

NETTUR TECHNICAL TRAINING FOUNDATION
DIPLOMA IN TOOL ENGINEERING & DIGITAL MANUFACTURING – CP01
IV SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION-JULY 2023

Subject: CNC Technology
Subject Code: CP01405T

Total Time: 2 Hr.
Total Marks: 50

PART B

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

- 1.1 Productivity is enhanced with CNC machine. Justify.
- 1.2 How surface coating will play an important role in CNC machines
- 1.3 List the different types of canned cycle used in CNC turning centers.
- 1.4 How do you classify NC based on motion control system?
- 1.5 What is the meaning of G28 U0 W0?
- 1.6 Briefly explain the meaning of following, a); b)/
- 1.7 Briefly explain the term “BLOCK”.
- 1.8 What is dwell? Explain its necessity.
- 1.9 What is programme number?
- 1.10 Write the difference between M03 and M04

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

- 2.1 What are the additional features available in CNC compared to NC?
- 2.2 Explain closed loop system with neat sketch
- 2.3 Briefly describe the functions of ATC.
- 2.4 Explain incremental and absolute co-ordinate system
- 2.5 Explain the importance of cutter radius compensation.
- 2.6 Write the difference between CNC turning center and machining Centre
- 2.7 List five M-codes and write the functions
- 2.8 Explain Rough turning cycle format.

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

- 3.1 Specify any eight areas of application of CNC Machines
- 3.2 Write the tool selection criteria for the following materials-P, M, K, N, S, and H
- 3.3 Explain with neat sketch axis nomenclature of CNC turning centre
- 3.4 Explain the importance of absolute encoders in CNC.
- 3.5 Explain the importance of reciprocating ball screw used in the actuation system of CNC machine?
- 3.6 Define following:
(a) Preparatory Function (b) Miscellaneous Function (c) Feed Function

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Subject: Pneumatics & Hydraulics
Subject Code: CP010406

Time: 2 Hr.
Marks: 50

PART B

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

- 1.1 List any six applications of 'Pneumatic System'.
- 1.2 Differentiate between 'Theoretical Volume & Effective Delivery Volume'.
- 1.3 List out the Disadvantages of Pneumatic system.
- 1.4 Explain about Actuator.
- 1.5 What is 'Isothermal Compression'?
- 1.6 Write two problems that occur with 'Excessive Lubrication'.
- 1.7 Define Pascal's Law.
- 1.8 Name two different types of 'Drives' used in compressors.
- 1.9 Define the term 'Atmospheric Pressure'.
- 1.10 What do you mean by Venturi Effect?

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

- 2.1 Differentiate between 'Absolute Pressure and Gauge Pressure'.
- 2.2 Draw the symbol of 5/2 single Air Pilot Operated DC Valve and 4/3 Lever Operated DC Valve.
- 2.3 What are the criteria for selecting 'Pipe Diameter' in Pneumatics System?
- 2.4 How to determine the pressure at a depth below the 'Free Surface of a Liquid'?
- 2.5 Briefly explain the following:
a) Cylinder with End Position Cushioning b) Hydraulic Telescopic Cylinder.
- 2.6 Identify the element and label the parts fig: 1

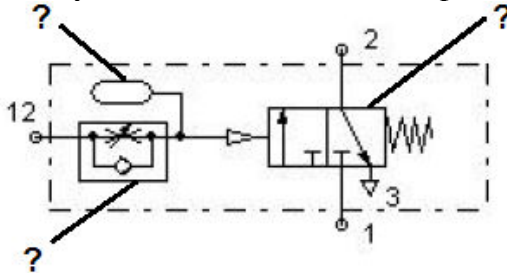


Fig: 1

- 2.7 Name different methods of 'Compressor Regulation'.
- 2.8 Write a short note on 'Routine Maintenance of Compressed Air Filter'.

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

- 3.1 What is the need of a Hydraulic Filter in the Hydraulic Power Pack? Explain various type of Hydraulic Filters used in Hydraulic system.
- 3.2 Explain Bernoulli's Principle mathematically.
- 3.3 List out various benefits of Low Cost Automation.
- 3.4 Explain the functions of a 'FRL Unit'.
- 3.5 With a neat sketch explain the working of a Diaphragm Cylinder.
- 3.6 Explain adsorption drying Process with a neat sketch.

