

CBSE Class 12 Electrical Technology 2020 - Set 311

Question Paper

Conducted by the Central Board of Secondary Education (CBSE)



Time Allowed: 2 Hours

Maximum Marks: 40

General Instructions

- (i) This question paper contains 28 questions in two sections.
- (ii) Section A: Attempt any ten questions from Questions 1–12 (1 mark each), any five from Questions 13–19 (2 marks each), and any five from Questions 20–26 (3 marks each).
- (iii) Section B: Attempt any one question from Questions 27 and 28 (5 marks each).

Section A

Attempt any ten questions. $1 \times 10 = 10$

1. Iron core of a power transformer is laminated

- (A) To reduce hysteresis loss
(B) To reduce eddy current loss
(C) To reduce copper loss
(D) Due to (A) and (B) above

2. In a transformer, the following winding has more cross-sectional area :

- (A) Primary winding
(B) Secondary winding
(C) High voltage winding
(D) Low voltage winding

3. Cross-section of the iron core of a power transformer is approximately circular. This is done because

- (A) It is easy to assemble a circular core.
(B) It is easy to make a circular coil.
(C) Electromagnetic forces tend to make the coil circular.
(D) Of all of the above reasons

4. If the field circuit of a D.C. series motor gets opened on a small load then

- (A) motor will pick up very high speed.
(B) motor will slow down.
(C) motor will stop.
(D) motor will run normally.

5. Iron losses in a D.C. machine take place in

- (A) Yoke
(B) Armature core only
(C) Yoke and armature
(D) None of the above

6. Losses which do not occur in a transformer but do occur in rotating electrical machines are

- (A) hysteresis and eddy current losses
(B) friction and windage losses
(C) copper losses
(D) magnetic losses

7. Inrush current to motor at starting is mainly reduced

- (A) To save the motor from thermal damage
(B) To avoid starting shocks to the rotor of the motor
(C) To avoid voltage drop in the line
(D) Due to none of the above

8. A shaded pole motor does not possess

- (A) Commutator
(B) Centrifugal switch
(C) Capacitor
(D) All of the above

9. Burning out of motor winding is due to

- (A) Open circuiting of capacitor
(B) Change in capacitor value
(C) Short circuited capacitor
(D) None of the above

10. Starting capacitor of a FHP single-phase motor will have a capacitance of about

- (A) $12\ \mu\text{F}$ (B) $40\ \mu\text{F}$
(C) $300\ \mu\text{F}$ (D) $1000\ \mu\text{F}$

11. An alloy of 60% lead and 40% tin is called

- (A) Hard solder (B) Soft solder
(C) Bronze (D) None of the above

12. Melting point of a soft solder may be

- (A) below 100°C (B) between 190°C and 250°C
(C) 600°C (D) None of the above

Attempt any five questions. $2 \times 5 = 10$

13. What are the various applications of voltage and current transformers ?

14. Why can a transformer not work on D.C. ? Write in brief.

15. What is armature reaction in D.C. motors ?

16. What is the function of poles in D.C. motors ?

17. Why is a D.C. motor not started without a starter ?

18. What are the various applications of a shaded pole motor ?

19. What are the various techniques used for soldering ?

Attempt any five questions. $3 \times 5 = 15$

20. Explain the construction of a core type transformer with the help of a neat sketch.

21. With the help of a neat sketch, explain the field control method of speed control of D.C. shunt motor.

22. Draw circuit diagram of a 3-point starter used in D.C. motors and label its parts.

23. What is a repulsion start motor ? What are its applications ?

24. Write the names of various starters used in 3-phase induction motors. Which horse power motors are these used for ?

25. What are the various applications of different single-phase motors ?

26. How can faults in a single-phase motor be found ? Write the step-by-step procedure ?

Section B

Attempt any one question. $5 \times 1 = 5$

27. Describe with a sketch, the construction of a universal motor. Write its working principle and uses.

28. What are the various methods of soldering ?
What are the various components of solder and their proportion ?

- End of Question Paper -