

NETTUR TECHNICAL TRAINING FOUNDATION
DIPLOMA IN TOOL ENGINEERING & DIGITAL MANUFACTURING-CP01
VI SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION-MAY 2023

Subject: Additive Manufacturing
Subject Code: CP01605T

Total Time: 2 Hr.
Total Marks: 50

PART B

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

- 1.1 Write the classifications of manufacturing techniques.
- 1.2 What are the steps involved in the 3D printing process?
- 1.3 What is infill?
- 1.4 Define vat polymerization
- 1.5 Explain about the support structure in SLA
- 1.6 Write down the common applications of binder jetting printed parts
- 1.7 What are the different testing carried out in 3D Printing Materials?
- 1.8 Name the common plastics used in 3D printing process
- 1.9 Write down the Metals used in 3D printing process
- 1.10 Write the abbreviation for a) DLP b) SLA

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

- 2.1 Write down the advantages and disadvantages of additive manufacturing
- 2.2 Name the different types of AM technologies
- 2.3 Explain warping in FDM printed parts
- 2.4 Write down the applications of SLA printed parts
- 2.5 Explain the DLP process
- 2.6 Write down the advantages & disadvantages of material jetting process
- 2.7 Write down the applications of 3D printing in following industry (2 each)
a) Aerospace b) Medical c) Automobile
- 2.8 Explain the types of support structure used in FDM, how it is removed?

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

- 3.1 Explain about FDM process in detail
- 3.2 Explain the design consideration of FDM process
- 3.3 Explain the process of binder jetting of metal
- 3.4 Write a brief explanation about poly jet process
- 3.5 Explain the process of powder bed fusion
- 3.6 What are the methods & tools used for post processing?

NETTUR TECHNICAL TRAINING FOUNDATION
DIPLOMA IN TOOL ENGINEERING & DIGITAL MANUFACTURING-CP01
VI SEMESTER SUPPLEMENTARY EXAMINATION-MAY 2023

Subject: Press Tool Technology
Subject Code: CP01 06 02

Total Time: 2 Hr.
Total Marks: 50

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING

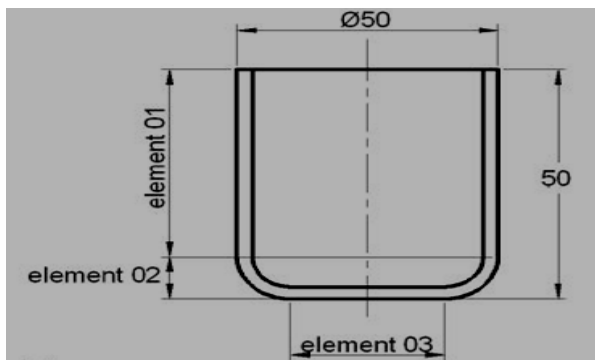
2*8=16

- 1.1 How can buckling be explained?
- 1.2 If d/D ratio is 0.1. Suggest whether Blank holder can be eliminated.
- 1.3 Explain the factors to be considered for bridge design in progressive tools
- 1.4 Emulsions are rarely used in deep drawing. Give reasons
- 1.5 Why does flange area of drawn component thicken?
- 1.6 How does side wall finish affects punch life?
- 1.7 What are the three main members in a drawing die?
- 1.8 What is die life?
- 1.9 How is process capability defined?
- 1.10 Name the methods to find number of draws in deep drawing

2.0 ANSWER ANY SIX OF THE FOLLOWING

3*6=18

- 2.1 Blank holding force can be calculated from graph. Explain the method
- 2.2 Explain a progressive tool with angular bending with a neat sketch
- 2.3 Explain Ironing operation
- 2.4 Refer the following Fig & Explain the graphical method of calculating blank diameter



- 2.5 How does understanding buckling phenomena help tool designers?
- 2.6 A process is said to be under statistical control under what conditions.
- 2.7 Why unrigid clamping of a fixture can be categorized as assignable cause?
- 2.8 A component is wrinkling. Suggest how to overcome this defect.

-PTO-

3.0 ANSWER ANY FOUR OF THE FOLLOWING

4*4=16

- 3.1 Explain progressive manufacturing of drawn cups on multi-station presses
- 3.2 What are the reasons for excessive wear?
- 3.3 How to calculate corner radius in rectangular drawing?
- 3.4 Explain about clearance given in deep drawing operation
- 3.5 Explain the process of repairing split dies
- 3.6 Determine the no. of draws required to produce a cup of $\text{Ø}10\text{mm}$ and height 18mm drawn from a 1mm DD Quality steel. Also determine the cup diameter & height during each stage. Draw ratio for first draw = 0.52 Draw ratio for redraw = 0.72