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**REG NO:**

**Department of Mechanical Engineering**

**SIR ISSAC NEWTON COLLEGE OF ENGINEERING AND TECHNOLOGY**  
 Mechanical Engineering  
**ME6601 — DESIGN OF TRANSMISSION SYSTEMS**  
Time: Two hours **Year/Sem: III / VI** Maximum: 50 Marks

CIA –II EXAM

Date: 05/03/2018

PART-A

(**5× 2 = 10 Marks)**

1. How is a wire rope specified?
2. What is chordal action (Polygonal action) in chain drive?
3. Define creep & slip in belts.
4. What does the ray diagram of gear box indicates?
5. Why G.P. series is selected for arranging the speeds?

PART-B

(Answer Any Three questions)

(**3× 10 = 30 Marks)**

(6) Design a CHAIN drive to connect at 15 KW, 1440 rpm electric motor to a transmission shaft running at 350 rpm. The operation involves, moderate shocks.

(7) A V-belt drive is to transmit 50KW in a heavy duty saw mill which works in two shifts of 8hours each. The speed of motor shaft is 1440 rpm with the approximate speed reduction of 2 in the machine shaft. The peripheral speed of the belt should not exceed 24m/s. Design the drive and calculate the average stress induced in the belt.

(8) Design a FLAT belt drive to transmit 10 KW at 400 rpm. The speed ratio is 3. The distance between the pulley centers is 600 mm. the drive is for a crusher.

(9) A six speed gear box is required to provide output speeds in the range of 125 to 400 rpm with a step ratio of 1.25 and transmit a power of 5 kW at 710 rpm. Draw the speed diagram and kinematics diagram. Determine the number of teeth module and face width of all gears, assuming suitable materials for the gears.

PART-C

(**1× 10 = 10 Marks)**

(10) Design a nine – speed gear box for a machine to provide speeds ranging from 180 to 1800 rpm. The input is from a motor of 5 kW. Assume any alloy steel for the gear.

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