Student Exam No._____

GANPAT UNIVERSITY

B. Tech. Semester: VII Semester Mechanical Engineering

Regular Examination Nov – Dec 2015

I.C. Engine (2ME705-3)

Time: 3 Hours **Total Marks: 70**

Instruction:

1. Attempt all Questions.
2. Assume suitable data if necessary.
3. Draw neat sketch wherever essential.

		Section - I	
Que. – 1	A	Explain the various stages of combustion in C.I Engine using P-θ diagram.	12
	B	Explain basic requirements of good combustion chamber in context of C.I Engine.	
		OR	
Que. – 1	A	Prove that $\frac{dQ}{d\theta} = \frac{\gamma}{\gamma-1} p \frac{dv}{d\theta} + \frac{1}{\gamma-1} v \frac{dp}{d\theta}$ where the notations have their usual meaning. Derive Momentum equation for Incompressible flow.	12
	B	A 10 cylinder C.I. Engine running at 1295 RPM. Powers in electric generator. A Engine has compression ratio 16. The average piston speed is 9.5 m/s. The suction temperature is 47^0 C. and Pressure is 110 kPa. It is desired combustion to start at 12^0 before T.D.C. Using Fuel with CN-51. Calculate crank angle which fuel injection start and also Ignition delay in m's.	
Que. – 2	A	Explain Measurement of Air Consumption with diagram.	11
	B	Explain Measurement of Fuel Consumption with diagram.	
		OR	
Que. – 2	A	Explain effect of engine maintenance on exhaust on Exhaust Emission of S.I. Engine	11
	B	Explain Heat balance sheet with table. Explain Engine performance curves.	
Que. – 3			12
	A	Explain Watt Governor with diagram. State Advantage and Disadvantage of Watt Governor.	
	B	Explain Pollution Norms of S.I. Engine and C.I. Engine with tabular form.	
	C	Explain any one catalytic converter.	
		Section – II	
Que. – 4	A	Explain the various stages of combustion in S.I Engine using P-θ diagram.	12
	B	What is Uncontrolled Combustion? Explain various effects of uncontrolled combustion on S.I Engine.	
		OR	
Que. – 4	A	Explain the factors affecting Ignition lag in S.I.Engine	12
	B	Explain the various type of Nozzles used in fuel Injection system.	
Que. – 5	A	Explain with neat sketch about Battery and Coil Ignition System.	11
	B	What modifications should be done in an Engine for obtaining supercharging effect?	
		OR	
Que. – 5	A	What is Supercharging? Explain various methods of Turbo Charging.	11
	B	Explain with neat sketch about Magneto Ignition System	
Que. – 6			12
	A	Explain I.C. Engine Governing Methods. Define:- a) Cetane number b) Octane number.	
	B	What are the basic requirements of fuel Injection system?	
	C	Write short note on Electronic Ignition System with neat sketch.	

END OF PAPER