SAMPLE QUESTION FOR ACADEMIC YEAR-2022-23

SUB: ANALOG ELECTRONICS AND OPAMP

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P-N JUNCTION DIODE

SHORT QUESTIONS

1. Define knee voltage.
2. What do you mean by depletion layer?
3. Write two points from each zener breakdown & avalanche break down.
4. Define clamping circuit & clipping circuit.
5. Why silicon is preferred to make semiconductor.
6. What is doping ? why necessary.
7. What do you mean by ideal diode?

LONG QUESTIONS

1. Explain the difference between zener breakdown & avalanche breakdown.
2. Describe the operation of different types of clipping & clamping circuit with proper diagram.
3. Explain the construction and working of a p-n junction diode in forward & reverse bias condition.

SPECIAL SEMICONDUCTOR DEVICES

SHORT QUESTION

1. What arte Thermistor?
2. What will happen if a zerer diode is used in forward biased condition?
3. Define PIN diode & where it is used?
4. What is Sensor?

LONG QUESTIONS

1. How zener diode is used as a voltage regulator? Explain.
2. Explain working of tunnel diode & draw it's characteristics curve.

RECTIFIER CIRCUITS & FILTERS

SHORT QUESTION

1. Define Peak inverse voltage. In case of centre tapped rectifier what is the value of PIV?
2. What are the disadvantages of centre tapped rectifier?
3. Define transformer utilization factor.
4. What is filter & where it is used?

LONG QUESTIONS

1. Derive an expression for the efficiency of a half wave rectifier.
2. Explain briefly shunt capacitor filter, choke input filter & π filter.
3. Derive the expression for rectifier efficiency of a full wave bridge rectifier with diagram.
4. With neat circuit diagram describe the working principle of full wave bridge rectifier. What is the efficiency and ripple factor of a full wave rectifier?

TRANSISTORS

SHORT QUESTION

1. Define current components in a transistor.
2. Among the three configuration which has lowest input impedance & highest output impedance?
3. Among CE,CB & CC which has high input impedance and low output impedance?
4. Which is the commonly used transistor configuration?
5. Which configuration has least voltage gain?
6. What are the different modes of operation of transistor?
7. What do you mean by faithful amplification?

LONG QUESTIONS

1. Explain about the current components of transistor?
2. State different configurations of transistor with neat circuit diagram.
3. Define α, β & γ. Establish the relation between them.
4. With neat circuit arrangement explain the input & output characteristics of common emitter transistor configuration.

TRANSISTOR CIRCUITS

SHORT QUESTION

1. What is the need of biasing?
2. Define the term stabilisation.
3. Define stabilisation & stability factor.
4. Why stabilisation of operating point is required in transistor circuit?
5. Define DC load line.

LONG QUESTIONS

1. State the difference between base resistor method & collector to base biasing of transistor with neat diagram.
2. Explain voltage divider biasing of Transistor with neat circuit diagram.

TRANSISTOR AMPLIFIERS & OSCILLATORS

SHORT QUESTION

1. Write the type of oscillators.
2. List the difference between voltage amplifier and power amplifier.
3. What is Barkhausen condition for sustained oscillation?
4. Define h-parameter of Transistor.
5. Define an oscillator & where it is used?
6. Write the advantages of push-pull amplifier.
7. What are the essentials of Transistor oscillator.

LONG QUESTIONS

1. Explain the essentials of Transistor oscillator.
2. Explain the principle of operation of Hartley oscillator with neat diagram.
3. Explain the principle of operation of phase shift oscillator with neat circuit diagram.
4. Wright short note on Transistor circuit using H-parameters.
5. Explain negative feedback in amplifier. State it's advantages.
6. Draw the practical circuit of transistor amplifier with it's input waveform. Explain it's working.
7. Draw the circuit of transformer coupled amplifier. Explain it's advantages.
8. Derive the expression for voltage gain of negative feedback transistor amplifier.
9. Write the principle of operation of Wein-bridge oscillator with neat circuit diagram.
10. Explain the working of a complementary symmetry amplifier with circuit diagram.

FIELD EFFECT TRANSISTOR

SHORT QUESTION

1. Why FET is called unipolar device.
2. State uses of FET.
3. What is transconductance in case of an FET?

LONG QUESTIONS

1. What are the differences between BJT & FET.
2. State advantages of FET over BJT, Define biasing in FET.

OPERATIONAL AMPLIFIERS

SHORT QUESTION

1. What is OP-AMP?
2. Draw the equivalent circuit of an OP-AMP.
3. Draw the pin diagram of OP-AMP.
4. Explain the characteristic of ideal OP-AMP.
5. Define CMRR & slew rate.

LONG QUESTIONS

1. Describe the stages of operational amplifier.
2. Explain the working of integrator circuit using operational amplifier.
3. Write short note on voltage follower.
4. Explain the working principle of differentiator circuit using operational amplifier.
5. Explain the working of summing amplifier using operational amplifier.
6. Explain voltage follower & comparator using OPAMP.
7. With circuit diagram explain the working of inverting & non-inverting amplifier usingOPAMP.