DPP-2997
Second Year B. Sc. (Sem. III) Examination
March / April - 2016
Electronics (Applied Electronics) : Paper - III
(Electronics Devices & Circuit)

Time : 2 Hours] [Total Marks : 50

Instructions :

(1) Fill up strictly the details of signs on your answer book.

Name of the Examination :
SECOND YEAR B. Sc. (SEM. 3)
Name of the Subject :
ELECTRONICS (APPLIED ELECTRONICS) - 3
Subject Code No. : 2 9 9 7
Seat No. :

(2) All 28 questions are compulsory.

(3) Symbols used in the paper have their usual meaning.

(4) Figures to right indicate full marks.

Q. 1 to 12 Multiple Choice Questions : (1 mark)
Q. 13 to 22 Multiple Choice Questions : (2 marks)
Q. 23 to 28 Multiple Choice Questions : (3 marks)

O.M.R. Sheet भरवा अंतर्गत अवधारणा अनुसार आपेक्ष
O.M.R. Sheet-İä पाएं अथवा चे.

Important instructions to fill up O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.
1 Full form of JFET
   (A) Junction field effect transformer
   (B) Joint field effect transformer
   (C) Joint field effect transistor
   (D) Junction field effect transistor

2 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

3 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

4 Gain-bandwidth product of amplifier with feedback and without feedback
   (A) Both of these
   (B) None of these
   (C) Equal
   (D) Unequal
5 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

6 Full form of UJT
   (A) Uni-junctional transistor
   (B) None of these
   (C) Uni joint transformer
   (D) Union junction transistor

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 For amplifier circuit
   (A) No input required, feedback required
   (B) No input and feedback
   (C) Input and feedback network is required
   (D) Input required, no feedback required
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 The negative feedback is used in the amplifier -
   (A) For improving the gain stability
   (B) All of these
   (C) For extending the bandwidth
   (D) For increasing the impedance

11 A class-C amplifier is operated with its operating point set in
   (A) Active region
   (B) None of these
   (C) Saturation region
   (D) Cut-off region

12 Full form of BJT
   (A) BI-Junction transformer
   (B) BI-polar junction transformer
   (C) BI-Junction transistor
   (D) BI-polar junction 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 voltage is 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, Phase

15 $I_{DSS}$ is the current from drain to source with shorted gate. Since loss is measured with the shorted gate it is the ______ drain current you can get with normal operation of the JFET. All other gate voltages are negative and result in _________ drain current.
  (A) Minimum, Less
  (B) Maximum, Large
  (C) Maximum, Less
  (D) Less, Maximum

16 The E-MOSFET operates in the ______ mode only. This kind of MOSFET is important in digital circuit. It is also known as normally ______ MOSFET.
  (A) Enhancement, on
  (B) Only enhancement, on
  (C) Enhancement, off
  (D) De-enhancement, off

17 If transistors $\alpha_{dc} = 0.98$, the value of $\beta_{dc}$

  (A) .049
  (B) .0049
  (C) 49
  (D) .49
18 If transistors $\beta_{dc} = 100$, then value of $\alpha_{dc}$

(A) 9.9
(B) 99
(C) .099
(D) .99

19 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 the these
(C) Collector to emitter and collector to base
(D) Collector to base and collector to emitter

20 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

21 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

22 You multiply individual $\beta'$s to get the overall $\beta$ of a _______ pair. If $\beta_1$ is 50 and $\beta_2$ is 100 then $\beta$ equals

(A) Coupling, 5000
(B) Decoupling, 5000
(C) Darlington, 500
(D) Darlington, 5000
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

Data sheet of JFET is $g_m = 75 \mu s$ then what is $r_d$?

(A) 1330 $k\Omega$

(B) 13.3 $k\Omega$

(C) 133 $k\Omega$

(D) 1.33 $k\Omega$

In JFET the change in drain current of 0.2 mA and corresponding change of 0.001V, then $g_m$ is

(A) 200 $\mu s$

(B) 20 $\mu s$

(C) 0.0002 $\mu s$

(D) 2000 $\mu s$
26 The quiescent collector current and voltage are the $I_C$ and $V_{CE}$ when there is no input_____. You can determine quiescent current and voltage from the _____ equivalent circuit. $V_{CEQ}$ represent the collector to emitter voltage with _____ ac signal.

(A) Signal, ac, No
(B) None of these
(C) Signal, dc, No
(D) Signal, ac, with

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 normally _____ MOSFET.

(A) Insulated-Gate Depletion, On
(B) Floating-gate, Depletion On and Insulated-Gate Depletion, On
(C) Insulated-gate, ehnhacement, Off
(D) Floating-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, Reverse, Voltage
(B) Forward, Forward, Voltage
(C) Forward, Reverse, Current
(D) Reverse, Forward, Voltage