(b) With the help of a neat sketch explain any one type of transmission Dynamometer. 6

(c) Classify brakes. 4

5. (a) Derive an expression for effort and power of Porter Governor. 10

(b) Derive an expression for angle of heel in case of a two wheeler negotiating a turn. 10

6. (a) Draw displacement, velocity, acceleration and jerk diagrams of cam operating a knife edge follower from the following data. 16
    (i) Follower move to rise through 40mm during 90° rotation of cam with SHM.
    (ii) Follower to dwell for next 45° rotation of cam.
    (iii) Follower to return to its original position during next 120° rotation with UARM.
    (iv) Follower to dwell for remaining period.

(b) Explain effect of Gyroscopic couple on an Aeroplane. 4

7. (a) Explain following terms with reference to a Governor. 10
    (i) Sensitiveness
    (ii) Hunting
    (iii) Isochronism
    (iv) Stability
    (v) Co-efficient of insensiveness.

(b) A disc of 5kg mass with radius of gyration 70mm is mounted at mid-span on a horizontal shaft of 120mm length between two bearings. The shaft spins at 720rpm in clockwise direction when viewed from the right hand side bearing. If the shaft precesses about the vertical axis at 30rpm in clockwise direction when viewed from the above, determine the reactions at each bearing due to mass of the disc and gyroscopic effect. 10

_____

LM-Con. 5537-14.