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 :

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 भरवा अंग्रेजी अग्रणी सूचनाएँ अर्थे
O.M.R. Sheet-ि पाणवे आयेचे हे.
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) Barcation 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

DF-3003_D  
[ Contd... ]
13 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) 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) Transcienct, 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 \( \beta \) not provided by any single transistor and emitter current of one becomes \( \alpha \) current of the next one.
(A) \( \alpha \), Emitter
(B) \( \beta \), Base
(C) \( \alpha \), Base
(D) \( \beta \), 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 face 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) Face, Base
(B) Base, Phase
(C) None of these
(D) Phase, Base

21. If Transistors, \( \alpha_{dc} = 0.98 \), the value of \( \beta_{dc} \)
(A) .49
(B) .049
(C) .0049
(D) 49

22. If transistors \( \beta_{dc} = 100 \), then value of \( \alpha_{dc} \)
(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 normaly _______ 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, Offp