2019

Major

2nd Semester Examination

AUTOMOBILE MAINTENANCE

Paper—C3T

Theory of Machine

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

   (i) What do you mean by coefficient of friction and limiting friction.

   (ii) Write down the types of belts. What are the material used in belts ?

   (iii) Write down the fundamental laws of gearing.

   (iv) What is fly wheel and why it is used.

   (v) What is shear and tortional rigidity.

   (vi) Write down the difference between rope drive and chain drive.

[Turn Over]

(vii) Write down the principle of governor.

(viii) What is CAM and its types ?

2. Answer any *four* questions :   4×5

   (i)   (a) What is direct stress ?

        (b) Write down few points on difference between direct stress and bending stress.

                                   2+3

   (ii) Write short notes on :

        (a) Maximum and minimum equilibrium speeds of gorvenor.

        (b) Moment of Innertia   3+2

   (iii) (a) Write down technical terms of cam bar circle

        (b) Trace point

        (c) Pressure angle

        (d) Pitch point   1+1+2+1

   (iv) (a) What is beam ?

        (b) What is load ?

(c) Give the classification of load.

(d) What do you mean by coloum ?

(v) (a) What is governor ?

(b) Classification of governor.

(c) Write down few points about watt governor. 1+1+3

(vi) (a) What do you mean by gear train ?

(b) Classification of gear train.

(c) Write down advantage of compound gear train. 1+1+3

3. Answer any *one* questions : 1×10

(i) Derive the formula for internal bending moment and explain bending moment diagram. What is bending stress ? 5+3+2

(ii) Derive the formula for Belt friction : Ratio of Tension. An open belt running over two pulleys 240 mm and 600 mm diameter connects two parallel shafts 3m apart. The power to be transmitted is 4 KW from the small pulley that rotates at 300 rpm. Coefficient of friction

between belt and pulley is 0.3 and the safe working tension is 10N per mm width. Determine—

(i) Minimum width of the belt

(ii) Initial belt tension.

(iii) length of the belt required.   6+4

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