Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Second Year Semester III

Course Code: ETC302, Course Name: AE-I

Time: 1 hour Max. Marks: 20

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	Which of the following is not a necessary component in a clamper circuit? a) Diode b) Capacitor c) Resistor d) Independent DC Supply
Option A:	Diode
Option B:	Capacitor
Option C:	Resistor
Option D:	Independent DC Supply
Q2.	**A crystal diode has ……**
Option A:	one pn junction
Option B:	two pn junctions
Option C:	three pn junctions
Option D:	No pn junction
Q3.	**The forward voltage drop across a silicon diode is about ……**
Option A:	2.5 V
Option B:	3 V
Option C:	10 V
Option D:	0.7 V
Q4.	The depletion layer of a PN junction diode has
Option A:	Only free mobile holes
Option B:	Only free mobile electrons
Option C:	Both free mobile holes as well as electrons
Option D:	Neither free mobile electrons nor holes
Q5.	In the output characteristics of a MOSFET with low values of Vds, the value of the on-state resistance is
Option A:	Vds/Ig
Option B:	Vds/Id

Option C:	0
Option D:	∞
Q6.	Consider an ideal MOSFET. If Vgs = 0V, then Id = ?
Option A:	Zero
Option B:	Maximum
Option C:	Id(on)
Option D:	Idd
Q7.	Which of the following statement is true about FET?
Option A:	It has high output impedance
Option B:	It has high input impedance
Option C:	It has low input impedance
Option D:	It does not offer any resistance
Q8.	For a FET when will maximum current flows?
Option A:	V_{gs} = 0V
Option B:	V_{gs} = 0v and V_{ds} >= $\|V_p\|$
Option C:	V_{DS} >= $\|V_p\|$
Option D:	V_p = 0
Q9.	Which of the following is the correct relationship between base and emitter current of a BJT?
Option A:	$I_B = \beta I_E$
Option B:	$I_B = I_E$
Option C:	$I_B = (\beta + 1) I_E$
Option D:	$I_E = (\beta + 1) I_B$
Q10.	At what region of operation is the base-emitter junction forward biased and the base-collector junction reverse biased?
Option A:	Saturation
Option B:	Linear
Option C:	active
Option D:	Cutoff
Q11.	For the typical transistor amplifier in the active region, V_{CE} is usually about _____ % to _____ % VCC
Option A:	10,60
Option B:	25, 75
Option C:	40,90
Option D:	10,75
Q12.	**Reducing all dc sources to zero is one of the steps in getting the**

Option A:	DC equivalent circuit
Option B:	AC equivalent circuit
Option C:	Complete amplifier circuit
Option D:	Voltage divider biased circuit
Q13.	**The phase difference between the output and input voltages of a CE amplifier is……degrees**
Option A:	180
Option B:	0
Option C:	90
Option D:	45
Q14.	What is trans-conductance?
Option A:	Ratio of change in drain current to change in collector current
Option B:	Ratio of change in drain current to change in gate to source voltage
Option C:	Ratio of change in collector current to change in drain current
Option D:	Ratio of change in collector current to change in gate to source voltage
Q15.	The slope obtained in V_{GS} vs I_D was 0.002. What is the value ofg_m?
Option A:	1
Option B:	2
Option C:	0.002
Option D:	0
Q16.	Which of the following equations gives the relation between I_D and V_{gs}?
Option A:	$I_D=I_{DSS}\ (1-V_{gs}/V_p)^2$
Option B:	$I_D=I_{DSS}\ (1-V_{gs}/V_p)^1$
Option C:	$I_D=I_{DSS}\ (1-V_{gs}/V_p)^3$
Option D:	$I_D=I_{DSS}\ (1-V_{gs}/V_p)^4$
Q17.	For a fixed bias circuit the drain current was 1mA, what is the value of source current
Option A:	0mA
Option B:	1mA
Option C:	2mA
Option D:	4mA
Q18.	What will happen if values of R_s increase?
Option A:	V_{gs} Decreases
Option B:	V_{gs} Increases
Option C:	V_{gs} Remains the same
Option D:	V_{gs}=0
Q19.	A common gate amplifier has _____
Option A:	low input impedance

Option B:	no impedance
Option C:	infinite input impedance
Option D:	high
Q20.	Which of the following is an expression for g_{m0}?
Option A:	$g_{m0} = I_{DSS}/V_p$
Option B:	$g_{m0} = I_{DSS}/5V_p$
Option C:	$g_{m0} = I_{DSS}/2V_p$
Option D:	$g_{m0} = 2I_{DSS}/\|V_p\|$
Q21.	**An oscillator converts …….**
Option A:	ac. power into d.c. power
Option B:	dc. power into a.c. power
Option C:	mechanical power into a.c. power
Option D:	Dc power to dc power
Q22.	**In a phase shift oscillator, we use ……. RC sections**
Option A:	Two
Option B:	Three
Option C:	Four
Option D:	No
Q23.	**An oscillator differs from an amplifier because it ……**
Option A:	Has more gain
Option B:	Requires no input signal
Option C:	Requires no d.c. supply
Option D:	Always has the same input
Q24.	**For an oscillator to properly start, the gain around the feedback loop must initially be**
Option A:	1
Option B:	Greater than 1
Option C:	Less than 1
Option D:	Equal to attenuation of feedback circuit
Q25.	**……. is a fixed frequency oscillator**
Option A:	Phase-shift oscillator
Option B:	Hartely-oscillator
Option C:	Colpitt's oscillator
Option D:	Crystal oscillator