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**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code :** | **14EI3029** | **Duration :** | **3hrs** |
| **Sub. Name :** | **EMBEDDED AUTOMOTIVE SYSTEMS** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Explain how a smooth riding condition is achieved using an electronic control system. | CO1 | 14 |
| b. | Elaborate on the electronic controlled hydraulic steering system. | CO1 | 6 |
| (OR) | | | | |
| 2. | a. | Engines have different modes of operation as the operating conditions change – Justify. | CO1 | 10 |
| b. | Discover the variables that define Ignition timing also illustrate how the have an impact on emission. | CO3 | 10 |
| 3. | a. | How is the drive safety ensure in cars-explain. | CO1 | 5 |
| b. | Elaborate on the system used in cars for a comfortable ride on the highways. | CO1 | 15 |
| (OR) | | | | |
| 4. | a. | What is drive cycle? | CO1 | 5 |
| b. | How is OBD numbering done? | CO1 | 5 |
| c. | With a neat diagram elaborate how the battery is continuously charge in automobiles. | CO1 | 10 |
| 5. | a. | List the different makes of microcontrollers used in the automobile and speicfi their applications. | CO2 | 5 |
| b. | What the considerations that has to be taken when selecting an microcontroller for an automobile. | CO2 | 15 |
| (OR) | | | | |
| 6. |  | Enumarate the advantages of PIC microcontrollers when used in automobiles and explain any two applications of PIC microcontrollers in automobile. | CO2 | 20 |
| 7. | a. | The position of the crank shaft plays a vital role in the performance of the engine. How do we find the position of the shat using magnetic methods? | CO3 | 10 |
| b. | What are the various temperature sensor used in the automobile? Explain each of them with the relevant application in automobile. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | With the aid of a neat sketch explain the construction and theory of operation of a typical oxygen sensor used in vehicle. | CO3 | 12 |
|  | b. | Write short notes on.  ii) Fuel Injectors in Petrol engine.  iii) Exhaust emission control. | CO3 | 8 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Draw and explain the Architecture of GPS navagition system. | CO2 | 10 |
|  | b. | Explain the methodlogy to measure speed, velocity and time using GPS. | CO2 | 10 |

ALL THE BEST