Electronics Device and Circuit

Model question 1

Group A

- 1. What is matter?
- 2. Give any two examples of passive components.
- 3. What is rectifier?
- 4. Write the types of BITs.
- 5. Draw the symbol of unijunction transistor.
- 6. What is the full form of IGFET?
- 7. Write energy gap values of silicon and germanium.

Group B

- 8. State Ohm's law.
- 9. Explain the types of semiconductor.
- 10. Define passive component.
- 11. What do you mean by photo-transistor?
- 12. Write short notes on classification of rectifiers.
- 13. Write one application each of KVL and KCL.
- 14. Write any two application of capacitor.
- 15. How does diode act as one way switch?
- 16. Write any two uses of LED.
- 17. What are the requirements to be fulfilled in order to use zener diode as voltage regulator?
- 18. What are the applications of UNT? Write any two of them.
- 19. How can BJT be used as switch?
- 20. Why is FET unipolar?
- 21. Write any two applications of JFET.
- 22. Find the resistance and capacitance of following resistors and capacitors. Als express the value of capacitor in mF and F.



- 23. Classify solid matters on the basis of electrical conductivity and explain the classification with appropriate diagrams.
- 24. Classify field effect transistors. Write difference between E MOSFET and D MOSFET.
- 25. Find the equivalent resistance of the circuit given below and also find the total current.



- 26. Describe the working of bridge rectifier.
- 27. Explain the working of PN junction with necessary figure.
- 28. How does NPN transistor operate?

Pre SEE question set 2

Group A

- 1. Define electric current.
- 2. What is capacitor?
- 3. What is extrinsic semi-conductor? Mention its types.
- 4. What is rectifier? Mention its types.
- 5. What is the full form of LDR?
- 6. What is the full form of UJT?
- 7. What are the types of MOSFET?

Group B

- 8. Differentiate between AC and DC.
- 9. Calculate the value of I.



10. Calculate the value of given resistor.



The last band is of silver...

- 11. Define variable resistor. Draw its symbol.
- 12. Write the formula to calculate equivalent capacitance of a circuit when capacitors are connected in series and parallel.
- 13. What is photo diode? Write any two applications.
- 14. Draw the symbol of Varactor diode. Write any two applications of varactor diode.
- 15. What do you mean by majority charge carriers? What is the majority charge carrier in the case of P-type Semiconductor?
- 16. What do you mean by barrier potential? What is the barrier potential for silicon?
- 17. Write two limitation of half wave rectifier.
- 18. Why do we need rectifier in practical life.
- 19. Why transistor is called current control device?

- 20. What do you mean by forward biasing?
- 21. What is FET? What are its types?

Group C

22. State ohm's law. Calculate the I, I_1 and I_2 in the give circuit.



23. Calculate equivalent capacitance in the given circuit between A and B.



24. Calculate the maximum and minimum value of zener current flowing through given circuit below.



- 25. How is depletion layer formed in a PN junction? Explain.
- 26. List the type of connection of BJT. Draw the circuit for common base connection.
- 27. Differentiate between DE MOSFET and E-only MOSFET.
- 28. Explain the working principle of NPN transistor.

2072 SLC question set 3

Group A

- 1. Draw a symbol of fixed resistor.
- 2. Why silicon and germanium are widely used in semiconductor materials?
- 3. Define doping.
- 4. What types of charges are present on the two opposite faces of junction?
- 5. Name the breakdown mechanism in a lightly doped P-N junction under reverse biased condition.

6. Name the symbol shown below.



7. Write down the full form of DMOSFET.

Group B

- 8. State Ohm's Law with its equivalent circuit diagram.
- 9. Find the color code for resistor $180\Omega \pm 5\%$.
- 10. Define capacitor and list the different types of capacitor.
- 11. How is an extrinsic N-type semiconductor formed? Draw its figure.
- 12. Define varactor diode. Write any two areas where it is used.
- 13. With suitable diagram, explain forward biasing.
- 14. Why is a zener diode used as a voltage regulator?
- 15. What is meant by rectifier? What are its types?
- 16. Why is the CE configuration most popular in amplifier circuits?
- 17. Define the saturation and cut off region in a transistor.
- 18. Draw the input characteristics for common base NPN transistor.
- 19. Write down the full form of PUT and draw its basic structure.
- 20. Write down any two applications of FETs.
- 21. Why MOSFET is sometimes called IGFET?

Group C

- 22. Write down any five differences between alternating and direct current.
- 23. Explain the construction and working principle of wire-wound resistors.
- 24. Explain the V-I characteristics of typical silicon and germanium zener diode.
- 25. For the circuit shown in figure, find
 - a. The output voltage
 - b. The voltage drop across Rs
 - c. The current through zener
 - d. The power dissipated



- 26. Draw a full wave bridge rectifier circuit and explain its operation.
- 27. Prove that $\propto = \frac{\beta}{\beta+1}$ where α and β have their usual meaning.
- 28. Enhancement type MOSFET sf] agf]6 / sfo{sf] JofVof ug'{xf];.

SEE Exam 2071 question set 4

Group A

- 1. What is conductor?
- 2. What is capacitor?
- 3. What is meant by intrinsic semiconductor?
- 4. What is the output frequency of full-wave rectifier?
- 5. How many PN junctions are there in a BJT?
- 6. What is the full form of UJT?
- 7. What are the types of MOSFET?

Group B

8. Calculate the value of I in the given circuit below.



- 9. State KVL.
- 10. Define variable resister. Draw its symbol.
- 11. Write the formula to calculate equivalent capacitance of a circuit when capacitors are connected in series and parallel.
- 12. Define hole.
- 13. What do you mean by forward biasing?
- 14. Label the following diagram.



- 15. What is the full form of LED. Draw its symbol.
- 16. What is full-wave rectifier? What are its types?
- 17. Write two limitations of half wave rectifier.
- 18. Draw symbols for PNP and NPN transistors.
- 19. Why BJT is called bipolar?
- 20. Calculate the value of given resistor.



21. FET is called voltage controlled device. Why?

22. State Ohm's law. Calculate the current flowing in the given circuit.



23. Calculate the equivalent resistance in given circuit between A and B.



- 24. What is zener diode? Draw its characteristic curve and explain.
- 25. How is depletion layer formed in a PN junction? Explain.
- 26. List the type of connection of BJT. Draw the circuit for common base communication.
- 27. Explain working of half-wave rectifier with neat diagram.
- 28. What are the differences between FET and BJT?
- 29. Explain working principle of NPN and PNP transistor.

SEE 2073 set 5

Group A

- 1. What is the radius of electron?
- 2. Draw a symbol for variable type capacitor.
- 3. What is forbidden energy gap?
- 4. Define rectifier.
- 5. Write down the two different types of transistor.
- 6. What is the full form of UJT?
- 7. How would define 'Source' in FET?

Group B

- 8. State Ohm's law.
- 9. Define frequency and also write its SI unit.
- 10. Give the color code which would be used to identify the composition of resistor having value $7500\Omega\pm20\%$.
- 11. What is capacitor? Convert 1 micro-micro farad into farad.
- 12. Enlist any four elements included in group IV of modern periodic table.
- 13. What is P-N junction?
- 14. What are the charge carriers in N-type and P-type semiconductors?
- 15. What is doping? Why is it necessary?
- 16. Why is step-down transformer used in the rectification process?
- 17. Write any two advantages of half wave rectifier.
- 18. What are the three modes of operation of a BJT?
- 19. Define phototransistor. Draw a standard symbol of phototransistor.

- 20. Why term 'programmable' is applied in PUT?
- 21. MOSFET is sometimes called IGFET, Why?

Group C

- 22. Differentiate between direct current and alternating current with five points.
- 23. Explain the construction and working principle of carbon composition register.
- 24. What is forward-biasing and reverse biasing of a diode? Draw the V-I characteristics curve for a P-N diode.



The End