MECHANICAL ENGEINEERING DEPARTMENT

B.E. Semester -VII

Internal Combustion Engines
(Professional Elective V) (3171923)

ASSIGNMENT – 03- Fuel supply in SI Engine (CO-1)

Theory

SR.	Question	Blooms Taxonomy level	Maximum marks
1.	What is the meaning of Stoichiometric A/F ratio for any fuel? Find the value of Stoichiometric A/F ratio for fuel, isooctane (C_8H_{18}).	R	5
3.	Show how a simple carburetor works and Discuss its fundamental fault.	U	5
2.	Derive equation of air fuel ratio for simple carburetor if air is assumed to be incompressible. *(make an approximate analysis)*	U	5
4.	Discuss various conditions of Engine working and mention the typical requirement of A/F ration for each	U	5

Examples

SR.	Data	Blooms Taxonomy level	Maximum marks
1	A simple carburetor has a throat diameter 8cm and coefficient of discharge 0.94. The diameter and Coefficient of discharge for fuel orifice is 0.5cm and 0.7 respectively. Determine the A/F ration if the pressure drop at the throat is 0.14bar when a) Effect of Nozzle tip is neglected. b) Effect of Nozzle tip 0.5cm considered Assume the density of Fuel 780 kg/m^3 and that of air is 1.3 kg/m^3 Neglect the compressibility of Air	U	5
2	An engine is supplied fuel air mixture with A/F ratio 15.4:1. Per hour this engine consumes 7.5 kg of fuel. Throat diameter of venture is 2.2 cm. The atmospheric pressure is 1.013 bar at bar at 25°C Find the diameter of fuel orifice which has nozzle tip of 4mm. Consider : • Density of Fuel = 750 kg/m^3 • C_d for air and fuel = 0.82 and 0.7 respectively	U	5