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 : 14AE2022 **Duration : 3hrs**
Sub. Name : Rocket Propulsion **Max. marks : 100**

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	With a neat sketch explain the operating principle of a solid propellant rocket motor	CO1	20
		(OR)		
2.	a.	What are the interrelated requirements of the grain for a solid rocket motor?	CO2	20
3.	a.	A rocket projectile has the following characteristics: Initial mass 260 kg Mass after rocket operation Payload 130 kg Rocket operating duration 4.0 sec Average specific impulse of propellant 235 sec Determine the vehicle's mass ratio, propellant mass fraction, propellant flow rate, thrust, thrust-to-weight ratio, acceleration of vehicle, effective exhaust velocity, total impulse.	CO1	15
	b.	The following measurements were made in a sea level test of a solid propellant rocket motor: Burn duration 45 sec Initial mass before test 1200 kg Mass of rocket motor after test 215 kg Determine the mass flow rate of the engine?	CO1	5
		(OR)		
4.	a.	What are altitute compensating nozzle?	CO2	5
	b.	Explain the annular nozzle with a neat sketch.	CO2	15
5.	a.	With a neat sketch explain turbo pump feed system in a liquid rocket engine.	CO2	20
		(OR)		
6.	a.	Write a short note on 1. ramjet intake 2. combustion in ramjet	CO1	20
7.	a.	Explain nuclear rocket engine with the help of a neat sketch. State its advantages and disadvantages.	CO2	20
		(OR)		
8.	a.	What are Integral ram rocket?	CO1	5
	b	Explain with a neat sketch the differents parts of an intergral ram rocket	CO1	15
		Compulsory:		
9.	a.	Explain the various safety provisions in a modern test facility	CO2	20

ALL THE BEST