

JK Lakshmipat University, Jaipur

Institute of Engineering and Technology

End Term Examination

B. Tech. [Year]/[Semester]/[Academic Year]



Course Name: Theory of Machine

Max Marks: 40

Course Code: ME -303

Time: 03.00 hr

Instructions:

1. Attempt all sections. Follow each part instructions separately.

Section A

Attempt all

10

Q.1 Explain following

a) Different mode of power transmission b) Slip in belt c) Velocity ratio in belt

d) Intersecting shaft gears e) Arc and path of contact in gears

Q.2 Explain following

a) Self locking brakes b) Centrifugal governor c) Difference in watt and hartnell governor

d) Gyroscopic torque e) Different axis in gyroscopic equipment

Section B

Attempt any four

20

Q.3 Derive tension ratio in V belt

Q.4 Explain different profile of gear teeth

Q.5 Explain reverted & planetary gear train with neat sketch

Q.6 Explain band brakes and derive torque for all cases of band brakes.

Q.7 Compare Watt, Porter and Proell governors.

Q.8 Explain gyroscope with neat sketch and its effect on navel and air applications.

Section C

10

Q.9 Each arm of a porter governor is 200 mm long and is pivoted on the axis of the governor. the radius of rotation of the belt at the minimum and maximum speeds are 120 mm and 160 mm respectively. The mass of sleeve is 24kg and each ball is 4 kg. Find range of speed of the governor. Also determine the range of speed if friction at the sleeve is 18 N.

Q.10 A differential band brake has a drum with a diameter of 800 mm the two ends of the bands are fixed to the pins on the opposite sides of the fulcrum of the lever at distance of 40mm and 200 mm from the fulcrum. The angle of contact is 270° and the coefficient of friction is 0.2. Determine the brake torque when a force of 600 N is applied to the lever at a distance of 800 mm from the fulcrum.