KADI SARVA VISHVAVIDHYALAYA
B.E. SEM V (NOVEMBER - 2016)

Subject Code: AE-501 **Subject Name: S.I.Engine**

Date: 09/11/2016 **Time: 10.30am – 01.30pm** **Total Marks: 70**

Instructions:

1. Answer each section in separate Answer Sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **compulsory.**
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section – I

Q 1	(A)	(1) The two stroke cycle engines have lighter flywheel. (a) Agree (b) Disagree (2) In a petrol engine, the mixture has the lowest pressure at the (a) end of suction stroke (b) beginning of the suction stroke (c) end of compression stroke (d) none of these (3) The pressure at the end of compression in petrol engines is approximately (a) 10 bar (b) 20 bar (c) 25 bar (d) 35 bar (4) The thermal efficiency of petrol engine is _____than that of diesel engine. (a) less (b) same (c) more (5) The self ignition temperature of petrol is ____ as compared to diesel oil. (a) higher (b) lower (c) same	**[5]**
	(B)	Write down limitation of single jet carburetor.	**[5]**
	(C)	List out the different Performance parameter of the engine.	**[5]**
		OR	
	(C)	Explain port and valve timing diagram with neat sketch for 2-stroke & 4-stroke engine.	**[5]**
Q 2	(A)	Explain application of the following (a) Fuel pump (b) fuel filter (c) Supercharging (d) fuel gauge.	**[5]**
	(B)	Explain factors affecting on Detonation in SI Engine.	**[5]**
		OR	
Q 2	(A)	Compare theoretical & actual P-V diagram of 4-stroke petrol engine.	**[5]**
	(B)	Explain Indicator Diagram Finding out Indicated Power.	**[5]**
Q 3	(A)	Explain stages of combustion of SI Engine with neat sketch.	**[5]**
	(B)	For Compression ratio and Intake air temperature compare auto, diesel & dual cycles.	**[5]**
		OR	
Q 3	(A)	Explain Hit & Miss governing system with neat sketch.	**[5]**
	(B)	Explain how the knocking characteristics play important role in starting of SI & CI Engine.	**[5]**

Section - II

Q 4	(A)	(1) During idling petrol engine requires_____mixture. (a) rich (b) lean (c) chemically correct (2) In a four stroke cycle petrol engine, the charge is ignited at (a) 30° before TDC (b) 30° after TDC (c) 30° before BDC (d) 30° after BDC (3) The theoretically correct mixture of air and petrol is. (a) 15:1 (b) 10:1 (c) 20:1 (d) 25:1 (4) The thermodynamic cycle on which the petrol engine works, is (a) otto cycle (b) joule cycle (c) rankine cycle (d) stirling cycle (5) In a two stroke engine, the working cycle is completed in two revolution of the crank shaft (a) Incorrect (b) Correct	**[5]**
	(B)	Explain 4-stroke petrol engine cycle with neat sketch.	**[5]**
	(C)	Short note on Octane Number.	**[5]**
		OR	
	(C)	Short note on EGR.	**[5]**
Q 5	(A)	What are the basic requirements of a good SI engine combustion chamber.	**[5]**
	(B)	Explain the Methods of obtaining friction power and explain any one of them in detail with neat sketch.	**[5]**
		OR	
Q 5	(A)	What is Scavenging system? Give its importance and enlist the types of it.	**[5]**
	(B)	Explain heat balance sheet and its important.	**[5]**
Q 6	(A)	What is supercharger? Explain turbo supercharger.	**[5]**
	(B)	What do you mean by IC Engine? How they are classified?	**[5]**
		OR	
Q 6	(A)	Define, (1) Bore (2) stroke (3) compression ratio (4) Mean effective pressure (5)IDC	**[5]**
	(B)	Short note on Exhaust emission of Engine.	**[5]**

----------ALL THE BEST----------

KADI SARVA VISHWAVIDYALAYA

B. E. SEMESTER V EXAMINATION (NOVEMBER-2015)

SUBJECT CODE: AE-501 SUBJECT NAME: SPARK IGNITION ENGINE

DATE: 19th NOVEMBER, 2015 TIME: 10:30 AM TO 1:30 PM TOTAL MARKS: 70

Instruction:

1. Answer each section in separate answer sheet.
2. Use of scientific calculator is permitted.
3. All questions are compulsory.
4. Indicate clearly, the option you attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

Section-1

Q: 1	(A)	With a neat sketch explain the valve timing diagram of four stroke petrol engine.	05
	(B)	Enlist the assumptions which are made for fuel-air cycle analysis.	05
	(C)	Define Bore, stroke, compression Ratio, clearance ratio and mean effective pressure.	05
		OR	
	(C)	With a neat sketch explain the valve timing diagram of two stroke petrol engine.	05
Q: 2	(A)	What is the function of carburetor in an SI engine? Explain the operation of simple float type carburetor with a neat sketch.	05
	(B)	Give properties of CNG.	05
		OR	
	(A)	What are the factors affecting carburetion?	05
	(B)	Draw neat and labeled diagram of multi point fuel injection system for modern automobile engines and explain its working.	05
Q: 3	(A)	Explain Ignition Requirement. Also give types of Ignition Systems and explain in detail any one of them.	05
	(B)	Explain construction of spark plug with neat sketch.	05
		OR	
	(A)	List advantages and disadvantages of Magneto System over battery ignition system.	05
	(B)	What is Scavenging system? Gives its importance and enlist the types of it.	05

Section-2

Q: 4	(A)	What do you understand by knock in S.I. Engines? Explain this phenomenon.	05

	(B)	Explain the stages of Combustion in the S.I. Engine with the help of a P- Θ Diagram.	05
	(C)	List basic requirements of a good combustion chamber of S.I. engine.	05
		OR	
	(C)	What is ignition lag? Discuss the effect of engine variables on ignition lag in case of SI engines.	05
Q: 5	(A)	State the different methods of supercharging and discuss any one of them.	05
	(B)	Explain need of engine cooling system.	05
		OR	
	(A)	Explain air-cooling system with advantages and disadvantages.	05
	(B)	Explain thermodynamic cycle with supercharging on p-v diagram.	05
Q: 6	(A)	What are the aims of engine testing?	05
	(B)	Draw and explain following engine performance curve. 1. Load v/s Efficiency 2. Speed v/s efficiency	05
		OR	
	(A)	With neat sketch explain roots blower.	05
	(B)	Give limitations of supercharging.	05

All the Best