**Unit wise Quiz Questions**

Unit 1:

1) Critical capacitance with smallest equivalent resistance that determines the lower cut off of

CB amplifier is

a) I/P coupling capacitor

b) Emitter bypass capacitor if c1 = c2

c) c2 output coupling capacitor

d) None.

2 ).resultant phase shift of odd no of CE amplifier stages at mid band frequency is

a)3600

b) 1800

c) 450

d) 900

3) The miller input capacitance in CB AMP IS

a) Large compared to miller capacitance in CE

b) very large because of +ve voltage gain in CB

c) Small because of +ve voltage gain in CB

d) Is not negligible compare to other capacitance

4) Identify the correct statement regarding the voltage gain of a CE transistor amplifier

a) it increases with increase in ac load R

b) it is independent of ac load R & is large

c) it decreases with increase in ac load R

d) it is always approximately unity

5) Identify the incorrect statement [ d ]

a) frequency distortion in an amplifier is mainly due to the reactive component circuit

b) amplitude distortion is also referred to as non-linear distortion

c) distortion in amplifier due to unequal phase shifts at different frequencies is called delay

distortion

d) phase shift distortion is same as frequency distortion

ans: [D ]

6) i/p &o/p capacitors in a transistors amplifier are not referred to as [ a ]

a) inter electrode capacitors

b) coupling capacitors

c) blocking capacitors

d) dc de-coupling capacitors

ans : [ A ]

7) CB amplifier of BJT is similar in behaviour with following FET configuration[ a ]

a)common gate amplifier

b) common drain amplifier

C) common source amplifier

d)swamped source resistor amplifier

ans:[ A ]

8) The miller i/p capacitance in CB amplifier [ c ]

a) Is large compared to miller capacitance in CE

b) is very large because of +ve voltage gain in CB

c) is small because of +ve voltage gain in CB

d) not negligible compared to other capacitance

ans: [ C ]

9) CE is the capacitance of forward biased junction & is therefore

[ c ]

a) independent of collector current

b) much lager than Cc

c) mainly diffusion capacitance

d) mainly transition capacitance

ans: [ C ]

10) dissipation capability of a transistor is defined as

[ a ]

a) capability to launch heat generated into the surroundings

b) deviation in power delivered to load resistor c) capability to withstand the variation in dc power at operating power

d) deviation in o/p & i/p signal wave shapes

ans: [ A ]

11) phase difference between o/p voltage &i/p voltage of a CC amplifier at mid band frequencies

[ b ]

a) 1800

b) 00

c) 450

d) 900

ans : [ B ]

12) major draw back of Darlington transistor pair

[ d ]

a) low current gain compared to single emitter follower

b) dependence of Av on transistor selected

c) low i/p impedance compared to single emitter follower

d) dependence of H -parameters on quiescent conditions

ans: [ D ]

13) cascade amplifier is 2- transistor combination has

a) collector of first transistor is connected to the base of second transistor

b) collector current of first transistor is same as emitter current of second transistor

c) emitter current of first transistor is same as the collector current of the second transistor

d) none

14) resultant phase shift of odd no of CE amplifier stages at mid band frequency is a)

3600

b) 1800

c) 450

d) 900

15) major drawbacks of Darlington transistor pair is

a) low current gain compared to single emitter follower

b) dependence of AV on transistor selected condition

c) low i /p impedance compared to single emitter follower

d) dependence of h-parameters on quiescent point.

16) Resultant current gain of a Darlington pair individual current gain of hfe is

[ d ]

a) hfe/2

b) hfe

c) 2hfe

d) hfe2

ans: [ D ]

17) 2-stage rc coupled amplifier is configured as

[ a ]

a) 2 capacitively coupled CE stages cascaded

b) a CE stage capacitively coupled to a CC stage

c) 2 capacitively coupled CB stages cascaded.

d) 2 capacitively coupled CC stages cascaded

ans: [ A ]

18) 2-transistor cascade with both collectors tied together & emitter of the transistor connected

to the base of the transistor is referred to as [ a]

a) Darlington pair

b) CE &CC cascade

c) cascade amplifier

d) differential pair

ans: [ A ]

19) the i/p impedance of cascade amplifier is [ b ]

a) hic

b) hie

c) infinity

d) hib

ans: [ B ]

20) type of inter stage coupling resulting in highest overall gain

[ c ]

a) direct coupling

b)inductive coupling

c) RC coupling

d) transistor coupling

ans : [ C ]

21) main disadvantage of Darlington pair amplifier is

[ d ]

a) low i/p impedance

b) low current gain

c) high o/p impedance

d)high leakage current

ans: [ D ]

22) Major advantage of boot strap Darlington pair over single Darlington pair is

(a) High overall Av with proper DC biasing

(b) increased Ai irrespective of bias condition

(c) high i/p impedance irrespective of bias condition

(d) increased Ai depending upon the bias condition

Ans: (c)

23) identify the correct relationship

a) f alpha ~ f beta

b) f beta >> f alpha

c) f alpha ~ ft

d) f alpha >> f beta

24) lower cutoff &higher cutoff frequency of rc coupled amplifier are

a) both zero

b) both infinity

c) zero & infinity respectively

d) similar to those of CE stage

25) voltage gain of an amplifier reduces to 1/(root 2)its max

a) break frequency

b) miller frequency

c) half power frequency

d) cutoff frequency

26) rce >> rbe condition is applicable in hybrid -pie equivalent of CE amplifier because

a) collector base junction is reverse biased & emitter base junction is forward biased

b) o/p R is always much larger than i/p R

c) b is the internal base terminal

d) base region is extremely tin compared to emitter & collector terminals

26) expression for short circuit current gain bandwidth

[ d ]

a) gm/2pie hfe (ce+cc)

b) gm/(ce+cc)

c) gm/ hfe (ce+cc)

d)gm/2pie (ce+cc)

27) identify the expression for voltage gain CE & fet amplifier at low frequency [ c ]

a) -gm rd Rl /(rd + Rl)

b) gm rd Rl / ( rd +Rl+ gm rd Rl)

c) gm rd Rl /(rd + Rl)

d) Rl || rd / (1+ gm rd)

28) Resultant phase shift of even no of CB amplifier stage at frequency below lower cutoff

frequency [ d ]

a) always a multiple of 2 pie

b) product of phase shift introduced by individual stages

c) always 1800

d) sum of the phase shifts introduced by individual stages

29) Identify the incorrect statement for a high frequency hybrid pie model of a BJT is [ a ]

a) high frequency hybrid pie capacitances can be expressed in terms of low frequency hparameters

b) capacitance between collector & base terminal of a BJT is called overlap -diode capacitance

c) ' B' represent internal base terminal

d) high frequency hybrid pie conductances can be expressed in terms of low frequency hparameters.

30) identify false statement [ c ]

a) fbeta & Ic exhibits a peak value of a particular ic.

b) unity gain band width Ft is the function of Ic

c)ft & Ic both are functions of f beta

d) Ft variation with Ic is similar to hfe variation with T

ans: [ C ]

31) during the mid band frequency the gain of amplifier is [ d ]

a) 1/(root 2) times Max value

b) min

c)unity

d) constant

ans: [ D ]

32) bandwidth of an amplifier with lower & higher cutoff frequency Fl & Fh .& quantity factor Qis [ a ]

a) Fh - F l

b) Fh/ q

c) (Fh-Fl)/1.414

d) q-Fl

ans: [ A ]

33) identify the expression for voltage gain CD & fet amplifier at low frequency

[ b ]

a) -gm rd Rl /(rd + Rl)

b) gm rd Rl / ( rd +Rl+ gm rd Rl)

c) gm rd Rl /(rd + Rl)

d) Rl || rd / (1+ gm rd)

ans: [ B ]

34) the transconductance gm of a transistor depend on

[ b ]

a) temperature

b) operation frequency

c) CE voltage d) C c

ans : [ B ]

35) ft for a ce amplifier is defined as

[ b ]

a) the frequency at which the CE current gain falls to half its Max value

b) frequency at which CE current gain becomes unity

c) frequency at which CE voltage gain falls to half its Max value

d) frequency at which CE voltage gain becomes unity

36) the capacitance determining the corner frequency lag network at the i/p of CE amplifier is

[ b ]

a) miller i/p capacitor

b) c wiring

c) external capacitor at the base

d)cbe

ans: [ B ]

37) if Av is the voltage gain of an amplifier in db & Ai is its current gain in db then power gain of

amplifier in db is [ d ]

a) Av- Ai

b) Av/ Ai

c)10log 10 Av/ Ai

d) Av+Ai

ans : [ D ]

38) at frequency below lower cut off frequency in CE amplifier coupling capacitor at the base of

the amplifier form an LPF [ b ]

a) with emitter resistance

b) with i/p resistance

c) with o/p resistance

d) with base resistance

ans: [ B ]

39) advantage of impedance type inter stage coupling is

[ c ]

a) very wide band & frequency independent gain curve

b) flat response of frequency in mid band region

c) no dc voltage drop across collector load

d) no requirement of bulky components all frequency

ans: [ C ]

40) resultant phase shift of odd number of CE amplifier stages at mid band frequency is [ b ]

a) 3600

b)1800

c) 450

d) 900

41) lower cutoff & higher cut off frequency of an rc coupled amplifier are

[ c ]

a) both zero

b) both infinity

c) similar to of CE stage

d) zero& infinity

ans: [ C ]

42) higher cutoff frequency of transistor amplifier is mainly because of

[ a ]

a) inter electrode capacitance

b) bypass capacitance

c) blocking capacitance

d ) coupling capacitance

43) ratio of slopes of the gain curve of an amplifier below lower cutoff frequency & above cutoff

frequency is [ b ]

a) 3

b) unity

c)2

d) 6

ans: [ B ]

44) the capacitors that are short circuited at low frequencies in CE amplifier are

[ d ]

a) o/p coupling capacitors

b) i/p coupling capacitors

c) emitter bypass capacitors

d) inter electrode capacitor

ans:[ B ]

45) the critical capacitance that determines the overall cut off frequency of an amplifier is the

one which sees an equivalent resistance [ a ]

a) of minimum value

b) of Max value

c) of infinity value

d) equals to its reactance value at that frequency

ans: [ A ]

46) distortion in amplifiers due to unequal amplitude gains at different frequencies is referred to

as [ c ]

a) phase shift distortion

b) amplitude distortion

c) frequency distortion

d) delay distortion

ans : [ C ]

47) slope of the gain curve of an amplifier below cut off frequency is

[ a ]

a) -20 db decade

b) 6 db decade

c)-6 db decade

d) 20 db decade

ans : [ A ]

48) the CE short circuit current gain in db at frequency f = Ft is

[ d ]

a) hfe/1.414

b) unity

c) hfe

d)zero

ans: [ D ]

49). Phase difference between o/p and i/p voltages of a transistor amplifier at lower cut off

frequencies is

a)180 b) 45 c) 0 d) 90

Ans: (b)

50) All frequencies below lower cut off frequency in a CE amplifier, the coupling capacitor at the base of the amplifier forms a LPF

a)with RE b)Rip c)RB d)Rop

Ans: (b)

51) Phase reversal between i/p & o/p signal voltages occurs in

a) common base amplifier

b) common drain amplifier

c) common gate amplifier

d) common source amplifier

52) FET amplifier configuration , which is similar to CC BJT is

[ b ]

a) common gate amplifier

b) common drain amplifier

c) common source amplifier

d) swamped source resistor amplifier

ans:[ B ]

53) phase difference between o/p voltage &i/p voltage of a CG amplifier at mid band frequencies

[ b ]

a) 1800

b) 00

c) 450 d) 900

ans : [ B ]

54) Voltage gain of a given CS FET depends on its

a)Dynamic drain resistance b)i/p impedance

c) Amplification factor d)Drain load resistance

Ans: (d)

55). Resultant phase shift of even no of CG amplifier stages at higher cut off frequencies is

Ans: Sum of phase shift introduced by individual stages.

56) Phase relationship between o/p and i/p voltage of a CS amplifier for frequency below lower

cut-off frequency is

(a) both are in phase

(b) o/p lags i/p

(c) output leads i/p

(d) both are 180◦ out of phase

Ans: (c)

57). The phase relationship between output and input voltages of a CS amplifier for frequency

above higher cut off frequency is

a) both are 180 degrees out of phase

b) output leads input

c) both are in phase

d) output lags input

Ans: (d)

Unit 2, 3&4:

1) Non-linear distortion is maximum in

a) class

B mode

b) class A mode

c) class AB mode

d) class C mode

2) final stage of multistage amplifier is generally a) a

pre-amplifier

b) a voltage post amplifier

c) a power amplifier

d) a microphone amplifier

3) Max conversion efficiency of a series fed class A power amplifier is

a) 75

b) 100

c) 50

d) 25

4) even harmonics are not present in the o/p of

a) class A transformer coupled amplifier

b) class c amplifier

c)class A amplifier

d) class B push pull amplifier

5) Even harmonics in the o/p are connected in push - pull configurations only if

[ a ]

a) both transistors are perfectly matched

b) both NPN & PNP transistors are used

c) A phase inversion is not used at inputs of 2 transistors

d) two power supplies are used

ans:[ A ]

6) i/p signals swing in class A power amplifier is restricted to

[ d ]

a) a small portion around Q point in active region

b) entire portion around Q point in saturation

c) entire portion around Q point in cutoff

d) entire portion around Q point in active

ans: [ D ]

7) transistor in class C amplifier is based beyond cutoff region to

[ b ]

a) ensure reduced distortion of o/p signal

b) ensure conduction angle of less than 1800

c) ensure conduction angle of transistor for entire i/p cycle

d) ensure o/p wave shape to the replica of i/p wave shape

ans: [ B ]

8) increased conversion efficiency in class B over class A operation is mainly due to

[ b ]

a) elimination of all higher harmonics

b) elimination of dc current in the load

c) usage of single power supply

d) elimination of cross over distortion

ans: [ B ]

9). The frequency at which CE is short circuit current gain becomes unity is represented

by\_\_fT\_\_\_\_\_\_\_

71. Non linear distortion is maximum in

a) Class B mode a) Class A mode

a) Class AB mode d) a) Class C mode

Ans: (b)

10). Even harmonics are not present in the o/p of Class B push pull amplifier. 11) Cross over distortion in class B amplifier is due to

(a) finite cut-off voltage of the two transistors

(b) non-identical behaviour of the two transistors

(c) elimination of two power supplies in the circuit

(d) elimination of even harmonics in the o/p

impedance

Unit 5

1. A parallel tuned circuit is also known as

a. matched circuit b. notch circuit

c. resonant circuit

d. anti resonant circuit

2. In tuned amplifiers equivalent circuits, the model used for transistor is a. hybrid - π

b. Thevinen's

c. y parameter d. z parameter

3. What factors govern the selectivity of a single tuned amplifier ?

a. resonant frequency and gain

b. quality factor and bandwidth

c. quality factor and gain d. gain and bandwidth

4. The harmonic distortion of an ideal tuned amplifier is

a. unity

b. zero

c. infinity

d. depends on tuned circuit

5. Higher quality factor of a single tuned amplifier provides a

a. higher selectivity and bandwidth b. smaller selectivity and bandwidth

c. higher selectivity and smaller bandwidth

d. smaller selectivity and higher bandwidth

6. The function of tuned circuit in Tuned Amplifier is

a. allows only dc signal

b. reject dc and allow all frequencies

c. selecting a particular frequency and rejecting all other frequencies

d. passing all frequencies

7. In tuned amplifiers, harmonic distortion is very small because, at these frequencies

a. the impedance is high and gain is low b. the impedance is low and gain is high

c. the impedance and gain of the amplifier becomes high

d. the impedance and gain of the amplifier becomes negligible 8. If the quality factor of a resonant circuit of tuned amplifier is doubled then the bandwidth is

a. doubled b. same

c. halved

d. zero

9. The Band width of an ideal tuned amplifier is

a. unity

b. zero

c. infinity

d. depends on tuned circuit

10. The drawbacks of a single tuned amplifier are

a. wider bandwidth and the sides of gain versus frequency curve are steeper

b. wider bandwidth and the sides of gain versus frequency curve are not steeper

c. narrow bandwidth and the sides of gain versus frequency curve are not steeper

d. narrow bandwidth and the sides of gain versus frequency curve are steeper

11. The tapping of inductance of tuned circuit of a tapped single tuned capacitance coupled amplifier

a. increases the impedance of resonant circuit b. increases the operating frequency

c. increases the resonant frequency

d. reduces the impedance of resonant circuit

12. In the tapped single tuned capacitance coupled amplifier the output voltage when the coil is tapped a. (1-n) times of the voltage developed across the complete coil

b. n times of the voltage developed across the complete coil c. same as the voltage developed across the complete coil

d. half of the voltage developed across the complete coil

13. Tapping in the LC tuned circuit is used to

a. reduce the impedance of the LC circuit to match the low impedance of the CE amplifier

b. increase the impedance of the LC circuit to match the low impedance of the CE amplifier c. reduce the impedance of the LC circuit to match the high impedance of the CE amplifier d. increase the impedance of the LC circuit to match the high impedance of the CE amplifier

15. The tapping point in a tapped single tuned capacitance coupled Amplifier divide the inductance L into two part such that

a. L1= 2L and L2 = L/2

b. L1= ( n-1)L and L2 = (1-n)L

c. L 1=nL and L 2 = (1-n)L

d. L1=n/L and L2 = (1-n)/L

16. The gain bandwidth product of a single tuned capacitive couple amplifier is

a. depends on transconductance and independent on total input circuit capacitance

b. depends on both transconductance and total input circuit capacitance

c. independent on both transconductance and total input circuit capacitance d. independent on transconductance and dependent on total input circuit capacitance

17. The LC tuned circuit of single tuned capacitive coupled amplifier is not connected between collector and ground because

b. inductor

c. transistor collector

d. capacitor

18. In a single tuned transformer coupled amplifier, the output is taken by

a. capacitive coupling b. inductive coupling c. resistive coupling

d. frequency coupling

19. The sharpness of the frequency response curve if the transformer coupled amplifier is depends on the

a. impedance of the tuned circuit

b. resonance frequency of tuned circuit c. the gain of the transistor

d. quality factor of the tuned circuit

20. In a single tuned transformer coupled amplifier the output of the tuned circuit is coupled to the next stage or

output device through a

a. resistor

b. inductor

c. transistor collector

b. single tuned resistive coupled amplifier

c. Inductively coupled amplifier

d. single tuned capacitive coupled amplifier

21. In a single tuned transformer coupled amplifier the matching between two stages is done by

a. coil tapping

b. using pad circuits

c. capacitively coupled circuit

d. the transformer turns ratio

22. In a single tuned transformer coupled amplifier, under conditions of maximum transform of power, total resistance appearing is shunt with the coil equals

a. R02

b. R0/2

c. R0

d. 2R0