

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/  
COMMERCIAL PRACTICE - APRIL - 2022**  
**ADVANCED PRODUCTION PROCESSES**

[Maximum marks: 100]

(Time: 3 Hours)

**PART – A**  
(Maximum Marks: 10)

Marks

I. Answer all the questions in one or two sentences. Each question carries 2 marks

1. Explain the term ‘tool layout’.
2. List any two work holding devices used in a turret lathe.
3. List any two methods of gear manufacture.
4. Explain the purpose of truing process in a grinding wheel.
5. Define Robotics.

(5 x 2 = 10)

**PART – B**  
(Maximum Marks: 30)

II. Answer any *five* of the following questions. Each question carries 6 marks

1. Explain turret head indexing mechanism with the help of suitable figure.
2. Describe the hexapod machines.
3. Illustrate a pull type broaching tool with a neat diagram.
4. Categorize the different types of bonding materials in a grinding wheel.
5. Explain the principle of electroplating with a suitable diagram.
6. Illustrate the flexible manufacturing cell with a neat sketch.
7. Explain the various types of robotic joints with a neat diagram.

(5 x 6 = 30)

**PART – C**  
(Maximum Marks: 60)

(Answer one full question from each unit. Each full question carries 15 marks)

**UNIT – I**

III. (a) Explain the parts of a turret lathe with a neat sketch. (8)

(b) Explain pantograph copying system with the help of a suitable diagram. (7)

**OR**

- IV. (a) Explain bar feeding mechanism of a turret lathe. (8)  
(b) Explain hydraulic copying system with the help of a neat figure. (7)

**UNIT-II**

- V. (a) Briefly explain the gear hobbing process and gear planning using rack cutter. (8)  
(b) Explain continuous broaching with the help of neat sketch. (7)

**OR**

- VI. (a) Explain channel jig and template jig with suitable diagrams. (8)  
(b) Explain the operation of a progressive die with a neat sketch. (7)

**UNIT-III**

- VII. (a) Briefly explain the working of centreless grinder with the help of a neat figure. (8)  
(b) Explain electric discharge machining with the help of neat sketch. (7)

**OR**

- VIII. (a) Explain the lapping and honing operation with suitable figures? (8)  
(b) Explain the working of a cylindrical type grinding machine with a neat sketch. (7)

**UNIT-IV**

- IX. (a) Briefly describe the basic elements of NC machine with a block diagram. (8)  
(b) State the advantages of CNC machines over conventional machine tools. (7)

**OR**

- X. (a) Explain briefly the components of FMS. (8)  
(b) List any 7 applications of robots. (7)

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