

NETTUR TECHNICAL TRAINING FOUNDATION
DIPLOMA IN MECHATRONICS ENGINEERING & SMART FACTORY-CP15
III SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION-JAN 2023

Subject: Mechanics Of Machines
Subject Code: CP15305T

Total Time: 2 Hr.
Total Marks: 50 Marks

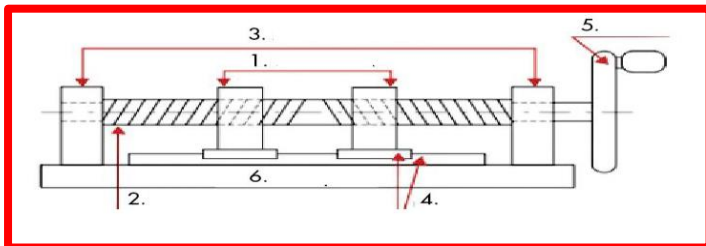
PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING **2*8=16**

- 1.1 How the Velocity Ratio of a machine can be calculated?
- 1.2 Write the difference between machine and structure?
- 1.3 List the applications of Ratchet and Pawl Mechanism
- 1.4 List the types of Belt Drives
- 1.5 Define Chain Drive
- 1.6 Define Gear
- 1.7 What are the different methods of Lubrication?
- 1.8 Define bearing and mention its classifications
- 1.9 Define Cam and Follower
- 1.10 List the functions of guideways

2.0 ANSWER ANY SIX OF THE FOLLOWING **3*6=18**

- 2.1 List the types of simple machines
- 2.2 Explain the Kinematic Pair according to the type of contact between the elements
- 2.3 Identify the parts and list as per the image given below



- 2.4 List any two applications, advantages and disadvantages of Flat Belt Drive
- 2.5 Write the benefits of Balancing
- 2.6 Define Damping? Explain its types in details
- 2.7 Explain in details about the Hoisting chains types with diagram
- 2.8 List the types of Gears and mention its applications

3.0 ANSWER ANY FOUR OF THE FOLLOWING **4*4=16**

- 3.1 Describe in details about the following simple machines with example
1. Inclined Plane 2. Lever 3. Pulley 4. Wheel and Axle
- 3.2 Explain in brief about double crank chain mechanism with diagram
- 3.3 List in details the Gear Trains, its image and applications
- 3.4 Write the Classification of Followers
- 3.5 List the types of Frictional Guideways & explain any two in detail
- 3.6 Explain the working of Slider Crank Mechanism with neat sketch

NETTUR TECHNICAL TRAINING FOUNDATION
DIPLOMA IN MECHATRONICS - CP15
III SEMESTER SUPPLEMENTARY EXAMINATION – JAN 2023

Subject: Mechatronics System
Subject Code: CP15 03 06

Total Marks : 50
Total Time : 2H

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING

2*8=16

1. 1 Name the types of Elements or link.
1. 2 Write short notes on Hydraulics.
1. 3 Define mechatronics.
1. 4 Name the actuator given below: Fig: 1.4

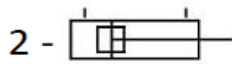
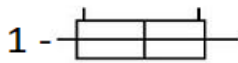


Fig: 1.4

1. 5 Name any 3 Torque Transmitting Elements.
1. 6 What is direct measurement system?
1. 7 Give any two examples of storage devices.
1. 8 What are the Properties of air?
1. 9 What is Tool monitoring system?
1. 10 Define step angle for a stepper motor.

2.0 ANSWER ANY SIX OF THE FOLLOWING

3*6=18

2. 1 Explain about eccentric cam with neat diagram.
2. 2 Define with a neat sketch of ratchet and pawl mechanism.
2. 3 Write a short note on Ball Screws. State any 2 Advantages & disadvantages of Ball Screw.
2. 4 Explain working Principle of Solenoid with a neat sketch & Write down its types.
2. 5 Write a short note on Gear trains.
2. 6 Draw a block diagram of close loop control system. State any 3 advantages & disadvantages
2. 7 Draw a symbol for single acting cylinder & double acting cylinder and explain anyone.
2. 8 State the parameters used to monitor tool condition in Indirect monitoring.

3.0 ANSWER ANY FOUR OF THE FOLLOWING

4*4=16

3. 1 Draw a neat sketch of Recirculating Ball screw & label its parts.
3. 2 Explain about ball screw and nut with a neat diagram.
3. 3 List out types of Hydraulic Motor. Explain anyone with a neat sketch
3. 4 Explain about journal bearing in detail.
3. 5 List any four differences between Conventional and Mechatronics approach.
3. 6 Explain the working of Linear position measuring transducers.

