FACULTY OF ENGINEERING & TECHNOLOGY

B.E.(Mechanical) Examination – DEC – 2014

Internal Combustion Engines (Revised)

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

"Please check whether you have got the right question paper."

N.B
1) Solve any three from each section.
2) Support your answer with figure wherever possible.
3) Figures to the right indicate full marks.
4) Assume suitable data, if necessary

SECTION A

Q.1	A)	Explain with neat diagram the working of 4-stroke petrol engine.	07
	B)	Write the assumptions of air standard cycle.	07
Q.2	A)	Explain dissociation and its effects.	07
	B)	Define carburetion. Explain the factors that affect the process of carburetion.	06
Q.3	A)	What are the desirable properties of good I-C-engine fuels?	07
	B)	Write note on 'Hydrogen' as alternative fuel.	06
Q.4	A)	What is meant by abnormal combustion? Explain the phenomenon of knock in SI engine?	07
	B)	Explain the different factors that influence the flame speed.	06
Q.5	A)	Write the general objectives of combustion chamber design for SI engine.	06
	B)	State different types of combustion chamber used in SI engine. Explain any two with neat diagram.	07

SECTION B

Q.6	A)	Explain the phenomenon of knock in CI engines and compare it with SI engine knock.	07
	B)	Write the effect of compression ratio and engine speed on delay period in CI engine.	06
Q.7	A)	Explain, with neat diagram 'cylindrical chamber' and 'toraidal chamber' in CI engine.	07
	B)	Write note on 'Cetane Number'	06
Q.8	A)	State the objectives of supercharging. Also write the limitations of same.	06
	B)	The following readings were taken during the test of a single cylinder 4 stroke oil engine.	08

Bore = 250mm, stroke = 400mm, Gross m.e.p. = 7 bar, pumping m.e.p=0.5 bar,
engine speed   = 250 rpm. ,Net load of the brake = 1080N., dia of the brake = 1.5 meters, fuel used =10kg/hr , CV = 44300kj/kg.
Calculate i) Indicated power   ii) brake power   iii) mechanical efficiency iv) Indicate thermal efficiency.

Q.9	A)	explain stratified engines	07
	B)	Explain CRDI engine.	06
Q.10	A)	Explain catalytic convertor as after treatment device to control CO, HC & NOX.	07
	B)	Explain the effect of engine emission on human health.	06