C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Alternate Fuels and Engines

Subject Code: 4TE07AFE1 Branch: B.Tech (Automobile)

Semester: 7 Date: 23/03/2017 Time: 02:30 To 05:30 Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1		Attempt the following questions:	(14)
	1)	Anti-knock characteristics of alcohol when compared to gasoline are? (a) Higher (b) Lower (c) Equal (d) None of these	(01)
	2)	Gasohol is a mixture of (a) 90% ethanol + 10% gasoline (b) 10% ethanol + 90% gasoline (c) 40% ethanol + 60% gasoline (d) 50% ethanol + 50% gasoline	(01)
	3)	The calorific value of alcohols is Gasoline. (a) higher than (b) lower than (c) same (d) None of the above	(01)
	4)	In stratified charge engine Air: Fuel mixture in the combustion chamber away from spark plug is (a) Rich (b) Lean (c) Stoichiometric (d) None of the above	(01)
	5)	Stoichiometric Air-Fuel ratio for hydrogen is (a) 7:1 (b) 34:1 (c) 14.6:1 (d) 20:1	(01)
	6)	Storage of Hydrogen in liquid form is than gasoline. (a) Simple (b) Difficult (c) same as (d) none of the above	(01)
	7)	A:F ratio of petrol engine at part load is (a) Rich (b) Lean (c) Sotichiometric (d) None of these.	(01)
	8)	is hydrogen production method. (a) Blending (b) Estrification (c) Electrolysis (d) None of the above	



	9)	Octane number of CNG is nearly (a) 20 (b) 130 (c) 90 (d) 50	(01)
	10)	is probably the most attractive for the application in vehicles. (a) PME (b)PAFCs (c) SOFCs (d)MCFCs	(01)
	11)	Ceramic engine component are made from? (a) SZ (b) LAS (c) HPSC (d) EPF	(01)
	12)	Fuel blending is method adopted to use fuel in SI engine. (a) EPF (b) Alcohol (c)CNG (d) None of these	(01)
	13)	In the stratified charged engine is use as fuel. (a) Petrol (b) Diesel (c) Bio-diesel (d) none of these.	(01)
	14)	Which of the following is material used in production of Bio-diesel? (a) Hydrogen (b) Alcohol (c) CNG (d) LPG	(01)
Atten	npt any f	our questions from Q-2 to Q-8	
Q-2	(a) (b)	Attempt all questions What are the barriers in implementing alternative fuels? Explain various properties of methanol and ethanol as engine fuels.	(14) (07) (07)
Q-3	(a) (b)	Attempt all questions Why blend of either ethanol or methanol are preferred over pure alcohol. Explain Wankel engine with neat sketch.	(14) (07) (07)
Q-4	(a) (b)	Attempt all questions Write short note on Esterification. Enlist various vegetable oils used as an engine fuel and write its required characteristics?	(14) (07) (07)
Q-5	(a) (b)	Attempt all questions Write short note on Fuel Cell. Explain layout of hydrogen Car.	(14) (07) (07)
Q-6	(a) (b)	Attempt all questions Explain Layout of solar powered vehicle. With neat sketch discuss construction and working of hybrid vehicle.	(14) (07) (07)
Q-7	(a) (b)	Attempt all questions Write short note on Factors effecting on biogas formation. Discuss use of CNG as engine fuel.	(14) (07) (07)



Q-8	Attempt all questions	(14)
(a)	Explain free piston engine with neat sketch.	(07)
(b)	What is EPF? Write advantages and limitation of the EPF.	(07)