

(3 Hours)

(80 Marks)

N.B.

- 1) Question No. 1 is compulsory.
- 2) Solve Any Three of the remaining Five questions.
- 3) Assume suitable data if necessary and state it clearly.

Q.1 Solve any Four out of Six.

- A. What is CRDI? Explain. (5)
- B. What are the Objectives & Limitations of Turbochargers? (5)
- C. Describe the Function of ECM. (5)
- D. Explain the Electric traction system used in EV. (5)
- E. Describe the historical development of EV. (5)
- F. What is Battery Management System (BMS) why it is required? (5)

Q.2

- A. Explain the Battery ignition system in detail with a suitable sketch. (10)
- B. What is Electronic Control Module (ECM)? Describe it's working with a suitable sketch. (10)

Q.3

- A. Explain drive train topologies of HEV with suitable sketches. (10)
- B. Write short notes on i) Particular Trap ii) Exhaust Gas Recirculation (10)

Q.4

- A. Explain in detail the Hybrid traction system used in HEV. (10)
- B. Explain the construction and working of the induction motor. (10)

Q.5

- A. Explain the construction and working of Lead Acid batteries. (10)
- B. Explain the Transistor Ignition system with a contactless breaker. (10)

Q.6

- A. What is Supercharging? (5)
- B. What are EURO and BHARAT norms related to exhaust gas emissions? (5)
- C. What are battery specifications? Explain minimum five specifications. (5)
- D. What are the EV/HEV energy management strategies? (5)
