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 – April/May – 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 electric and hybrid electric vehicles. | CO1 | 15 |
| b. | Write short note on 2 stroke engine. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | With a neat diagram, explain the working of 4 Stroke Spark Ignited IC engine. | CO1 | 15 |
| b. | Explain the concept of Forced Induction. | CO1 | 5 |
| 3. | a. | Explain the operation of solar powered vehicle with a neat diagram. | CO1 | 15 |
|  | b. | Distinguish onboard and offboard solar vehicles. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | With the help of a block diagram , illustrate the general electric vehicle configuration. | CO1 | 15 |
|  | b. | List the components of drive train of an electric vehicle. | CO1 | 5 |
| 5. | a. | Illustrate the working of series – parallel hybrid vehicle in detail. Also write its advantages and limitatations. | CO1 | 15 |
|  | b. | Distinguish between conventional braking system and regenerative braking. | CO1 | 5 |
| (OR) | | | | |
| 6. | a. | With the help of a neat bock diagram , explain the working of Complex hybrid vehicle in detail.Mention its advantages and limitations. | CO1 | 15 |
|  | b. | Compare and contrast electric vehicles with hybrid vehicles. | CO1 | 5 |
| 7. | a. | Illustrate the principle of operation,construction used in BLDC motors. | CO2 | 10 |
|  | b. | Explain any one method to control the dc motors using choppers. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Briefly explain the method used to control the speed in induction motor. | CO2 | 15 |
|  | b. | Write the advantages of switched reluctance motor. | CO2 | 5 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Discuss the constructional features, theory of operation of a lead acid battery. | CO3 | 15 |
|  | b. | List the advantages of using flywheels in hybrid vehicles. | CO3 | 5 |

ALL THE BEST