CODE NO:- Z-254
FACULTY OF ENGINEERING & TECHNOLOGY
B.E (Mechanical) Year Examination - June – 2015
Internal Combustion Engines
(Revised)

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

"Please check whether you have got the right question paper."
i) Solve <u>any three</u> questions from each section.
ii) Support your answer with figure wherever possible.
iii) Figures to the right indicate full marks.
iv) Assume suitable data if necessary.

SECTION-A

Q.1	a)	Explain with neat diagram the working 4-stroke diesel engine.	07
	b)	Explain with P-V and T-S diagrams the Otto cycle. Obtain the thermal efficiency of otto cycle in terms of compression ratio.	07
Q.2	a)	Explain the effects of variable specific heats .	07
	b)	State different types of nozzles .Explain any one .	06
Q.3	a)	What are the important properies which SI Engine fuel posses?	07
	b)	Give advanteges and disadvantges of using alternative fuels .	06
Q.4	a)	Explainwith P-O diagram ,different stages of combustion in SI Engine .	07
	b)	Explain the effects of various engine variables on SI engine Knock.	06
Q.5	a)	Briefly explain the different types of combustion chambers used in S.I Engine .	07
	b)	Write note on 'Octane Number'.	06

SECTION-B

Q.6	a)	Explain different stages of combustion in CI. Engine with P-O diagram .	07
	b)	Compare knock in CI engine and SI engine.	06
Q.7	a)	Explain with neat diagram 'shallow depth' and 'Hemispherical chamber' used in CI engine .	07
	b)	Write note on 'Cetane Rating'.	06
Q.8	a)	What is supercharging ? Write its advantages & limitations.	06
	b)	A six cylinder , 4-stroke petrol engine having a bore of 90mm, and stroke of 100 mm has a compression ratio of 7. The relative efficiency with reference to indicated thermal efficiency is 55% .when the indicated sp. Fuel consumption is 0.3kg/kwh Estimate the calorifice valueof fuel & fuel consumption in kg/hr . Given that the imep is 8 bar and speed is 2500rpm	08
Q.9	a)	Explain Homogenous charge compression ignition Engine . Write its advantages .	07
	b)	Explain variable valve timing engine .	06
Q.10	a)	How NOx are formed . Explain the effect of 'NOx' on human heath.	07
	b)	Write note on 'Euro Ernission Norms'	06