Total No. of Printed Pages:2

SUBJECT CODE NO:- H-1790
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Mechanical)
Advanced I.C. Engines
(REVISED)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
A. Solve any three questions from each section.
B. Figure to the right indicate full marks.
C. Assume suitable data, if necessary.
D. Use of non programmable calculator is allowed.

Section A

Q.1	a)	Explain with neat diagram any three combustion chambers used in SI engine.	06
	b)	Explain with the help of P-θ diagram, different stages of combustion in SI Engine.	07
Q.2	a)	What is meant by abnormal combustion? Explain the phenomenon of knock in SI engine.	06
	b)	Compare knock in CI engine and SI engine.	05
	c)	Fuel rating for diesel engine.	03
Q.3	a)	Explain with the help of P-θ diagram, different stages of combustion in CI Engine.	07
	b)	Explain with neat diagram 'shallow depth' and 'hemispherical chamber' used in CI engine.	06
Q.4	a)	The following readings were taken during the test of as single cylinder 4 stroke oil engine. Bore = 250 mm, stroke = 400 mm, Gross m.e.p.=7 bar, pumping m.e.p.=0.5 bar, engine speed = 250 rpm, Net load of the brake = 1080 N, dia of the brake = 1.5 meters, fuel used 10 Kg/hr, CV = 44300 kJ/kg. Calculate i) Indicated power ii) brake power iii) Mechanical efficiency iv) Indicated thermal efficiency.	10
	b)	Write a note on Fuel additives.	04

Section-B

Q.5	a)	Explain scavenging process and scavenging efficiency in two-stroke engine.	06
	b)	Explain IC engine simulation.	05
	c)	How NOx are formed?	03
Q.6	a)	Give advantages and disadvantages of alternative fuels.	05
	b)	A six cylinder gasoline engine operators on the four stroke cycle. The bore of each cylinder is 80mm and stroke 100 mm the clearance volume per cylinder is 70 CC. At a speed of 4000 r.p.m., the fuel Consumption is 30 kg/hr. and the torque developed is 150 N.m. Calculate:1. The brake power ii. The brake mean effective pressure iii. The brake thermal efficiency, Assume the C.V. of fuel as 43,000 kJ/kg.	08

Q.7	a)	Explain Exhaust gas recirculation.	06
	b)	State different emission control method and explain any one in detail.	07
Q.8	a)	Explain multi point fuel injection (MPFI) system	06
	b)	Explain crankcase blowby.	07