https://www.bamuonline.com

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-304
FACULTY OF SCIENCE AND TECHNOLOGY
B.E. (Mechanical) (Sem-I)
I.C. Engines
[OLD]

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

Please check whether you have got the right question paper.

N.B.: i) Solve any three questions from each section.
ii) Figures to the right indicate full marks.
iii) Assume suitable data, if necessary.

Section– A

Q.1	a)	What are the important basic components of IC engines? Explain them briefly.	07
	b)	What is the basic difference between an otto cycle & Diesel cycle? Derive the expression for the efficiency of the diesel cycle.	07
Q.2	a)	Briefly explain (i) Time loss factor (ii) Exhaust blow down factor	07
	b)	Enlist different types of nozzles used in Fuel injection system? Explain multihole nozzle with neat sketch.	06
Q.3	a)	Briefly discuss the air Fuel mixture requirements of a petrol engine from no load to full load.	07
	b)	Enlist possible alternative fuels for IC engines. Explain alcohols as an alternative fuels for IC engines bringing out their merits & demerits.	06
Q.4	a)	Briefly explain the stages of combustion in SI engines, elaborating the flame front prapogation.	07
	b)	What is meant by abnormal combustion? Explain the Phenomenon of knock in SI engines.	06
Q.5	a)	State different combustion chambers used in SI engine. Explain any one with neat sketch.	07
	b)	What do you understand by octane rating? Explain its effect on SI engine knocking.	06

SECTION B

Q.6	a)	What is delay period in CI engine? What are the factors that affect it?	07
	b)	Explain the phenomenon of knock in CI engines and compare it with SI engine knock.	07
Q.7	a)	Enlist Direct and Indirect injection type combustion chambers used in CI engines? Explain Hemispherical combustion chamber with neat sketch	07
	b)	What are the limitations of supercharging in IC engines.	06

B2172AAE2E92F83027F08C081D5466A0

https://www.bamuonline.com

Q.8 a) Explain the parameters by which performance of an engine is evaluated. 06

b) The following data were recorded from a test on a single cylinder Four Stroke oil engine cylinder bore=150mm; engine stroke=250mm; area of indicator diagram=450mm^2; length of indicator diagram = 50mm indicator spring rating = 1.2mm; engine speed = 420 rpm; brake torque = 217 Nm. Fuel consumption = 2.95 kg/h; Calorific value of Fuel = 44,000 kJ/kg. Calculate 07

i) Mechanical efficiency
ii) brake thermal efficiency
iii) indicated thermal efficiency
iv) brake specific fuel consumption

Q.9 Write short notes on (any Two) 13

a) HCCI engine
b) Wankel engine
c) Microprocessor based engine

Q.10 a) Discuss the emissions from diesel engine on what factors these emissions depend? 07

b) What is EGR? Explain how it reduces the NOxemissions. 06

B2172AAE2E92F83027F08C081D5466A0