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 – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **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. | Describe the basic techniques for improving Engine Performance,Efficiency,and Emissions | CO1 | **15** |
| b. | Briefly explain the concept of Fuel/Air and Air/Fuel Ratios. | CO1 | **5** |
| **(OR)** | | | | |
| 2. | a. | Explain the operation,working of 4 stroke spark ignited IC engine in detail. | CO1 | **15** |
| b. | List the advantages of hybrid vehicles over conventional vehicles. | CO1 | **5** |
| 3. | a. | Outline the history of electric vehicles in detail | CO1 | **15** |
|  | b. | Explain the concept of regenerative braking. | CO1 | **5** |
| **(OR)** | | | | |
| 4. | a. | Describe the method by which energy is obtained from flywheels | CO1 | **10** |
|  | b. | Explain the working of solar car. | CO1 | **10** |
| 5. | a. | With the help of neat block diagrams, explain the series-parallel and complex configuration of hybrid vehicles. | CO2 | **15** |
|  | b. | Draw the block diagram of plug-in hybrid vehicle . | CO2 | **5** |
| **(OR)** | | | | |
| 6. | a. | With the help of neat block diagrams, explain the series and parallel configuration of hybrid vehicles.Also mention its advantages and disadvantages | CO2 | **20** |
| 7. | a. | Explain the types of dc motor in detail. | CO2 | **10** |
|  | b. | Explain the components of electric propulsion system in detail. | CO2 | **10** |
| **(OR)** | | | | |
| 8. | a. | Explain the construction,working of SRM motor in detail | CO2 | **15** |
|  | b. | Differentiate the features of BLDC and SRM . | CO2 | **5** |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the significance of lead acid battery in hybrid vehicles and hence mention its working. | CO3 | **15** |
|  | b. | Write the features of supercapacitors. | CO3 | **5** |

ALL THE BEST