22664

24225

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

(6) Preferably, write the answer in sequential order.

Marks

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

a) Define product engineering.

b) State the four functions of product engineering department.

c) State the basic elements of part drawing.

d) Define the term 'Bill of Material'.

e) State the information required for process planning.

f) Define product cycle in manufacturing.

g) Define the term Computer Aided Process Planning (CAPP).

Marks

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

a) Write four functions of process engineering department.

b) Explain tolerance analysis.

c) State the classification of operations. Give example of auxiliary and supporting operations.

d) Differentiate between function and group layout.

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

a) State the criteria used for product analysis.

b) Describe process planning procedure.

c) Prepare the sequence of operations for hexagonal headed bolt.

d) Describe machine and tool selection procedure.

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

a) Define the term component family. State the types of component families.

b) Define group technology and state its application.

c) State the application of 3D scanner in process plan.

d) Differentiate between generative type and variant type CAPP.

e) Explain the concept of Computer Aided Process Planning (CAPP).

Marks

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

a) Explain the concept of Bill of Material (BOM) with sketch and example.

b) Prepare operation sheet and route sheet for the component shown in **Fig. No. 1**. (Assume suitable units).

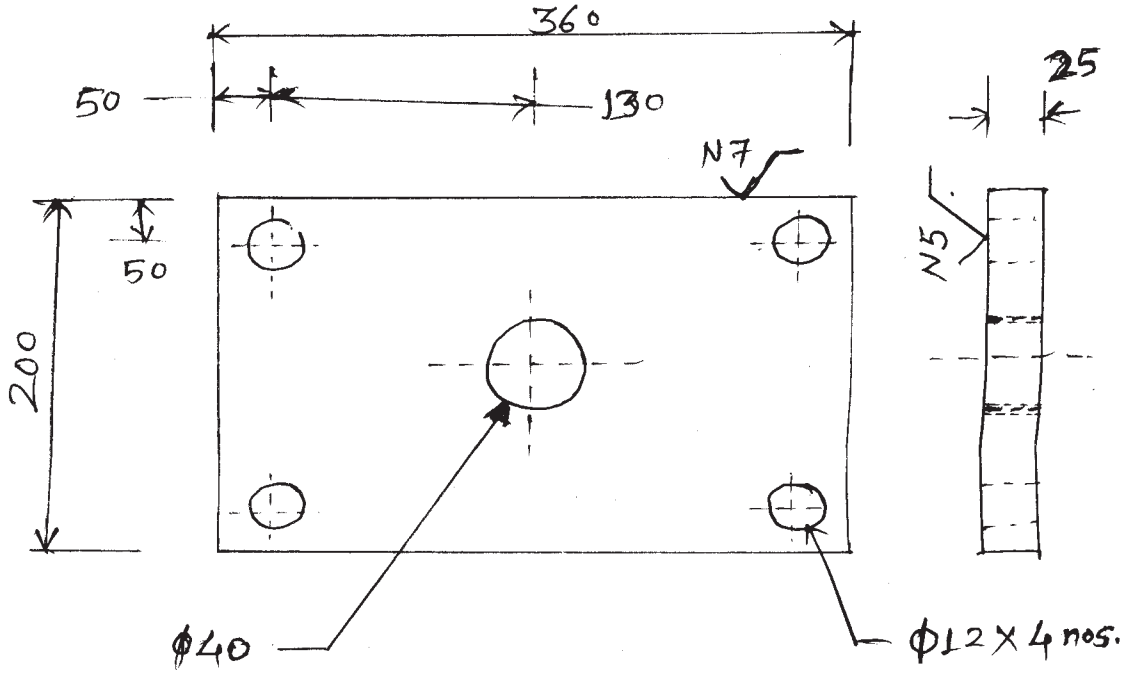

Fig. No. 1

c) Explain the CAPP implementation techniques and give example for each.

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

a) Draw simple sketches of A, B and C types families and note the difference.

b) Explain the concept and general guidelines for Design for Machining (DFM).

c) Explain following categorisation of surfaces.

i) Locating surface

ii) Functional surface

iii) Clamping surface