

# DRONACHARYA COLLEGE OF ENGINEERING

KHENTAWAS, FARRUKHNAGAR, GURGAON, HR

**Department: Mechanical Engineering**

Academic Session: 2021 (May-Aug 2021)

**Semester- VI Sem**

**Subject with code- INTERNAL COMBUSTION ENGINES & GAS TURBINES MANUFACTURING (PEC-ME -320G)**

**Name of Faculty with designation : Mr. Yudhveer Kumar Verma (ASSISTANT PROFESSOR)**

S.No.	Month	Date & Day	Sem-Class	Section/Unit	Topic/Chapter covered	Academic activity	Test / assignment
1			VI-ME	I-A	Air Standard Cycles: Internal and external combustion engines	.....	Assignment of 02 Ques.
2			VI-ME		classification of I.C. Engines, Cycles of operation in four stroke and two stroke I.C. Engines	.....	Assignment of 02 Ques.
3			VI-ME		Wankel Engines, Assumptions made in air standard cycle; Otto cycle;	.....	Assignment of 02 Ques.
4			VI-ME		diesel cycle, dual combustion cycle, comparison of Otto, diesel and dual combustion cycles	.....	Assignment of 02 Ques.
5			VI-ME		sterling and Ericsson cycles; air standard efficiency, specific work output	.....	Assignment of 02 Ques.
6			VI-ME		specific weight; work ratio; mean effective pressure; deviation of actual engine cycle from ideal cycle	.....	Assignment of 02 Ques.
7			VI-ME		Problems	.....	Assignment of 02 Ques.
8			VI-ME	I-B	Carburetion, fuel Injection and Ignition systems: Mixture requirements for various operating conditions in S.I. Engines	.....	Assignment of 02 Ques.
9			VI-ME		elementary carburetor, Requirements of a diesel injection system	.....	Assignment of 02 Ques.
10			VI-ME		types of inject systems; petrol injection, Requirements of ignition system;	.....	Assignment of 02 Ques.
11			VI-ME		types of ignition systems ignition timing; spark plugs. Problems	.....	Assignment of 02 Ques.
12			VI-ME	II-A	Combustion in I.C. Engines: S.I. engines; Ignition limits; stages of combustion in S.I. Engines; Ignition lag	.....	Assignment of 02 Ques.
13			VI-ME		velocity of flame propagation; detonation; effects of engine variables on detonation; theories of detonation; octane rating of fuels	.....	Assignment of 02 Ques.
14			VI-ME		pre-ignition; S.I. engine combustion chambers, Stages of combustion in C.I. Engines; delay period;	.....	Assignment of 02 Ques.

15			VI-ME		variables affecting delay period; knock in C.I. engines, Cetane rating; C.I. engine combustion chambers	.....	Assignment of 02 Ques.
16			VI-ME	II-B	Lubrication and Cooling Systems: Functions of a lubricating system, Types of lubrication system; mist	.....	Assignment of 02 Ques.
17			VI-ME		wet sump and dry sump systems; properties of lubricating oil; SAE rating of lubricants, engine performance and lubrication		Assignment of 02 Ques.
18			VI-ME		Necessity of engine cooling; disadvantages of overcooling; cooling systems; air-cooling, water cooling; radiators		Assignment of 02 Ques.
19			VI-ME	III-A	Engine Testing and Performance: Performance parameters: BHP, IHP, mechanical efficiency, brake mean effective pressure and indicative mean effective pressure	.....	Assignment of 02 Ques.
20			VI-ME		torque, volumetric efficiency; specific fuel consumption (BSFC, ISFC), thermal efficiency; heat balance; Basic engine measurements	.....	Assignment of 02 Ques.
21			VI-ME		fuel and air consumption, brake power, indicated power and friction	.....	Assignment of 02 Ques.
22			VI-ME		heat lost to coolant and exhaust gases; performance curves. Problem	.....	Assignment of 02 Ques.
23			VI-ME	III-B	Air pollution from I.C. Engine and Its remedies: Pollutants from S.I. and C.I. Engines	.....	Assignment of 02 Ques.
24			VI-ME		Methods of emission control; alternative fuels for I.C. Engines		Assignment of 02 Ques.
25			VI-ME		the current scenario on the pollution front	.....	Assignment of 02 Ques.
26			VI-ME	IV-A	Rotary Compressors: Root and vane blowers; Static and total head values; Centrifugal compressors- Velocity diagrams, slip factor		Assignment of 02 Ques.
27			VI-ME		ratio of compression, pressure coefficient, pre-whirl; Axial flow compressor- Degree of reaction		Assignment of 02 Ques.
28			VI-ME		polytropic efficiency, surging, choking and stalling, performance characteristics,		Assignment of 02 Ques.
29			VI-ME		Problems		Assignment of 02 Ques.
30			VI-ME	IV-B	Gas Turbines: Brayton cycle; Components of a gas turbine plant; open and closed types of gas turbine plants		Assignment of 02 Ques.
31			VI-ME		Optimum pressure ratio; Improvements of the basic gas turbine cycle; multi stage compression with intercooling		Assignment of 02 Ques.
32			VI-ME		multi stage expansion with reheating between stages; exhaust gas heat exchanger, Applications of gas turbines		Assignment of 02 Ques.
33			VI-ME		Problems		Assignment of 02 Ques.
34			IV-ME		length hypothesis		Assignment of 02 Ques.

35			IV-ME		hydraulically smooth and rough pipes, velocity distribution in pipes, friction		<b>Assignment of 02 Ques.</b>
36			IV-ME	I	Fluid Properties and Fluid Statics: Concept of fluid and flow	.....	<b>Assignment of 02 Ques.</b>