Industrial Electronics and Control of Drives

1 Mark Questions with Answers (Unit-wise)

Diploma in Electrical Engineering (NSQF Level 5), HSBTE, Industrial Electronics and Control of Drives. Exams covered: Feb 2022, July 2022, Feb 2023, July 2023, Jan 2024, July 2024, Dec 2024, May 2025, May 2026.

Answers to MCQs are written as the correct option's text, because the order of options changes from paper to paper. Where wording differed between years, versions are merged with "/".

Unit I: Introduction to Thyristors

Q1. Define commutation. / What is commutation? *(Unit I, Exam July 2022, Feb 2023, July 2023, July 2024, May 2025)*
Ans: The process of turning OFF a conducting thyristor.

Q2. An SCR is a ___ layer, ___ junction device. / SCR has ___ p-n junctions: (a) Two (b) Three (c) Four (d) Five *(Unit I, Exam Feb 2022, July 2022, Jan 2024, May 2026)*
Ans: Four layer, three junction (three p-n junctions).

Q3. A UJT has ___ pn junction(s): (a) One (b) Two (c) Three (d) None of the above *(Unit I, Exam Feb 2022, July 2023, July 2024, May 2025)*
Ans: One.

Q4. A TRIAC is a ___ switch: (a) Unidirectional (b) Mechanical (c) Bidirectional (d) Omnidirectional/Four directional *(Unit I, Exam July 2022, May 2025, May 2026)*
Ans: Bidirectional.

Q5. If the firing angle in an SCR rectifier is decreased, the output is: (a) Increased (b) Decreased (c) Maximum (d) Remains unaffected *(Unit I, Exam Feb 2023, July 2023, May 2025)*
Ans: Increased.

Q6. Name any one/two members of the thyristor family. *(Unit I, Exam Feb 2023, Jan 2024, May 2025)*
Ans: SCR and TRIAC (DIAC, GTO and SCS also belong to the family).

Q7. The value of latching current is more than the holding current. (True/False) *(Unit I, Exam Jan 2024, Dec 2024, May 2026)*
Ans: True.

Q8. A UJT is a ___ terminal device: (a) Two (b) Three (c) Four (d) Five *(Unit I, Exam July 2022, Dec 2024)*
Ans: Three (emitter, base 1 and base 2).

Q9. Draw the symbol of DIAC (and list one application). *(Unit I, Exam July 2022, Feb 2023)*
Ans: Two diode triangles placed back to back (anti-parallel) between MT1 and MT2, with no gate. Application: triggering a TRIAC.

Q10. An SCR is a ___ switch: (a) Unidirectional (b) Bidirectional (c) Three directional (d) Four directional *(Unit I, Exam Feb 2023, Dec 2024)*
Ans: Unidirectional.

Q11. The most suitable method to turn on an SCR is: (a) Gate triggering (b) Forward voltage triggering (c) Temperature triggering (d) dv/dt triggering *(Unit I, Exam Feb 2023, July 2024)*
Ans: Gate triggering.

Q12. The SCR is turned off when the anode current falls below: (a) Break over voltage (b) Forward current rating (c) Latching current (d) Holding current *(Unit I, Exam July 2023, May 2025)*
Ans: Holding current.

Q13. Material used for making heat sinks: (a) Zinc (b) Aluminium (c) Nickel (d) All of these *(Unit I, Exam July 2023, July 2024)*
Ans: Aluminium.

Q14. Define/State latching current. *(Unit I, Exam July 2023, July 2024)*
Ans: The minimum anode current needed to keep the SCR ON just after the gate pulse is removed.

Q15. List/State any one application of DIAC. *(Unit I, Exam July 2023, July 2024)*
Ans: Triggering of TRIAC (also light dimmers and fan regulators).

Q16. A DIAC is a ___ device: (a) Self heating (b) Bidirectional (c) Tri-directional (d) None of these *(Unit I, Exam July 2024, May 2026)*
Ans: Bidirectional.

Q17. A DIAC is used as triggering agent for TRIAC. (True/False) *(Unit I, Exam July 2024, Dec 2024)*
Ans: True.

Q18. A thyristor (SCR) is a: (a) Current controlled device (b) Bilateral device (c) Voltage controlled device (d) None of the above *(Unit I, Exam Dec 2024, May 2026)*
Ans: Current controlled device.

Q19. The output voltage of a controlled rectifier is maximum when firing angle is ___: (a) 120° (b) 60° (c) 0° (d) 90° *(Unit I, Exam Dec 2024, May 2026)*
Ans: 0°.

Q20. A TRIAC can pass a portion of ___ half cycle through the load: (a) only positive (b) only negative (c) both positive and negative (d) None of the above *(Unit I, Exam Feb 2022)*
Ans: Both positive and negative half cycles.

Q21. A UJT exhibits negative resistance characteristics when: (a) current is less than valley current (b) current is less than peak current (c) current is more than peak but less than valley current (d) None of the above *(Unit I, Exam Feb 2022)*
Ans: Current is more than the peak current but less than the valley current.

Q22. In normal operation, the anode of an SCR is kept ___ w.r.t. cathode: (a) Negative (b) Positive (c) At zero potential (d) At infinite potential *(Unit I, Exam Feb 2022)*
Ans: Positive.

Q23. A DIAC is simply a ___ device: (a) single junction (b) three junction (c) triac without a gate terminal (d) none of the above *(Unit I, Exam Feb 2022)*
Ans: TRIAC without a gate terminal.

Q24. The value of firing angle cannot be more than ___: (a) 90° (b) 120° (c) 180° (d) 270° *(Unit I, Exam Feb 2022)*
Ans: 180°.

Q25. What is the full form of SCR? *(Unit I, Exam Feb 2022)*
Ans: Silicon Controlled Rectifier.

Q26. What is the need to connect SCRs in series and parallel? *(Unit I, Exam Feb 2022)*
Ans: Series connection is used for high voltage ratings and parallel connection for high current ratings.

Q27. What is TRIAC? *(Unit I, Exam Feb 2022)*
Ans: A three-terminal, bidirectional AC switch (a triode for AC) that can conduct in both directions when triggered at its gate.

Q28. Define the term firing angle. *(Unit I, Exam Feb 2022)*
Ans: The angle (measured from the start of the positive half cycle) at which the SCR is triggered into conduction.

Q29. A UJT is mainly used as: (a) controlled rectifier (b) uncontrolled rectifier (c) timing circuit for triggering of SCRs (d) controlled rectifier and triggering of SCRs *(Unit I, Exam July 2022)*
Ans: Timing circuit for triggering of SCRs.

Q30. What is the full form of UJT? *(Unit I, Exam July 2022)*
Ans: Uni-Junction Transistor.

Q31. What do you mean by heat sink? *(Unit I, Exam July 2022)*
Ans: A metal (usually aluminium) body fitted to a thyristor to carry away the heat produced inside it and keep its junction temperature safe.

Q32. Define the term string efficiency. *(Unit I, Exam July 2022)*
Ans: For series-connected SCRs: string efficiency = (rated voltage of the string)/(number of SCRs × voltage rating of one SCR).

Q33. Give the advantages of TRIAC. *(Unit I, Exam July 2022)*
Ans: It conducts in both directions, needs only one gate circuit, and is cheaper and smaller than two SCRs in anti-parallel.

Q34. SCRs are connected in parallel to fulfil the ___ demand: (a) High voltage (b) High current (c) Size (d) Efficiency *(Unit I, Exam Feb 2023)*
Ans: High current.

Q35. A DIAC is turned on by: (a) Breakover voltage (b) Gate current (c) Gate voltage (d) None of the above *(Unit I, Exam Feb 2023)*
Ans: Breakover voltage.

Q36. List any one application of TRIAC. *(Unit I, Exam Feb 2023)*
Ans: Fan regulator (also light dimmer, AC motor speed control).

Q37. In the SCR structure the gate terminal is located: (a) Near the anode (b) Near the cathode (c) In between anode and cathode (d) None of the above *(Unit I, Exam July 2023)*
Ans: Near the cathode terminal.

Q38. Draw the symbol of SCR. *(Unit I, Exam July 2023)*
Ans: A diode symbol (triangle and bar) with anode (A), cathode (K) and a gate (G) terminal at the cathode end.

Q39. Define UJT. *(Unit I, Exam July 2023)*
Ans: A three-terminal (E, B1, B2) single p-n junction device that shows negative resistance and is used for triggering SCRs.

Q40. Intrinsic stand-off ratio (η) of UJT is given by η = (a) VB/VBB (b) VBB/VB (c) VBB – VB (d) VB – VBB *(Unit I, Exam Jan 2024)*
Ans: VB/VBB (equal to RB1/(RB1 + RB2)).

Q41. A DIAC can be fired: (a) only by negative half cycle (b) only by positive half cycle (c) by both positive and negative half cycle (d) without any biasing voltage *(Unit I, Exam Jan 2024)*
Ans: By both positive as well as negative half cycle of the supply.

Q42. The value of ON state voltage of an SCR is approximately: (a) 100 V (b) 500 V (c) 50 V (d) 4 C (as printed) *(Unit I, Exam Jan 2024)*
Ans: About 1 to 1.5 V in practice (the options printed in the paper are unclear).

Q43. Draw the symbol of TRIAC. *(Unit I, Exam Jan 2024)*
Ans: Two thyristor triangles connected anti-parallel between MT1 and MT2, with a gate (G) terminal.

Q44. Define di/dt rating of SCR. *(Unit I, Exam Jan 2024)*
Ans: The maximum rate of rise of anode current that an SCR can withstand without damage (in A/μs).

Q45. The turn ON time of an SCR is about ___ sec. *(Unit I, Exam Jan 2024)*
Ans: About 1 to 4 microseconds (μs).

Q46. Holding current is ___ than latching current: (a) More (b) Less (c) Equal to (d) None of these *(Unit I, Exam July 2024)*
Ans: Less.

Q47. A DIAC has ___ pn junctions: (a) Four (b) Two (c) Three (d) None of the above *(Unit I, Exam Dec 2024)*
Ans: Two (a DIAC is a three-layer, two-junction device).

Q48. Which of the following is not a characteristic of UJT? (a) Intrinsic stand-off ratio (b) Negative resistance (c) Peak-point voltage (d) Bilateral conduction *(Unit I, Exam Dec 2024)*
Ans: Bilateral conduction (a UJT conducts in one direction only).

Q49. The value of the holding current of an SCR is: (a) one fourth of its latching current (b) slightly less than its latching current (c) slightly more than its latching current (d) equal to its latching current *(Unit I, Exam Dec 2024)*
Ans: Slightly less than its latching current.

Q50. SCR is a unidirectional switch. (True/False) *(Unit I, Exam Dec 2024)*
Ans: True.

Q51. The value of latching current is less than holding current. (True/False) *(Unit I, Exam Dec 2024)*
Ans: False (latching current is higher than holding current).

Q52. Draw the symbol of UJT. *(Unit I, Exam Dec 2024)*
Ans: A bar with two base terminals (B1, B2) and an emitter (E) arrow drawn at an angle to the bar, pointing towards it.

Q53. Class D commutation is also known as ___ commutation. *(Unit I, Exam Dec 2024)*
Ans: Auxiliary (impulse) commutation.

Q54. What is the purpose of snubber circuit? *(Unit I, Exam Dec 2024)*
Ans: To protect the SCR from false triggering and damage due to high dv/dt (a series R-C network across the SCR).

Q55. The number of gates in a silicon controlled switch (SCS) is: (a) One (b) Two (c) Three (d) Four *(Unit I, Exam May 2025)*
Ans: Two.

Q56. A TRIAC can be triggered by gate pulse of ___ polarity. *(Unit I, Exam May 2025)*
Ans: Either polarity (positive or negative).

Q57. The process of turning OFF a thyristor is called ___. *(Unit I, Exam May 2025)*
Ans: Commutation.

Q58. A UJT is a: (a) Current controlled device (b) A relaxation oscillator (c) Voltage controlled device (d) None of the above *(Unit I, Exam May 2026)*
Ans: Voltage controlled device (it fires when the emitter voltage reaches the peak-point voltage); the paper's key is not available, so please check this one.

Q59. ___ can be used as a dc static switch: (a) GTO (b) Transistor (c) Both GTO & Transistor (d) TRIAC *(Unit I, Exam May 2026)*
Ans: Both GTO and transistor.

Q60. While conducting, the resistance of SCR is ___. *(Unit I, Exam May 2026)*
Ans: Very low (almost zero).

Q61. Latching current is related to: (a) Turn-on process of SCR (b) Turn-off process of SCR (c) Both (a) and (b) (d) None of the above *(Unit I, Exam May 2026)*
Ans: Turn-on process of SCR.

Unit II: Controlled Rectifiers

Q62. Define controlled rectifier. / What is a controlled rectifier? *(Unit II, Exam July 2024, May 2025, May 2026)*
Ans: A rectifier that uses thyristors (SCRs) so that the average dc output voltage can be varied by changing the firing angle.

Q63. A three phase full wave half controlled bridge uses: (a) 2 SCRs (b) 3 SCRs (c) 4 SCRs (d) 6 SCRs *(Unit II, Exam Jan 2024, Dec 2024)*
Ans: 3 SCRs (and 3 diodes).

Q64. A fully controlled converter uses: (a) Diodes only (b) Thyristors only (c) Both diodes and thyristors (d) None of these *(Unit II, Exam July 2024, May 2025)*
Ans: Thyristors only.

Q65. In a three phase full wave fully controlled bridge rectifier, the number of SCRs used is: (a) 3 (b) 4 (c) 5 (d) 6 *(Unit II, Exam Feb 2022)*
Ans: 6.

Q66. Why a fully controlled converter is called so? *(Unit II, Exam Feb 2022)*
Ans: Because all of its switching devices are thyristors, so the output can be fully controlled.

Q67. List any two advantages of three phase converters. *(Unit II, Exam July 2022)*
Ans: Higher output voltage with less ripple, and better utilisation of the transformer and supply.

Q68. Write the purpose of freewheeling diode. *(Unit II, Exam Feb 2023)*
Ans: It gives a path to the load current of an inductive load, prevents negative output voltage and improves the power factor.

Q69. A freewheeling diode is used in a controlled rectifier circuit in case of: (a) Capacitive load (b) Inductive load (c) Resistive load (d) All types of load *(Unit II, Exam Dec 2024)*
Ans: Inductive load.

Q70. List two applications of controlled rectifier. *(Unit II, Exam Dec 2024)*
Ans: DC motor speed control and battery charging (also electroplating and HVDC).

Q71. In a three-phase half wave 6-pulse mid-point type diode rectifier, each diode conducts for: (a) 120° (b) 90° (c) 60° (d) 180° *(Unit II, Exam May 2025)*
Ans: 60°.

Q72. In half wave rectifiers one switching device is used. (True/False) *(Unit II, Exam May 2025)*
Ans: True.

Q73. Full wave rectifiers allow power flow in both directions. (True/False) *(Unit II, Exam May 2026)*
Ans: False (a rectifier passes power in one direction only; reverse flow happens only when a fully controlled converter works as an inverter).

Q74. In a single phase half-wave circuit with RL load and a freewheeling diode, the load voltage during the freewheeling period will be: (a) Zero (b) Positive (c) Negative (d) Positive then negative *(Unit II, Exam May 2026)*
Ans: Zero.

Q75. A single phase full controlled bridge converter uses: (a) 4 SCRs and 2 diodes (b) 4 SCRs (c) 6 SCRs (d) 4 SCRs and 2 diodes *(Unit II, Exam May 2026)*
Ans: 4 SCRs.

Unit III: Inverters, Choppers, Dual Converters and Cyclo-Convertors

Q76. Define inverter. / What is the function of an inverter? *(Unit III, Exam July 2022, July 2023, July 2024, Dec 2024, May 2026)*
Ans: A circuit that converts dc power into ac power of required voltage and frequency.

Q77. An inverter converts: (a) AC to DC (b) DC to AC (c) DC to DC (d) AC to AC *(Unit III, Exam Feb 2022, Feb 2023, May 2025, May 2026)*
Ans: DC to AC.

Q78. A cycloconverter is a: (a) One stage power converter (b) One stage voltage converter (c) One stage frequency converter (d) None of the above *(Unit III, Exam Feb 2023, July 2023, July 2024, May 2025)*
Ans: One stage frequency converter.

Q79. A chopper circuit converts: (a) DC to DC (b) AC to DC (c) DC to AC (d) AC to AC *(Unit III, Exam July 2022, Dec 2024, May 2025)*
Ans: DC to DC.

Q80. The duty cycle of a chopper is expressed as ___: (a) Ton/(Ton + Toff) (b) Ton/Toff (c) Ton × (Ton + Toff) (d) Ton × Toff *(Unit III, Exam July 2022, May 2025, May 2026)*
Ans: Ton/(Ton + Toff).

Q81. A DC chopper controls the average (load) voltage by varying the: (a) Duty cycle / duration of Ton and Toff (b) Firing angle (c) Reactor position (d) Extinction angle *(Unit III, Exam Feb 2023, July 2023, Dec 2024)*
Ans: Duty cycle, i.e. the duration of Ton and Toff.

Q82. Dual converter can be operated in ___ quadrants: (a) One (b) Two (c) Three (d) Four *(Unit III, Exam July 2022, July 2024)*
Ans: Four quadrants.

Q83. Write two applications of cycloconverter. / The main application of cycloconverter circuits is found in ___. *(Unit III, Exam Feb 2023, May 2026)*
Ans: Ac drives (low speed, high power), e.g. cement mills and ship propulsion.

Q84. Class B chopper operates in ___ quadrant. *(Unit III, Exam July 2024, Dec 2024)*
Ans: Second quadrant.

Q85. Explain the term cycloconverter. / What is a cycloconverter? *(Unit III, Exam July 2024, May 2026)*
Ans: A converter that changes ac of one frequency directly into ac of a lower frequency, without a dc link.

Q86. A cycloconverter can be: (a) Step down (b) Step up (c) Step down or step up (d) Neither of the above *(Unit III, Exam Dec 2024, May 2025)*
Ans: Step down or step up.

Q87. Define chopper. / What is a chopper? *(Unit III, Exam May 2025, May 2026)*
Ans: A static device that converts a fixed dc voltage into a variable dc voltage by switching it ON and OFF rapidly.

Q88. Give applications of chopper circuit. *(Unit III, Exam Feb 2022)*
Ans: DC motor speed control, electric traction and battery vehicles, and regulated dc power supplies.

Q89. The voltage source inverter allows a variable frequency supply to be obtained from a ___ source: (a) ac (b) dc (c) both ac and dc (d) only positive ac *(Unit III, Exam July 2022)*
Ans: dc source.

Q90. In which quadrant class D chopper operates? *(Unit III, Exam Feb 2023)*
Ans: First and fourth quadrants.

Q91. Which device can be used in a chopper circuit? (a) BJT (b) MOSFET (c) GTO (d) All of the above *(Unit III, Exam July 2023)*
Ans: All of the above.

Q92. The single phase bridge type cycloconverter uses ___ number of SCRs: (a) Four (b) Eight (c) Six (d) None of the above *(Unit III, Exam July 2023)*
Ans: Eight.

Q93. Define duty cycle. *(Unit III, Exam July 2023)*
Ans: The ratio of ON time to the total time period of a chopper: D = Ton/(Ton + Toff).

Q94. A cycloconverter is a: (a) AC-DC converter (b) DC-AC converter (c) DC-DC converter (d) AC-AC converter *(Unit III, Exam Jan 2024)*
Ans: AC-AC converter.

Q95. A Class-E chopper can operate in: (a) 1st and 2nd quadrant (b) 2nd and 3rd quadrant (c) 1st and 4th quadrant (d) All the four quadrants *(Unit III, Exam Jan 2024)*
Ans: All four quadrants.

Q96. In a dual converter if one bridge operates in ___ mode then the other bridge operates in ___ mode. *(Unit III, Exam Jan 2024)*
Ans: Rectifying mode; inverting mode.

Q97. Harmonics in the output wave can be reduced by adjusting ___ of thyristors. *(Unit III, Exam Jan 2024)*
Ans: Firing angle.

Q98. A three phase to single phase bridge cycloconverter requires ___ thyristors. *(Unit III, Exam Jan 2024)*
Ans: 12 (two three-phase bridge groups of 6 SCRs each).

Q99. The main disadvantage of cycloconverter drives is that the output frequency is ___ of input frequency. *(Unit III, Exam Jan 2024)*
Ans: Only a fraction (limited to below about one third to one half).

Q100. In which quadrant class C chopper operates? *(Unit III, Exam July 2024)*
Ans: First and second quadrants.

Q101. What is series inverter? *(Unit III, Exam July 2024)*
Ans: An inverter in which the commutating L-C elements are connected in series with the load and thyristors.

Q102. The average output of a d.c. chopper is given by: *(Unit III, Exam Dec 2024)*
Ans: $V_0 = V_s \times T_{on}/(T_{on} + T_{off})$, i.e. duty cycle × Vs (the options are missing in the paper).

Q103. The output frequency of a cycloconverter can be varied by varying the ___ of thyristors. *(Unit III, Exam Dec 2024)*
Ans: Firing angle (the firing sequence).

Q104. Write two applications of dual converter. *(Unit III, Exam Dec 2024)*
Ans: Reversible dc drives (four quadrant speed control) and rolling mills/cranes.

Q105. The series inverter uses ___ type of commutation. *(Unit III, Exam May 2025)*
Ans: Load (resonant, class A) commutation.

Q106. Cycloconverters are used for generating high frequencies. (True/False) *(Unit III, Exam May 2025)*
Ans: False (they give low output frequency).

Q107. Find the output voltage of a step up chopper at duty cycle of 50% and Vs = 240 V: (a) 240 V (b) 480 V (c) 560 V (d) 120 V *(Unit III, Exam May 2026)*
Ans: 480 V ($V_0 = V_s/(1 - D) = 240/0.5$).

Q108. The commutation method in an inverter is: (a) Line commutation (b) Forced commutation (c) Either (a) or (b) (d) None of the above *(Unit III, Exam May 2026)*
Ans: Forced commutation.

Q109. A step down chopper can be used in: (a) Electric traction (b) Electric vehicles (c) Machine tools (d) All of these *(Unit III, Exam May 2026)*
Ans: All of these.

Unit IV: Thyristor Control of Electric Drives

Q110. Which method is used to control the speed of DC shunt motor above normal speed? (a) Armature voltage control (b) Flux control (c) Both (a) and (b) (d) None of the above *(Unit IV, Exam Feb 2023, July 2023, May 2025)*
Ans: Flux (field) control method.

Q111. Define electric drive. / What is an electric drive? *(Unit IV, Exam Feb 2023, July 2024, May 2025)*
Ans: A system that uses an electric motor with its control equipment to drive a mechanical load.

Q112. Field control method is used in DC motors to get: (a) Speed above normal speed (b) Speed below normal speed (c) Both (a) and (b) (d) None of the above *(Unit IV, Exam Jan 2024, Dec 2024, May 2026)*
Ans: Speed above normal speed.

Q113. Define AC drive. / What is an AC drive? *(Unit IV, Exam July 2022, May 2026)*
Ans: An electric drive in which an ac motor (induction or synchronous) is controlled by power electronic converters.

Q114. DC motors provide ___ starting torque. *(Unit IV, Exam May 2025, May 2026)*
Ans: High.

Q115. Armature control method is used in d.c. motors to get: (a) Constant speed (b) Speeds above normal (c) Speeds below normal (d) Both (b) and (c) / ... speed below ___. *(Unit IV, Exam May 2025)*
Ans: Speeds below normal (base) speed.

Q116. Speed of a motor ___ with increase in firing angle. *(Unit IV, Exam May 2026)*
Ans: Decreases.

Unit V: Power Converter Applications

Q117. Expand UPS. / UPS stands for ___. *(Unit V, Exam July 2022, Jan 2024, Dec 2024, May 2025, May 2026)*
Ans: Uninterruptible (Uninterrupted) Power Supply.

Q118. Expand SMPS. *(Unit V, Exam July 2022, Feb 2023, July 2024, Dec 2024, May 2025)*
Ans: Switch Mode Power Supply.

Q119. SMPS is used for: (a) Obtaining controlled ac power supply (b) Obtaining controlled dc power supply (c) Storage of dc power (d) Switching from one source to another *(Unit V, Exam July 2023, Dec 2024, May 2025)*
Ans: Obtaining controlled dc power supply.

Q120. The transfer time of an on-line UPS is: (a) zero (b) 5 sec (c) 10 msec (d) 50 msec *(Unit V, Exam Feb 2022)*
Ans: Zero.

Q121. The ___ UPS is also called back-up UPS: (a) Online (b) Offline (c) Line interactive (d) None of the above *(Unit V, Exam Feb 2022)*
Ans: Offline.

Q122. What is the source of power in a UPS? *(Unit V, Exam Feb 2022)*
Ans: Its battery (the battery bank, charged from the mains).

Q123. A static UPS requires: (a) Only rectifier (b) Only inverter (c) Both rectifier and inverter (d) None of the above *(Unit V, Exam Feb 2023)*
Ans: Both rectifier and inverter.

Q124. SMPS is essentially a ___ converter with control of the output voltage magnitude: (a) DC to DC (b) DC to AC (c) AC to DC (d) AC to AC *(Unit V, Exam Jan 2024)*
Ans: DC to DC.

Q125. Write one application of SMPS. *(Unit V, Exam Jan 2024)*
Ans: Computer power supply (also mobile chargers, TVs and LED drivers).

Q126. Usually ___ batteries are used in the UPS system: (a) NC (b) Li-ion (c) Lead acid (d) All of the mentioned *(Unit V, Exam Dec 2024)*
Ans: Lead acid.

Q127. In an on-line UPS, the inverter is ___ all the time. *(Unit V, Exam Dec 2024)*
Ans: ON (working continuously).

Q128. UPS is never used in: (a) Street lighting (b) Communication link (c) Computer (d) All of the above *(Unit V, Exam May 2026)*
Ans: Street lighting.

Q129. A switching mode power supply is a multistage ___ supply. *(Unit V, Exam May 2026)*
Ans: DC power supply (multistage power conversion).

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Q130. What material is used as positive plate of a lead acid cell? / In a lead acid battery, active material for positive plate is: (a) lead (b) lead dioxide (c) lithium (d) sulphuric acid *(Removed From Syllabus, Exam Feb 2022, July 2022)*
Ans: Lead dioxide (PbO_2).

Q131. What is the full form of CVT? *(Removed From Syllabus, Exam Feb 2022, July 2023)*
Ans: Constant Voltage Transformer.

Q132. Define trickle charging. *(Removed From Syllabus, Exam Feb 2023)*
Ans: Charging a battery at a very small current so that it stays fully charged against self-discharge.

Q133. SMF batteries are costlier than lead-acid batteries. (True/False) *(Removed From Syllabus, Exam May 2026)*
Ans: True.