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 बरबा अंगेली अगवारी सूर्सनाथे आपेक्ष
O.M.R. Sheet-ल पास आपेक्ष छ.
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) Barkation 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° 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) Face, 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 ungrounded 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) Transient, 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 normaly _______ 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
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

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

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, Indefintely, Triggered
(D) Stable, Indefinitely, Untriggered