

**B****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)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<input type="text" value="SECOND YEAR B. Sc. (SEM. 3)"/>	<input type="text" value="Student's Signature"/>
Name of the Subject :	
<input type="text" value="ELECTRONICS (APPLIED ELECTRONICS) - 3"/>	
Subject Code No. : <input type="text" value="2"/> <input type="text" value="9"/> <input type="text" value="9"/> <input type="text" value="7"/>	Section No. (1, 2,.....) : <input type="text" value="1,2,3"/>

- (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 ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ
O.M.R. Sheet-ની પાછળ છાપેલ છે.*

*Important instructions to fillup O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.*

- 1 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

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

- 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 For amplifier circuit
 - (A) No input and feedback
 - (B) Input and feedback network is required
 - (C) Input required, no feedback required
 - (D) No input required, feedback required

- 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 The negative feedback is used in the amplifier -
- (A) All of these
 - (B) For extending the bandwidth
 - (C) For increasing the impedance
 - (D) For improving the gain stability
- 7 A class-C amplifier is operated with its operating point set in
- (A) None of these
 - (B) Saturation region
 - (C) Cut-off region
 - (D) Active region
- 8 Full form of BJT
- (A) BI-polar junction transformer
 - (B) BI-Junction transistor
 - (C) BI-polar junction transistor
 - (D) BI-Junction transformer

- 9 Full form of JFET
- (A) Joint field effect transformer
 - (B) Joint field effect transistor
 - (C) Junction field effect transistor
 - (D) Junction field effect transformer
- 10 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
- 11 Full form of CMOS
- (A) Corrospondent metal film oxide semiconductor
 - (B) Compulsory metal oxide semiconductor
 - (C) Complementary metal oxide semiconductor
 - (D) Corrosive metal oxide semiconductor
- 12 Gain-bandwidth product of amplifier with feedback and without feedback
- (A) None of these
 - (B) Equal
 - (C) Unequal
 - (D) Both of these

- 13 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
- 14 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) Grounded, Supply
 (B) Ground, Grounded
 (C) Grounded, Ground
 (D) Supply, Ground
- 15 You multiply individual β 's to get the overall β of a _____ pair. If β_1 is 50 and β_2 is 100 then β equals
- (A) Decoupling, 5000
 (B) Darlington, 500
 (C) Darlington, 5000
 (D) Coupling, 5000
- 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 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) None of these
 (B) Phase, base
 (C) Phase, Phase
 (D) Base, Phase

- 18 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) Maximum, Large
 (B) Maximum, Less
 (C) Less, Maximum
 (D) Minimum, Less
- 19 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) Only enhancement, on
 (B) Enhancement, off
 (C) De-enhancement, off
 (D) Enhancement, on
- 20 If transistors $\alpha_{dc} = 0.98$, the value of β_{dc}
- (A) .0049
 (B) 49
 (C) .49
 (D) .049
- 21 If transistors $\beta_{dc} = 100$, then value of α_{dc}
- (A) 99
 (B) .099
 (C) .99
 (D) 9.9
- 22 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 the these
 (B) Collector to emitter and collector to base
 (C) Collector to base and collector to emitter
 (D) Both of these

- 23 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) Floating-gate, Depletion On and Insulated-Gate Depletion, On
- (B) Insulated-gate, ehnhancement, Off
- (C) Floating-gate, Depletion On
- (D) Insulated-Gate Depletion, On
- 24 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
- 25 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-tye, Smaller
- (D) Gate, Drain, Depletion, Smaller

- 26 Data sheet of JFET is $g_m = 75 \mu s$ then what is r_d ?
- (A) $13.3 k\Omega$
- (B) $133 k\Omega$
- (C) $1.33 k\Omega$
- (D) $1330 k\Omega$
- 27 In JFET the change in drain current of 0.2 mA and corresponding change of 0.001V, then g_m is
- (A) $20 \mu s$
- (B) $0.0002 \mu s$
- (C) $2000 \mu s$
- (D) $200 \mu s$
- 28 The quicent 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) None of these
- (B) Signal, dc, No
- (C) Signal, ac, with
- (D) Signal, ac, No