1373

April 2025

[N.B. 1. Answer all questions under Part-A. Each question carries 3 marks.

2. Answer all the questions either (a) or (b) in Part-B. Each question carries 14 marks.]

PART – A

1. What is meant by concatenation?

2. Write the advantages of finite element analysis.

3. Define part families.

4. What are the benefits of JIT?

5. Write about the process of stock removal in CNC.

6. What are G- codes and M- codes?

7. What are the types of AS/RS?

8. Define Robotics.

9. List the techniques used for value engineering.

10. What is the basic concept of augmented reality?

PART – B

11. (a) Explain the Shigley's design process.

   (Or)

   (b) (i) Write a note on wireframe modelling techniques. (6)
   (ii) Explain the boolean operations with suitable sketches. (8)

12. (a) (i) Discuss about the MICLASS system. (7)
   (ii) Write a note on the enterprise resource planning. (7)

   (Or)

   (b) What is CAPP? Also explain any two types of CAPP.

13. (a) (i) Discuss about the coordinate systems used in part programming. (7)
   (ii) Explain about virtual machining. (7)

   (Or)

   (b) (i) Discuss about CNC tooling. (8)
   (ii) Discuss about the materials used for rapid prototyping. (6)

14. (a) Explain the working of FMS with neat sketches.

   (Or)

   (b) Discuss the types of sensors used in robots with their working principles.

15. (a) (i) Explain the failure modes and effects analysis process. (8)
   (ii) Explain the concept of house of quality. (6)

   (Or)

   (b) (i) Discuss about the new product development process. (7)
   (ii) Discuss about concurrent engineering. (7)