22664

23242

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**

a) Define Process Engineering.

b) List down any four functions of product engineering department.

c) Define Bill of Material.

d) Draw graphical symbol of surface finish for below description.

i) Graphical symbol indicating removal of material not permitted.

ii) Basic graphical symbol for surface texture.

e) Define the term Tool Layout.

f) List down procedural steps for Process Planning.

g) Define the term Group Technology.

Marks

2. Attempt any THREE of the following: **12**

a) Explain the functions of Process Engineering department. (Any four functions)

b) Describe two types of tolerance stack up analysis with suitable example.

c) Explain product cycle in manufacturing with suitable example.

d) State basic requirements for the coding system.

3. Attempt any THREE of the following: **12**

a) Define the term DFM and list down any four general guidelines for DFM.

b) Prepare operation sheet for given component. (Assume suitable data if necessary.) Ref. Fig. No. 1

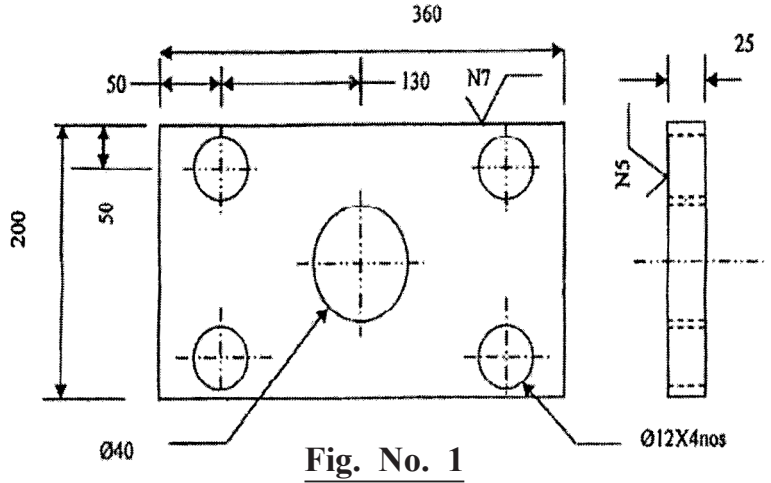

Fig. No. 1

c) Explain machine selection procedure required during process planning.

d) Describe basic and major process operations in process planning with suitable example.

Marks

4. Attempt any THREE of the following: **12**

a) Differentiate between functional layout and group layout. (Any four points)

b) Describe the concept of Component family with suitable example.

c) Differentiate between Generative and Variant type CAPP. (Any four points)

d) List down any four applications of 3D scanner and explain any one in brief.

e) State any four CAPP software's available in the market and list down advantages of CAPP. (Any four)

5. Attempt any TWO of the following: **12**

a) Classify types of inspection methods and explain any one method in detail.

b) Draw tool layout for given component. (Assume suitable data if necessary). Ref. Fig. No. 2.

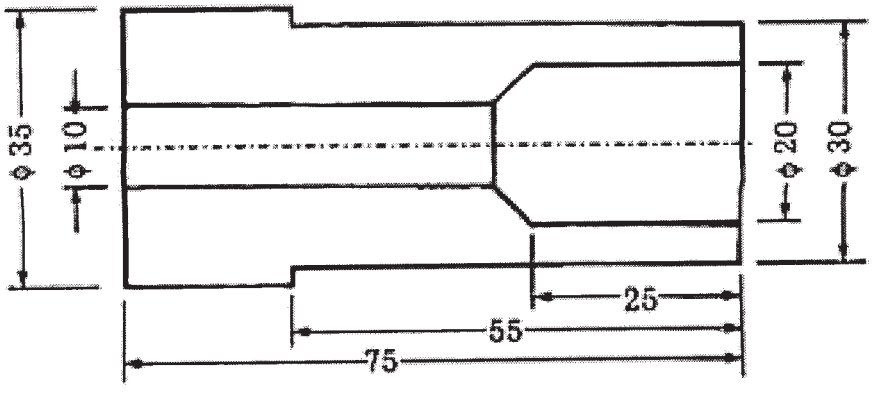

Fig. No. 2 Bar stock : 40mm diameter.

c) Justify contribution of CAPP in implementation of CIM.

Marks

6. Attempt any TWO of the following: **12**

a) Prepare Bill of Material for simple bicycle.

b) Draw group layout of machines for any suitable component family and describe it in detail.

c) Perform product analysis on a wooden table considering following product criteria's.

i) Material

ii) Ergonomics

iii) Health and environment

iv) Construction method

v) Aesthetics

vi) Function