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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14EE2020** | **Duration :** | **3hrs** |
| **Sub. Name :** | **AUTOMOTIVE ELECTRONICS** | **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. | With a neat sketch, explain the operation of throttle position sensor. | CO1 | 10 |
| b. | Develop an electronic vehicle speed sensing mechanism using digital sensors. | CO1 | 10 |
| **(OR)** | | | | |
| 2. |  | With suitable supporting sketches, explain the operation of oxygen sensor. Investigate on the improvements caused by these sensors on vehicle performance. | CO1 | 20 |
|  |  |  |  |  |
| 3. |  | Elaborate on the four conditions which are considered in digital engine control. | CO2 | 20 |
| **(OR)** | | | | |
| 4. |  | Explain the electronic ignition system with diagram. How is the distributor less ignition system better than solid state? | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | Develop a braking mechanism with electronic control which avoids skidding of vehicle when applying brake. Also investigate about how these systems reduce the potential of accidents. | CO2 | 20 |
| **(OR)** | | | | |
| 6. | a. | Enumerate the working principle of starter drive unit with neat diagram. | CO2 | 12 |
| b. | Compare different types of earth return systems and investigate its effect on the physical changes on the battery and on the system. | CO2 | 8 |
|  |  |  |  |  |
| 7. |  | Elaborate on the power steering and cruise control with necessary diagrams. | CO3 | 20 |
| **(OR)** | | | | |
| 8. |  | Analyse the direct and indirect method of tyre pressure monitoring system. | CO3 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | With suitable diagram, explain the operation of horns used in vehicles. | CO3 | 10 |
| b. | Suggest few ways by which the headlight glares can be avoided. Also, elaborate on intelligent lighting. | CO3 | 10 |