- (A) Negative and Positive Feedback
 - (B) Barkhausen Criteria and Positive Feedback
 - (C) Amplifier and Negative Feedback
 - (D) Barcation Criteria and Negative Feedback
- 12 Cross over distortion occurs in _____ amplifier
- (A) Class-AB
 - (B) Class-B Push-pull
 - (C) Class-A
 - (D) Class-C

- 13 The conversion of _____ stress into _____ potential by a crystal is called Piezoelectric effect.
- (A) None of these
 - (B) Electrical, Mechanical
 - (C) Mechanical, Electric
 - (D) Transient, Longitudinal
- 14 Hartley Oscillator uses _____ feedback and _____ feedback is used in Colpitts Oscillator.
- (A) Inductive, Capacitive
 - (B) Capacitive, Inductive
 - (C) Resistive, Capacitive
 - (D) Resistive and Inductive
- 15 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 , Base
 - (B) β , Collector
 - (C) α , Emitter
 - (D) β , Base
- 16 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 Collector, Emitter-Follower
 - (B) Emitter – Follower, Common Collector
 - (C) Common Base, Emitter Follower
 - (D) Common Emitter, Emitter Follower
- 17 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) None of these
 - (B) Phase, Base
 - (C) Phase, Base
 - (D) Base, Phase

- 18 If Transistors, $\alpha_{dc} = 0.98$, the value of β_{dc}
- (A) .0049
 - (B) 49
 - (C) .49
 - (D) .049
- 19 If transistors $\beta_{dc} = 100$, then value of α_{dc}
- (A) 99
 - (B) .099
 - (C) .99
 - (D) 9.9
- 20 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) None of these
 - (B) Collector to emitter and collector to base
 - (C) Collector to base and collector to emitter
 - (D) Both of these
- 21 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) Small signal, Large signal
 - (B) dc, ac
 - (C) ac, dc
 - (D) Transient, Steady
- 22 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, Supply
 - (B) Ground, Grounded
 - (C) Grounded, Ground
 - (D) Supply, Ground

- 23 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, Larger
- (B) Gate, Drain, P-Type, Smaller
- (C) Gate, Drain n-type, Smaller
- (D) Gate, Drain, Depletion, Smaller
- 24 BMV has two absolutely _____ states. It can remain in any one of its state _____. It's a _____ Oscillator.
- (A) Stable, definitely, Triggered
- (B) Unstable, Indefintely, Triggered
- (C) Stable, Indefinitely, Untriggered
- (D) Stable, Indefinitely, Triggered
- 25 In JFET the change in drain current of 0.2 mA and corresponding change of 0.001 V, then g_m is,
- (A) $20 \mu S$
- (B) $0.0002 \mu S$
- (C) $2000 \mu S$
- (D) $200 \mu S$

- 26 An electronic oscillator is a circuit which converts dc energy into _____ energy and Oscillator in an _____ with _____ feedback.
- (A) Electrical, amplifier, positive
 - (B) AC, amplifier, positive
 - (C) AC, amplifier, negative
 - (D) Electrical, amplifier, negative
- 27 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 normaly _____ MOSFET.
- (A) Both Floating-Gate, Depletion, On and Insulated-Gate, Depletion, On
 - (B) Insulated-Gate, Enhancement, Off
 - (C) Floating-Gate, Depletion, On
 - (D) Insulated-Gate, Depletion, On
- 28 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, Forward, Voltage
 - (B) Forward, Reverse, Current
 - (C) Reverse, Forward, Voltage
 - (D) Forward, Reverse, Voltage