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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**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)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Describe the basic techniques for improving Engine Performance, Efficiency and Emissions. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Outline the history of electric vehicle. | CO1 | 15 |
| b. | Compare and Contrast electric vehicle with IC engine vehicles. | CO1 | 5 |
|  |  |  |  |  |
| 3. | a. | With the help of a block diagram , illustrate the general electric vehicle configuration. | CO1 | 15 |
|  | b. | Explain the concept of Exhaust gas recirculation used in Conventional vehicles. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Describe the working of battery electric vehicle and hence explain the use of controller. | CO2 | 15 |
|  | b. | Distinguish between conventional braking system and regenerative braking. | CO1 | 5 |
|  |  |  |  |  |
| 5. | a. | Discuss in detail about the Parallel hybrid vehicle. Also mention its advantages and limitations. | CO1 | 15 |
|  | b. | Write a note on energy consumption in electric vechicles. | CO1 | 5 |
| (OR) | | | | |
| 6. | a. | Compare and Contrast series-parallel hybrid vehicles and complex vehicles. | CO1 | 10 |
|  | b. | Explain the working of solar power car. | CO1 | 10 |
|  |  |  |  |  |
| 7. | a. | Analyse the sizing of the driving system. | CO2 | 10 |
|  | b. | Explain in detail the working of Switched Reluctance Motor drives. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Explain in detail about the Energy Management Strategies. | CO2 | 10 |
|  | b. | Explain any one method to control the dc motors using choppers. | CO2 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss in detail about lead acid batteries which is used in electric vehicles. | CO3 | 15 |
|  | b. | Write the features of super capacitors. | CO3 | 5 |

ALL THE BEST