Total No. of Questions: 6

Total No. of Printed Pages:2

Enrollment	No
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Faculty of Engineering End Sem (Even) Examination May-2022

ME5EL42 Alternative Fuels & Technology

Programme: M. Tech. Branch/Specialisation: AU **Maximum Marks: 60 Duration: 3 Hrs.**

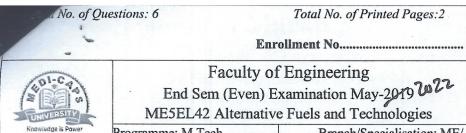
No Q.

	-	-	ompulsory. Interitten in full inste		f any, are indicated.Answe o, c or d.	ers (
Q.1	i.	The molecula	r weight of CNC	3 is-		1
		(a) 6	(b) 16	(c) 26	(d) 36	
	ii.	The formula of	of LPG is-			1
		(a) C_3H_8	(b) C_4H_{12}	(c) C_2H_6	(d) CO_2	
	iii.	In E85, the pe	ercentage of gaso	oline is-		1
		(a) 10%	(b) 85%	(c) 15%	(d) None of these	
	iv.	The stoichion	netric air fuel rat	io for ethanol	is-	1
		(a) 9	(b) 19	(c) 29	(d) 39	
	v.	Jatropha is a v	very good source	e for the produ	ction of-	1
		(a) Biogas	(b) Methanol	(c) Bio Diese	el (d) LPG	
	vi.	Which factor	is crucial in sele	cting proper b	iogas generation site?	1
		(a) Location r	near waste source	e (b) Ample op	pen space	
		(c) Proper sur	ılight	(d) All of the	ese	
	vii.	What does M	HD stands for in	the energy fie	eld?	1
		(a) Magneto I	Hydro Dynamic	(b) Metal Hy	drogen Drive	
		(c) Micro Hyb	orid Drive	(d) None of t	hese	
	viii.	When the sou	rce of light is no	ot sun light the	en the photo voltaic cell is	1
		used as	·			
		(a) Photo dioc	le	(b) Photo vol	taic cell	
		(c) Photo dete	ector	(d) Photo tran	nsmitter	
	ix.		used to convert	chemical energ	gy into-	1
		(a) Mechanica	~ ~	(b) Solar ener	••	
		(c) Electrical		(d) Potential of	••	
	х.	•			-oxygen fuel cell is-	1
		(a) 75% KOH		(b) 25% KOF		
		(c) 75% NaOl	H solution	(d) 25% NaO	H solution	

P.T.O.

[2]

Q.2	i.	List down the disadvantages of LPG as fuel.	2
	ii.	Explain the fuel induction techniques in SI engines needed to use hydrogen as fuel.	8
OR	iii.	Explain the storage, piping, dispensing, advantages and disadvantages of CNG as fuel.	8
Q.3	i.	Write a short note on automobiles using methanol as fuel.	3
	ii.	Explain the production of methanol by dry milling process.	7
OR	iii.	Explain the role of butanol as fuel, listing its hazards, advantages and storage system.	7
Q.4	i.	What properties of SVOs make them suitable as a fuel?	3
	ii.	Explain in detail the phases of combustion when bio-diesel is used as fuel in an automobile.	7
OR	iii.	Explain the construction and working of Floating type Biogas Digester (KVIC) plant.	7
Q.5	i.	Comment on the cost effectiveness of solar cell when used as energy source for automobiles.	2
	ii.	Explain in detail the distribution systems employed in harnessing solar energy when using photovoltaic cells as a source of energy for automobiles. Support your answering with diagrams.	8
OR	iii.	Explain the construction and working of thermoelectric generators. Support your answering with diagrams.	8
Q.6	i.	Define fuel cell.	2
	ii.	Explain the use of fuel cells in the storage for heating and cooling systems.	8
OR	iii.	Write short notes on:	8
		(a) Fuel cell performance characteristics	
		(b) Fuel reforming by fuel cells.	



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Branch/Specialisation: ME/ Automobile Engineering

Duration: 3 Hrs.

Maximum Marks: 60

SCHEME OF MARKING

Q.1	i.	b) 16	1
	ii.	a) C ₃ H ₈	1
	iii.	c) 15%	1
	iv.	a) 9	1
	v.	c) Bio Diesel	1
	vi.	d) all of the above	1
	vii.	a) Magneto Hydro Dynamic	1
	viii.	c) Photo detector	1
	ix.	c) Electrical energy	1
	x.	b) 25% KOH solution	1
Q.2	i.	Disadvantages points	2
	ii.	Four techniques (2 marks each)	8
OR	iii.	Storage Piping Dispensing Advantages Disadvantages	2 2 2 1 1
Q.3	i.	Short note	3
4	ii.	Steps of production	7
OR	iii.	Note Hazards Advantages	2
		Auvantages	2

		Storage system	2
Q.4	i.	Properties	3
	ii.	Two distinct phases (3.5 each)	7
OR	iii.	Construction Working	4 3
Q.5	i.	Comment	2
	ii.	Diagram Theory	6
OR	iii.	Diagram Theory	2 6
Q.6	i.	Definition	2
	ii.	Theory	8
OR	iii.	Short note 4 marks each	8
