2019

MAJOR

1st Semester Examination

AUTOMOBILE MAINTENANCE

Paper—C 1-T

[Principles of automobile]

Full Marks : 40 Time : 2 Hours

The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.

1. Answer any five questions : 5×2=10

Choose the correct answer from the given alternative in each of following :

(i) S.I Engine means only—(a) petrol engine, (b) diesel engine, (c) constant volume and pressure cycle engine, (d) None of these.

(ii) Pre-ignition may occur—(a) only in diesel engine, (b) only in petrol engine, (c) both petrol & diesel engine, (d) None of the above.

(iii) At first sight petrol engine isedentified by—(a) cylinder size, (b) powr out pot, (c) operating speed, (d) spark plug.

(iv) In petrol engine usual compression ratio is—(a) 12 : 1 to 19 : 1 (b) 5 : 1 to 9 : 1 (c) 7 : 1 to 13 : 1 (d) None of these.

(v) If the in take air temperature of I.C Engine increase, its efficieny will—(a) increase, (b) decrease, (c) remain same, (d) not effected.

(vi) Maximum value of Poision ratio is—(a) 0.5 (b) –0.5 (c) 0.6 (d) 0.7

(vii) Minimum value of Poision ratio is—(a) –0.5, (b) +4 (c) –0.7 (d) –0.1

(viii) The unit of stress in M.K.S systems is—(a) N/m^2 (b) gm/cm^2 (c) kg/mm^2 (d) dyne/cm^2

2. Answer any four questions. 4×5

(i) (a) Give the classification of fuel.

(b) What do you mean by calorific value of fuel?

(c) Write down advantages and disadvantages of gaseous fuel. 1+1+3

(ii) (a) What do you mean by compression ratio of an I.C engine?

(b) Calculate the compression ratio, if clearance volume is 90 cm^3 and displacement volume is 540 cm^3. 2+3

(iii) Give compare between four-stroke and two-stroke engine. 5

(iv) Explain briefly with neat sketch of valve timing diagram of two stroke engine. 5

(v) (i) Write down few points advangates of petrol engine.

(ii) What do you mean by cetane number of a fuel. 2+3

(vi) (i) Give classification of I.C engine briefly.

(ii) What do you mean by detonation of an I.C. engine? 2½+2½

3. Answer any one question. 1×10

(i) In a diesel engine quantity of heat produce per second by burnting fuel is 12.5 kcal. If 20% heat is converted to work and 40% of heat supplied to be carried away by water

jaket and the rise in temperature of the water as it passes through the jaket is 20°C.

(a) Find the value of H.P of the engine.

(b) What is the amount of water that must pass through the jaket per second in kg.

5+5

(ii) A load of 20,000 kgf. applied to a brass cylinder 40 cm long and 10 cm diameter causes the length to decrease by 0.008 cm and the diameter to increase by 0.00055 cm.

Find the modulus of elasticity and poission ratio of the brass. 5+5