## C.U.SHAH UNIVERSITY **Summer Examination-2020**

## **Subject Name: Internal Combustion Engines**

	Subject Code: 4TE05ICE1			Branch: B.Tech (Mechanical)		
	Semest	er : 5 Date : 28/	02/2020	Time : 10:30 To 01:30	Marks : 70	
	<ul> <li>Instructions:</li> <li>(1) Use of Programmable calculator &amp; any other electronic instrument is prohibited.</li> <li>(2) Instructions written on main answer book are strictly to be obeyed.</li> <li>(3) Draw neat diagrams and figures (if necessary) at right places.</li> <li>(4) Assume suitable data if needed.</li> </ul>					
Q-1	l	Attempt the following	wing questions:			(14)
	(a)	In a four stroke cycle, at the A. beginning of suctio B. end of suction strok C. beginning of exhau D. end of exhaust strok	n stroke e st stroke	emperature inside the engi	ne cylinder occurs	(1)
	<b>(b)</b>	(b) The cetane number of diesel oil, generally available, is A. 20 to 25 B. 25 to 30 C. 30 to 40 D. 40 to 55				(1)
	(c)					(1)
	( <b>d</b> )	of spark is called		t surface within the engine mition delay D. auto-igni		(1)
	(e)		nocking in comp	pression ignition engines, th		(1)
	( <b>f</b> )		-	r self ignition temperature.		(1)
	<b>(g)</b>	In a petrol engine, if d A. not run B. run mo		•	explode	(1)
	( <b>h</b> )	The firing order in an A. arrangement of the	I.C. engine depe	01		(1)



		B. design of crankshaft				
	C. number of cylinders					
		D. all of these				
	(i)	A supercharged engine as compared to an ordinary engine	(1)			
		A. is lighter				
		B. requires smaller foundations				
		C. consumes less lubricating oil				
		D. all of these				
	( <b>j</b> )	During idling, a petrol engine requires mixture.	(1)			
		A. lean B. rich C. chemically correct				
	( <b>k</b> )	The basic requirement of a good combustion chamber is	(1)			
		A. minimum turbulence				
		B. low compression ratio				
		C. high thermal efficiency and power output				
		D. low volumetric efficiency				
	<b>(l</b> )	The brake power is the power available	(1)			
		A. in the engine cylinder				
		B. at the crank shaft				
		C. at the crank pin				
		D. none of thes				
	( <b>m</b> )	The relative efficiency of an I.C. engine is the ratio of the indicated thermal	(1)			
		efficiency to the air standard efficiency.				
		A. Correct B. Incorrect	(1)			
	<b>(n)</b>					
		A. Agree B. Disagree				
	pt any i	four questions from Q-2 to Q-8				
Q-2	$(\mathbf{a})$	Attempt all questions What is a demonstrate Discuss the working of Promy type of demonstrates with	(14)			
	<b>(a)</b>	What is a dynamometer? Discuss the working of Prony type of dynamometer with neat sketch.	(07)			
	<b>(b</b> )	Enumerate the Willan's line method with neat sketch.	(07)			
	()		()			
Q-3		Attempt all questions	(14)			
	<b>(a)</b>	What is indicated power? Discuss the mechanical engine indicator method for	(07)			
		measurement of I.P. of an Engine.				
	<b>(b</b> )	Explain the effect of different pollutants on human and plant life.	(07)			
Q-4		Attempt all questions	(14)			
τ.	<b>(a)</b>	What is supercharging of an I.C engine? What are the advantages and limitation of	(07)			
		supercharging? Differentiate between supercharging and turbo charging.	. ,			
	<b>(b</b> )	Compare the battery ignition and magneto ignition system in details.	(07)			
Q-5	( )	Attempt all questions	(14)			
	(a) (b)	Explain the working of a S.U. carburettor with the help of neat sketch. What is the function of lubrication system? Explain Dry sump lubrication system	(07) (07)			
	(0)	with a neat sketch.	(07)			



Q-6	(a)	Attempt all questions What is the function of cooling system? Explain Forced Circulation Cooling system with neat sketch.	(14) (07)
	<b>(b)</b>	Explain stages of combustion can be recognized in CI engine with neat sketch.	(07)
Q-7		Attempt all questions	(14)
	<b>(a)</b>	What is Solid injection system? What are the types of Solid injection System? Explain any one method with neat sketch.	(07)
	(b)	How the fuels are classified? Enumerate the desirable Properties of fuel for I.C. Engine. Is it possible to use solid fuel in I.C. Engines? If no, what are associated Problems?	(07)
Q-8		Attempt all questions	(14)
	(a)	Describe the operation of Wankle Engine with neat sketch. What are the advantages and disadvantages?	(07)
	<b>(b</b> )	How does a two stroke cycle engine differ from a four stroke cycle engine? Explain port timing diagram for two stroke cycle spark ignition engine with neat sketch.	(07)

