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**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14EI2018** | **Duration :** | **3hrs** |
| **Sub. Name :** | **AUTOMOTIVE INSTRUMENTATION** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Draw a block diagram of a fuel injection system. Describe briefly the purpose of each component | CO1 | 14 |
| b. | Elaborate on the Requirements of thevehicle battery. | CO1 | 6 |
| (OR) | | | | |
| 2. | a. | Elaborate on the requirements of the charging system | CO2 | 6 |
| b. | List and explain the new developments that is happeningfor the charging system. | CO1 | 14 |
|  |  |  |  |  |
| 3. |  | Draw the circuit and explain the principle of starter motor and also detail about the various types of motors used. | CO1 | 20 |
| (OR) | | | | |
| 4. |  | Draw a neat diagram of electronic ignition system and explain the components used. | CO1 | 20 |
|  |  |  |  |  |
| 5. |  | With help of a block diagram explain the following. |  |  |
|  |  | a. Traction control system. | CO2 | 10 |
|  |  | b. Automatic transmission. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | Write down the steps involved in the testing of the car. | CO1 | 8 |
|  | b. | Write a short note on advanced central control system of a car. | CO2 | 6 |
|  | c. | How is emission controlled in diesel engine cars? | CO2 | 6 |
|  |  |  |  |  |
| 7. | a. | With help of neat diagrams, elaborate the operation and working of the airbag system along with the components used. | CO1 | 10 |
|  | b. | Explain how cruise control is carried out in cars? | CO2 | 10 |
| (OR) | | | | |
| 8. |  | Elaborate on the following comfort option available in automobile.  a. Electric sun-roof.  b. Centre Locking and electric windows  c. Automatic seat adjustment | CO2 | 20 |
|  |  |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the technique used to for error management in CAN Protocol | CO3 | 10 |
|  | b. | Explain the communication cycle of the FlexRay Protocol with the required diagrams. | CO3 | 10 |

ALL THE BEST