**VIII Semester B.E. Examination**

**18EECO403**

**June\_2020**

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| **SRN** |  |  |  |  |  |  |  |  |  |  |  |  |

**(School of Electronics & Communication Engineering)**

**Automotive Electronics (18EECO403)**

**Common for ME/AR/CS**

**Duration: 2 hours Max. Marks: 70**

**Note:** ***i) Answer any TWO full questions from UNIT-I, any TWO full questions from UNIT-II and any ONE full question from UNIT-III.***

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| **UNIT-I** | | | | **Marks** |
| 1 | a | Discuss the automotive supply chain. | | (05 Marks) |
|  | b | Explain ignition map with a lookup table. | | (05 Marks) |
| 2 | a | With the example of engine ECU explain the V model development cycle of ECU. | | (10 Marks) |
| 3 | a | During fast braking the wheels get locked and vehicle skids, arrive at the physical mechanism and calculate the slip if car is traveling at a speed of 40mph with 1300rpm and has wheel radius of 18inchs. | | (05 Marks) |
|  | b | Compare the types of transmission systems. | | (05 Marks) |
| **UNIT-II** | | | | |
| 4 | a | With a neat sketch discuss the operation of sensor used to measure the engine speed. | | (05 Marks) |
|  | b | Discuss the error detection mechanism used in CAN protocol. | | (05 Marks) |
| 5 | a | Discuss the applications of LIN protocol. | | (04 Marks) |
|  | b | The exhaust gas coming out of 4 stroke contains some amount of oxygen, identify the sensor used to measure the oxygen content and explain its operation. | | (06 Marks) |
| 6 | a | With the neat block diagram discuss the flexray node operation. | | (06Marks) |
|  | b | Why EGO and EGR are used . Calculate lambda if air fuel ratio is 12.2. | | (04 Marks) |
| **UNIT-III** | | | | |
| 7 | a | | Explain the automatic cruise control system with a neat diagram. | (05 Marks) |
|  | b | | Discuss the need for functional safety system and explain ISO 26262 function safety system. | (05 Marks) |
| 8 | a | | Describe the objective and requirements of on board diagnostics. | (05 Marks) |
|  | b | | What is the difference between basic wiring and multiplex wiring system. | (05 Marks) |

