

**BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT**

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

USN

--	--	--	--	--	--	--	--	--	--

Course Code

2	2	M	E	3	8	1
---	---	---	---	---	---	---

Third Semester B.E. Degree Examinations, March/ April 2024

**INTRODUCTION TO ELECTRIC VEHICLE**

Duration: 1 hr

Max. Marks: 50

*Instructions to the Candidates:*

- All questions are compulsory
- Each question carries 1 mark
- Use only black ball point pen
- Darkening two circles for the same question makes the answer invalid
- Damaging/overwriting, using whiteners on the OMR are strictly prohibited.

Q.NoQuestion

- Which vehicles are powered by battery only?  
A. EV                                      B. Conventional      C. HEV                                      D. PHEV
- In which year battery powered carriage was developed?  
A. 1854                                      B. 1872                                      C. 1889                                      D. 1832
- Which Battery are preferred for EV?  
A. Lead-acid (Pb-acid)                                      B. Lithium-ion (Li-ion)  
C. Sodium sulphur (NaS)                                      D. Nickel cadmium (NiCd)
- Battery that cannot be charged again is called  
A. Primary                                      B. Secondary                                      C. Both A & B                                      D. None
- What is the unit of charge capacity in a battery?  
A. mA hr                                      B. W hr                                      C. W/hr                                      D. W/Ahr
- Which of the following battery is not rechargeable?  
A. Nickel Metal Oxide                                      B. Silver oxide                                      C. Lead acid                                      D. Lithium ion
- Who invented first Electric car?  
A. Mark bough                                      B. Steam Oven                                      C. Gustave Trouve                                      D. Steven
- When the first legal version of Tesla's Roadster was introduced?  
A. 2004                                      B. 2008                                      C. 2012                                      D. 2016
- Main advantage of EV is  
A. Eco friendly                                      B. Limited charging points  
C. Charging time more                                      D. None
- What is the expected average annual growth rate of EV?  
A. 30%                                      B. 35%                                      C. 40%                                      D. 45%
- Fastest EV charging stations  
A. 40 min                                      B. 30 min                                      C. 25 min                                      D. 20 min
- PHEV abbreviation is  
A. Plug-out hybrid electric vehicle                                      B. Pure hybrid electric vehicle  
C. Power hybrid electric vehicle                                      D. Plug-in hybrid electric vehicle
- The region for a full hybrid is at  
A. H=0%                                      B. H=25%                                      C. H=50%                                      D. H=75%
- Aerodynamic drag energy is directly proportional to  
A. Velocity                                      B. Velocity<sup>2</sup>                                      C. Velocity<sup>3</sup>                                      D. Constant
- In 1904 which company manufactured electric vehicle?  
A. Kriegger                                      B. Toyota                                      C. BMW                                      D. Suzuki
- Which model car produces only EV?  
A. Civic                                      B. Corolla                                      C. Altis                                      D. Tesla

17. Which of these years saw the most global EV sales?  
A. 2015                                      B. 2016                                      C. 2017                                      D. 2018
18. According to the Department of Energy, what percentage of EV charging happens at home?  
A. 60%                                      B. 70%                                      C. 80%                                      D. 90%
19. Maintenance free battery contains  
A. does not contain water                                      B. has lead calcium grid  
C. does not has acid                                      D. has lead platinum
20. To increase the output voltage battery cells are connected in  
A. Inclined                                      B. Series                                      C. Parallel                                      D. Series & parallel
21. How much voltage does car battery requires?  
A. 12V                                      B. 13V                                      C. 14V                                      D. 15V
22. The electrolyte is a combination of  
A. Lead and water                                      B. Acid and water  
C. Sulphuric acid and distilled water                                      D. None
23. The main purpose of battery is to store electrical energy in the form of  
A. Mechanical energy                                      B. Chemical Energy  
C. Kinetic energy                                      D. Potential energy
24. What is the shape of battery plates?  
A. Circle                                      B. Ellipse                                      C. Square                                      D. Rectangular
25. Why filler cap is used?  
A. Crack                                      B. Air vents                                      C. Leakage                                      D. Damage
26. Which acid is used in automobile battery?  
A. Hydrochloric                                      B. Citric                                      C. Sulphuric                                      D. Citric
27. Which battery is not suitable for EV?  
A. Li-ion                                      B. Na Ni Cl                                      C. Lead Acid                                      D. NaS
28. Latest EV car by Tata Motors is  
A. Chetak                                      B. Vitara                                      C. Kia                                      D. Nexon
29. How much voltage does car battery requires?  
A. 11V                                      B. 12V                                      C. 13V                                      D. 14V
30. What is the abbreviation of SOH?  
A. State of Humour                                      B. State of Human  
C. State of Health                                      D. None
31. Which is not a power of battery control unit board?  
A. Isolation transformer                                      B. Power inductors  
C. Breakage                                      D. Circuit
32. Main function of Battery is  
A. Cell balancing                                      B. Isolation                                      C. Circuit                                      D. None
33. Which function is not a part of Monitoring in motor?  
A. Current                                      B. Circuit                                      C. Temperature                                      D. All
34. What does electric load mainly consist of?  
A. Inverter                                      B. Current                                      C. Voltage                                      D. Motor
35. What will happen if the DC shunt motor is connected across the AC supply?  
A. Will run at normal speed                                      B. Will not run  
C. Burn due to heat                                      D. Will Run at lower speed
36. What will happen if the back emf of a DC motor vanishes suddenly?  
A. The motor will stop                                      B. The motor will continue to run  
C. The armature may burn                                      D. The motor will run noisy
37. What will happen, with the increase in speed of a DC motor?  
A. Back emf increase but line current falls.  
B. Back emf falls and line current increase.  
C. Both back emf as well as line current increase.  
D. Both back emf as well as line current fall.

38. What is an electric drive?  
A. A machine that converts electrical energy into kinetic energy  
B. A machine that converts mechanical energy into electrical energy  
C. A machine that converts electrical energy into mechanical energy  
D. A machine that converts kinetic energy into electrical energy
39. Which of the following is used to build an electric drive?  
A. Source                                      B. Motor                                      C. Control unit                                      D. All of these
40. Which of the following are components of an electric drive?  
A. Control unit and Power Modulator                                      B. Electric Motor and Control System  
C. Input Command                                      D. Sensing Device and Electric Motor
41. Which of the following is a function of electric drive?  
A. Transport energy from the storage system to the wheels  
B. Transport energy from the control system to the wheels  
C. Transport fuel from the electric motor to the wheels  
D. Transport fuel from the storage system to the wheels
42. What are electric drives?  
A. Engines of 2-wheelers                      B. Laptops                      C. Robotics                      D. Both A and C
43. Which of the following devices should be used as a switch for high power and high voltage application?  
A. TRIAC                                      B. Thyristor                      C. GTO                                      D. MOSFET
44. What is the unit of the apparent or complex power?  
A. VA                                      b. Ohm                                      C. Volt                                      D. VAR
45. What is the unit of the distance?  
A. atm/m                                      B. Volt                                      C. m                                      D. m/s
46. Which of the following is the correct abbreviation of SCIM?  
A. Solid cage induction motor                                      B. Square cage induction motor  
C. Squirrel cage inverter motor                                      D. Squirrel cage induction motor
47. Which of the following is the correct abbreviation of IFOC?  
A. Insight field oriented control                                      B. Indirect field oriented control  
C. Inverter field oriented control                                      D. Isolated field oriented control
48. Which braking method is the best method for obtaining high braking torque?  
A. Plugging                                      B. Regenerative braking  
C. Rheostatic braking                                      D. Dynamic braking
49. Which of the following is the correct abbreviation of NENO?  
A. Neither even nor original                                      B. Neither even nor odd  
C. Neither even nor orthogonal                                      D. Neither energy nor odd
50. Calculate the output frequency for the six-pulse converter if the supply frequency is 10 Hz.  
A. 40 Hz                                      B. 50 Hz                                      C. 60 Hz                                      D. 70 Hz

\*\* \*\* \*