Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14EE2024** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASICS OF ELECTRIC AND HYBRID VEHICLE** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Outline the history of hybrid vehicle. | CO1 | 15 |
| b. | Differentiate between electric vehicle and hybrid vehicle. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | With a neat diagram, Illustrate the working of four Stroke Spark Ignited IC engine in detail. | CO1 | 10 |
| b. | Write short notes on Forced Induction. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Discuss the working of battery electric vehicle in detail. | CO1 | 10 |
|  | b. | Explain any five operation parameters of four stroke spark ignited IC engine in detail. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | With the help of a neat block diagram, explain the general electric vehicle configuration. | CO1 | 15 |
|  | b. | Write the significance of Specific fuel Consumption in IC engines. | CO1 | 5 |
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| 5. | a. | Discuss in detail about the series hybrid vehicle. Also mention its advantages and limitations. | CO1 | 15 |
|  | b. | Differentiate between onboard and offboard solar vehicles. | CO2 | 5 |
| (OR) | | | | |
| 6. | a. | Compare and Contrast series-parallel hybrid vehicles and complex vehicles. | CO1 | 10 |
|  | b. | Explain the working of Hydrogen fuel cell. | CO1 | 10 |
|  |  |  |  |  |
| 7. | a. | Discuss in detail about the super capacitor as alternate source of fuel for Electric Vehicles. | CO3 | 10 |
|  | b. | Explain any one method to control the dc motors using choppers | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Illustrate the principle of operation, construction used in BLDC motors. | CO2 | 10 |
|  | b. | Classify the 3 phase induction motor based on rotor construction and explain in detail | CO2 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss in detail about lead acid batteries which is used in electric vehicles. | CO3 | 15 |
|  | b. | Write the advantages and limitations of flywheels | CO3 | 5 |

ALL THE BEST