

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



**Karunya 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**

**Code : 14EI2018**  
**Sub. Name : Automotive Instrumentation**

**Semester : 2016-17 ODD**  
**Duration : 3hrs**  
**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 the vehicle battery.	CO1	6
<b>(OR)</b>				
2.	a.	Elaborate on the requirements of the charging system	CO2	6
	b.	List and explain the new developments that is happening for 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
<b>(OR)</b>				
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.		
		i. Traction control system.	CO2	10
		ii. Automatic transmission	CO2	10
<b>(OR)</b>				
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
<b>(OR)</b>				
8.	a.	Elaborate on the following comfort option available in automobile.		
		i) Electric sun-roof.	CO2	20
		ii) Centre Locking and electric windows		
		iii) Automatic seat adjustment		
<b><u>Compulsory:</u></b>				
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