MODEL PAPER – FORMATIVE ASSESSMENT-1
C-23-EE-502
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FIFTH SEMESTER EXAMINATION
EE-502 : ELECTRICAL VEHICLE TECHNOLOGY

Time: 90 Minutes Total Marks: 40

PART-A **(1 x 4) + (4 x 3) = 16**

Instructions:

iv. Answer all five questions.
v. First question carries four marks and remaining each question carries three marks.
vi. Answers should be brief and straight to the point and shall not exceed five simple sentences

1. Expand the terms (a) BEV (b) HEV (c) PHEV (d) FCEV. (CO1)
2. Compare BEV & conventional vehicles (CO1)
3. List different pollutants produced due to IC engine vehicle (ICEV) (CO1)
4. List the advantages of series hybrid Electric vehicle. (CO2)
5. Classification of hybrid vehicles (CO2)

PART-B **3 X 8 = 24**

Instructions:

iv. Answer all three questions.
v. Each question carries eight marks.
vi. The answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

6. (a) Draw the block diagram of electric vehicles and explain major components. (CO1)

(OR)

(b) Explain with a neat block diagram of Plug-in Hybrid Electric Vehicle (PHEV). (CO1)

7. (a) Explain with a neat block diagram of Fuel Cell Electric Vehicle (FCEV) (CO1)

(OR)

(b) Draw and explain architecture of series parallel hybrid electric vehicle. (CO2)

8. (a) Explain the different power flow control modes of a parallel hybrid system with the help of block diagrams.
(CO2)

(OR)

(b) Draw and explain architecture of series hybrid electric vehicle (CO2)

MODEL PAPER – FORMATIVE ASSESSMENT-2
C-23-EE-502
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FIFTH SEMESTER EXAMINATION
EE-502 : ELECTRICAL VEHICLE TECHNOLOGY

Time: 90 Minutes Total Marks: 40

PART-A **(1 x 4) + (4 x 3) = 16**

Instructions:

iv. Answer all **five** questions.
v. First question carries **four** marks and remaining each question carries **three** marks.
vi. Answers should be brief and straight to the point and shall not exceed five simple sentences

1. (a) The capacity of a battery is expressed in _____.
   (b) Battery converts chemical energy to_____ energy
   (c) Expand the term BMS .
   (d) Expand the term V2G (CO3, CO4,CO4,CO5)
2. List main Requirements of EV batteries (CO3)
3. List and the Basic Requirements for Charging System. (CO4)
4. Advantages and disadvantages of Wireless charging (CO4)
5. Define an Electric Drive. (CO5)

PART-B **3 X 8 = 24**

Instructions:

iv. Answer all **three** questions.
v. Each question carries **eight** marks.
vi. The answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

6. (a) Explain with a neat sketch of Ultracapacitor storage system (CO3)

(or)

(b) Explain with a neat sketch of Fuel cell storage system (CO3)

7. (a) Explain the concept of V2G Technology (Vehicle-to-Grid) (CO4)

(or)

(b) Explain the Block diagram of Battery Management system (BMS) (CO4)

8. (a) Explain with a neat sketch of Switched Reluctance motor.. (CO5)

(or)

(b) Explain with a neat sketch of (Brushless DC) BLDC motor. (CO5)

MODEL PAPER – SUMMATIVE EXAMINATION

C-23-EE-502

BOARD DIPLOMA EXAMINATION, (C-23)

DEEE – FIFTH SEMESTER EXAMINATION

EE-502 : ELECTRICAL VEHICLE TECHNOLOGY

Time: 3 hours Total marks: 80

PART-A **10 X 3 = 30**

Instructions:

iv. Answer all questions.
v. Each question carries three marks.
vi. Answers should be brief and straight to the point and shall not exceed five simple sentences

1. Classification of electric vehicles according to the source of power. (CO1)
2. List Advantages of electric vehicles (CO1)
3. List the impacts of EVs/HEVs on the power grid, environment and economy (CO2)
4. Classify hybrid vehicles (CO2)
5. List main Requirements of EV batteries (CO3)
6. List Advantages and disadvantages of Ultracapacitor (CO3)
7. State the Constant voltage method of charging . (CO4)
8. List and the Basic Requirements for Charging System (CO4)
9. State advantages of electric braking over other forms of brake. (CO5)
10. List the factors governing the selection of electric drive. (CO5)

PART-B **5 X 10 = 50**

Instructions:

iv. Answer any five questions.
v. Each question carries 10 marks.
vi. The answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. Explain with a neat block diagram of Battery Electric Vehicle (BEV) (CO1)

12. Explain with a neat block diagram of Plug-in Hybrid Electric Vehicle (PHEV) (CO1)
13. Explain the different power flow control modes of a series hybrid system with the help of block diagrams. (CO2)
14 . Explain with a neat sketch of Ultracapacitor storage system (CO3)
15. Explain with a neat sketch of Lithium-Ion (Li-Ion) battery system (CO3)
16. Explain about Inductive charging or Wireless charging in Electric vehicles (CO4)
17. Explain the method of Regenerative braking (CO5)
18. Explain with a neat sketch of (Brushless DC) BLDC motor. (CO5)

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