Register No.:

9006

October 2025

Time – Two hours
(Maximum Marks: 60)

N.B.
1. Answer all questions under Part-A. Each question carries 1 mark.
2. Answer any 5 questions under Part-B. Each question carries 2 marks.
3. Answer any 3 questions under Part-C. Each question carries 10 marks.

PART – A

1. Why is solid modelling widely used?
   a) Improve layout planning
   b) Adjust project charts
   c) Plan equipment placement
   d) Provide full 3D definition

2. Why is IGES widely used?
   a) Supports multi-system data exchange
   b) Extends lounge decoration format
   c) Minimizes employee tour requests
   d) Reduces indoor banner printing

3. Which geometric modelling technique represents an object by defining only its edges and vertices?
   a) Surface modelling
   b) Solid modelling
   c) Wireframe modelling
   d) Parametric modelling

4. Which analysis tool within CAD is used to predict how a design will react to physical forces, heat, or vibration?
   a) Computational Fluid Dynamics (CFD)
   b) Kinematic Analysis
   c) Finite Element Analysis (FEA)
   d) Tolerance Analysis

5. The optiz system is mainly used for
   a) Managing heat treatment steps
   b) Handling part classification codes
   c) Preparing tool pre setting data
   d) Performing welding inspections checks

6. Group Technology is based on:
   a) Individual production
   b) Similarity among parts
   c) Random production
   d) Job shops

7. Which type of CAPP system relies on retrieving and modifying existing standard process plans for part families?
   a) Generative type
   b) Adaptive type
   c) Variant type
   d) Predictive type

8. Which of the following is a primary output of an MRP system?
   a) Detailed financial statements.
   b) Planned order releases for purchased and manufactured items.
   c) Employee training schedules.
   d) Market research reports.

9. What is a feature of friction slideways?
   a) Adjust parking slot layout
   b) Extend canteen table area
   c) Reduce corridor noise
   d) Simple and low-cost design

10. The brain of a CNC machine is the:
    a) Drive motor
    b) Spindle
    c) Control unit
    d) Coolant system

11. What is the main purpose of an Automatic Tool Changer (ATC) in a CNC machine?
    a) To automatically load and unload workpieces.
    b) To store and automatically exchange cutting tools.
    c) To measure workpiece dimensions during machining.
    d) To provide feedback on axis position.

12. Which component ensures accurate CNC slideway movement?
    a) Reduce pantry clutter
    b) Improve office calendar placement
    c) Adjust corridor light plan
    d) Recirculating ball screw

13. Which of the following is an auxiliary function controlled by M-codes?
    a) Linear interpolation
    b) Spindle on/off
    c) Absolute positioning
    d) Rapid traverse

14. What is the purpose of a "home" or "reference return" sequence on a CNC machine?
    a) To set the work zero.
    b) To measure tool length offsets.
    c) To locate the machine zero.
    d) To initiate a tool change.

15. What is cutter radius compensation?
    a) Extend seminar hall seating
    b) Reduce pantry table clutter
    c) Improve lobby display setup
    d) Adjust tool path to account for radius

16. Why are canned cycles used in CNC?
    a) Simplify repetitive operations
    b) Adjust office ventilation
    c) Reduce seminar hall noise
    d) Extend corridor wall painting

17. Which of the following is a primary characteristic that makes industrial robots suitable for material transfer and loading?
    a) Low payload capacity
    b) High repeatability
    c) Limited reach
    d) Manual operation

18. Which robot configuration is most similar to a human arm, featuring multiple revolute joints?
    a) Cartesian robot
    b) SCARA robot
    c) Parallel robot
    d) Articulated robot

19. What type of robot motion is used for spraying?
    a) Linear and circular paths for coating
    b) Extend office lobby plant layout
    c) Reduce seminar hall clutter
    d) Adjust corridor seating

20. Why are vacuum grippers used?
    a) Extend corridor carpet coverage
    b) Handle delicate or irregular objects
    c) Adjust office plant alignment
    d) Reduce seminar hall table clutter

PART – B

21. What are the benefits of CAD?
22. What is Constructive Solid Geometry (CSG)?
23. What is Group Technology (GT) in manufacturing?
24. Differentiate between Variant and Generative CAPP.
25. What is an Automatic Tool Changer (ATC) in CNC machines?
26. State any two interpolation methods in NC.
27. What is CNC part program?
28. What is rapid tooling?

PART – C

29. Illustrate the use of surface modeling to design a curved component.
30. Describe the Computer Integrated Production management system with neat diagram.
31. Explain the different types of FMS layout.
32. Explain the part program using canned cycles for the thread cutting operation.
33. Explain about the Stereo Lithography (STL) with a neat diagram.
