Analog Electronic & Op-Amp

4th sem/EE Full mark-80

(Set-3)

No1. Answer all question [2×10]

(a) Define oscillator. classify the different types of oscillator.

b) Define passive and active filters.

c) Define amplifier and give the classification of amplifier.

d) Define stability factor.

e) what is peak inverse voltage.

f) what is PIV of a diode?

g) what is band width of an amplifier.

h) Draw the symbol of op-amplifier.

i) Define CMRR in op-amp.

j) what do you understand by Donor and acceptor impurities?

No2 Answer six of the following questions. [6×6]

(a) Discuss the limitations in operating conditions of p-n Junction.

b) Prove that for CE transistor in active region, collection current is given by $I_C = I'_B + (1+\beta) I_{CO}$

c) Explain the operation of crystal oscillator with help of diagram.

d) with the diagram explain how an op-amp can be used as integrator and adder.

e) Discuss briefly about Transformer coupled amplifier.

f) what is filter? Explain different type filters.

Q03 with neat diagram explain working of a push pull amplifier, what are its advantages?

Q04 Describe construction and principle of working of JFET with neat diagram.

Q05 Describe the construction and working principle of a full wave bridge rectifier, what are the advantage and disadvantage over half wave rectifier.

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set-4

No1 Answer all questions (2×10)

(a) Draw the energy band diagram of conductor.
b) Draw the common emitter configuration of a transistor.
c) what do you mean by biasing of transistor.
d) what do you mean by Ripple factor.
e) write the name of three terminals of a JFET
f) write the application of UJT.
g) what is faithfull amplification?
h) write the symbol of op-amplifier.
i) Define knee voltage & breakdown voltage.
j) what is filters

No2 Answer six. (6×6)

(a) with neat sketch describe the working of bridge rectifier.
b) Draw the V-I characteristics of zener diode and how it is used as a voltage regulator.
c) Explain, how the operational amplifier can be used as differentiator and comparator.
d) Explain the principle of working of a Tunel diode.
e) Describe the different energy bands conduction in metal.
f) Explain the characteristics of a P-n Junctiondiode

No3 with neat sketch describe the operation of the R-C coupled amplifier and describe its frequency response.

No4 Describe the operation of the phase shift oscillator, write the expression for frequency of oscillation.

No5 Define the terms (i) input offset voltage (ii) Input bias current (iii) CMRR (iv) slew rate of an opamp.

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Set 5

No1. answer all question:(**2×10)**

a) what is PIV of a diode?
b) what is band width of a amplifier?
c) what is op-amp?
d) what is breakdown voltage?
e) draw the symbol of NPN and PNP transistor?
f) what do you mean by biasing of a transistor?
g) what is rectifier?
h) which type of coupling used in the final stage of an multistage amplifier circuit?
i) compare p channel and n channel MOSFET s?
j) draw the block diagram of a LC oscillator?

No2 .answer six (5×6)

a) explain how can op-amp can be used as adder?
b) write short note on crystal oscillator?
c) what is p type semiconductor and how it is formed?
d) discuss operating of a choke input filter?
e) discuss operation of single jinnat regulator circuit?
f) with help of diagram write operation of CE amplifier using NPN transistor?

No3.with help of necessary diagram explain operation of a bridge rectifier and find out its efficiency. (10)

No4. explain with circuit diagram how op-amp can be used as differentiator and integrator circuit.

(10)

No5. What is oscillator? Explain working principle of Wien bridge oscillator. (10)