

## UNIT-2

### DC Motors

Q1. Back EMF in a DC motor opposes

- A. Load torque
- B. Applied voltage
- C. Field flux
- D. Armature current

Answer: B

Q2. Back EMF is based on

- A. Faraday only
- B. Lenz's law
- C. Ohm's law
- D. Kirchhoff's law

Answer: B

Q3. Torque in a DC motor is proportional to

- A. Speed
- B. Flux  $\times$  Armature current
- C. Voltage<sup>2</sup>
- D. Resistance

Answer: B

Q4. Shunt motor has

- A. Very poor speed regulation
- B. Nearly constant speed
- C. Zero starting torque
- D. Variable frequency

Answer: B

Q5. Series motor is suitable for

- A. Fans
- B. Electric traction
- C. Lathes
- D. Centrifugal pumps

Answer: B

Q6. Compound motor combines

- A. Two armatures
- B. Series and shunt field
- C. PM field
- D. AC and DC

Answer: B

Q7. A 3-point starter protects against

- A. Earth fault
- B. Overload and no-voltage
- C. Overheating only
- D. Overspeed

Answer: B

Q8. The no-voltage coil is connected in

- A. Series with armature
- B. Series with shunt field
- C. Parallel to armature
- D. Across starter

Answer: B

Q9. DC shunt motor speed can be controlled by

- A. Frequency
- B. Rotor resistance
- C. Armature voltage and field control
- D. Pole changing

Answer: C

Q10. Weakening field flux causes speed to

- A. Decrease
- B. Remain same
- C. Increase
- D. Reverse

Answer: C

Q11. Series motor speed control uses

- A. Field diverter
- B. Pole changing
- C. Frequency
- D. Capacitor

Answer: A

Q12. Constant losses include

- A. Copper losses
- B. Iron and mechanical losses
- C. Brush loss only
- D. Load losses

Answer: B

Q13. Variable losses are mainly

- A. Iron losses
- B. Copper losses
- C. Mechanical losses
- D. Core losses

Answer: B

Q14. Maximum efficiency occurs when

- A. Output=input
- B. Variable losses = Constant losses
- C. Voltage max
- D. Current zero

Answer: B

Q15. Brake test is a

- A. Indirect test
- B. Direct test
- C. Regenerative test
- D. No-load test

Answer: B

Q16. Swinburne's test is performed on

- A. Series motor
- B. Transformer
- C. Shunt motor
- D. Induction motor

Answer: C

Q17. Hopkinson's test is also called

- A. Open circuit test
- B. Regenerative test
- C. Brake test
- D. Short circuit test

Answer: B

Q18. Back EMF at starting is

- A. Maximum
- B. Zero
- C. Equal to supply
- D. Negative

Answer: B

Q19. Starting current is limited by

- A. Fuse
- B. Starter resistance
- C. Brushes
- D. Field

Answer: B

Q20. DC series motor should not run

- A. At rated load
- B. With fan
- C. Without load
- D. With battery

Answer: C

Q21. Torque of series motor at low saturation is approximately

- A. Proportional to  $I_a$
- B. Proportional to  $I_a^2$
- C. Constant
- D. Zero

Answer: B

Q22. Shunt motor application

- A. Cranes
- B. Machine tools
- C. Traction
- D. Hoists

Answer: B

Q23. Series motor application

- A. Cranes and hoists
- B. Blowers
- C. Lathes
- D. Fans

Answer: A

Q24. Compound motor application

- A. Clocks
- B. Presses and elevators
- C. Ceiling fans
- D. Mixers

Answer: B

Q25. Back EMF equation resembles

- A. Transformer emf
- B. Generator EMF equation
- C. Rectifier
- D. Alternator only

Answer: B

Q26. Mechanical output equals

- A. Input
- B. Developed power minus losses
- C. Copper loss
- D. Field power

Answer: B

Q27. Armature voltage control gives speeds

- A. Above base only
- B. Below base speed
- C. Constant only
- D. Zero

Answer: B

Q28. Field control gives speeds

- A. Below base only
- B. Above base speed
- C. Zero
- D. Negative

Answer: B

Q29. Efficiency is

- A.  $\text{Input/Output} \times 100$
- B.  $\text{Output/Input} \times 100\%$
- C.  $V/I$
- D.  $I/V$

Answer: B

Q30. Iron losses depend mainly on

- A. Load current
- B. Flux and speed
- C. Resistance
- D. Brush

Answer: B