Total No. of Questions : 8]

SEAT No. :

**P4808**

[Total No. of Pages :2

# [5355]-667

## M.E. (E & TC) (VLSI & Embedded Systems)

## EMBEDDED AUTOMOTIVE SYSTEMS

## (2017 Pattern) (Credet System) (Semester - II)

*Time : 3 Hours]* *[Max. Marks : 50*

***Instructions to the candidates:***

1) ***Solve any five questions.***
2) ***Assume suitable data if necessary.***
3) ***Neat diagrams must be drawn wherever necessary.***

***Q1)*** a) What is hybrid technology? Explain various operating models and compare advantages and disadvantages of each. **[6]**

b) Compare active safety & passive safety with suitable example. **[4]**

***Q2)*** a) Draw & explain obstacle avoidance RADAR when used as a vision enhancement system. **[6]**

b) State possible faults for the following common symptoms in comfort system, **[4]**

i) Radio Interference

ii) Electric windows not operating

***Q3)*** a) With the aid of a neat sketch explain the construction and theory of operation of a typical oxygen sensor used in vehicle. **[6]**

b) What are selection criteria of sensors for automotive applications? **[4]**

***Q4)*** a) Which types of sensors ensure Passenger safety in various automotive vehicles? Explain with suitable examples. **[6]**

b) Outline the construction of flap type & Hot wire type air flow sensor with suitable example. **[4]**

***P.T.O.***

***Q5)*** a) With suitable block diagram explain automatic cruise control system. List sensors used in such system. **[6]**

b) Explain the closed loop ignition control with its waveform. ` **[4]**

***Q6)*** a) What is the role of control system strategies in fine tuning of automotive systems? **[6]**

b) Comment on Anti-lock braking system & Electronic steering system. **[4]**

***Q7)*** a) What is CAN? Explain functionality of Data link layer in CAN? What is bit stuffing in CAN? State use of bit stuffing? **[6]**

b) What is needed to find faults in automotive systems? Explain in brief. **[4]**

***Q8)*** a) Enlist various types of automotive buses. Compare any three types of automotive buses. **[6]**

b) List the six-stage diagnostic process. Explain the same with suitable example. **[4]**