



18-551

CENTRAL INSTITUTE OF PETROCHEMICALS ENGINEERING & TECHNOLOGY  
HEAD OFFICE : GUINDY, CHENNAI – 600 032.  
ACADEMIC CELL  
FIFTH SEMESTER EXAMINATION – JANUARY - 2023

Duration : 3 Hours  
Course : DPMT  
Subject : CNC Machining Techniques

Max. Marks: 60  
Date : 10.01.2023  
Time : 02.00 p.m. to 05.00 p.m.

**(DO NOT CHANGE SEQUENCE OF QUESTION NUMBER IN ANSWER SCRIPT)**

**PART – A**

Answer **all** questions

30 x 1 = 30

1. Which operation cannot be performed by CNC Milling  
(a) Engraving (b) Drilling (c) Turning (d) milling
2. Point to point system is used for  
(a) Drilling (b) grooving (c) facing (d) pinching
3. The main advantage of CNC is that  
(a) It is Very costly (b) It is very easy to operate  
(c) It have high accuracy and high precision (d) It consumes less electricity
4. MCU is a  
(a) Software unit (b) Hardware unit (c) CNC Program (d) None of the above
5. Which axis is the axis of the main spindle of the machine.  
(a) X- Axis (b) Y-Axis (c) a-b axis (d) Z-axis
6. Which of the following is a preparatory code  
(a) M Codes (b) T-word (c) G-codes (d) Speed & Feed
7. Rapid linear movement is obtained by which code?  
(a) G 00 (b) G 01 (c) G 42 (d) None of the above
8. Circulation interpolation clockwise is given by  
(a) G7 (b) G 01 (c) G02 (d) none of the above
9. Program Stop is given by  
(a) M00 (b) G99 (c) M01 (d) M01
10. Coolant off is given by  
(a) M10 (b) M00 (c) G code (d) None of the above.
11. Cutter compensation is given by  
(a) G 41, G 42 (b) G00, G02 (c) M00, G00 (d) None of the above
12. Spindle stop is specified by  
(a) M01 (b) M 05 (c) G05 (d) None of the above
13. In which of the following manual programme is done  
(a) CNC (b) DNC (c) NC (d) None of the above
14. I,J,K are used for  
(a) Circular interpolation (b) Axis designation  
(c) Ink Jet Knowledge (d) None of the above
15. In CNC Programming, N is used for  
(a) Sequence number (b) Neutral  
(c) Not to start (d) Machine operations
16. EDM is used to machine soft materials. True or False
17. Tap water is suitable as dielectric for die sinking True or False.
18. The tool electrode in EDM is connected to the negative terminal. True or False
19. The workpiece in EDM should be good conductor of electricity. True or False
20. In order to initiate a spark in EDM, the electrode should touch the work piece slightly. True or False
21. When tool is away from the job, it is in the ..... Axis.
22. Machine beds are made of .....
23. Miscellaneous functions are addressed by ..... codes
24. Adjustment of actual cutter diameter and program cutter is known as .....
25. Commonly used electrode in EDM is .....
26. The full form of MDI is.....
27. The full form of CAM is .....
28. The full form of EOB is.....
29. The full form of FEA is.....
30. The full form of DNC is.....

**PART – B**Answer **all** questions (Max. 40 words)

4 x 2 = 8

1. What do you understand by DNC?
2. What do you mean by part programming?
3. What is a block?
4. What is the difference between Optional Stop and Program Stop.

**PART – C**Answer any **four** questions (Max. 100 words)

4 x 3 = 12

1. Explain the different classifications of CNC cutting tools?
2. Differentiate between closed loop and open loop control system.
3. Give the advantage and disadvantage of CNC
4. What are the areas of application of EDM?
5. Define tool path.

**PART – D**Answer any **two** questions (Max. 300 words)

2 x 5 = 10

1. Explain absolute and incremental dimensioning/Co-ordinates giving example with a neat sketch.
2. Describe the working principle of EDM with a neat diagram.
3. What are the characteristics of EDM electrodes? Give four examples of electrode commonly used in EDM.

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**ACADEMIC CELL**  
**FIFTH SEMESTER EXAMINATION – JANUARY - 2023**

Duration : 3 Hours  
 Course : DPMT  
 Subject : Mould Manufacturing Technology

Max. Marks: 60  
 Date : 11.01.2023  
 Time : 02.00 p.m. to 05.00 p.m.

**(DO NOT CHANGE SEQUENCE OF QUESTION NUMBER IN ANSWER SCRIPT)**

**PART – A**

Answer all questions

30 x 1 = 30

1. Steel is an alloy of \_\_\_\_\_ and \_\_\_\_\_.  
 (a) Copper, Zinc (b) Copper, Tin (c) Iron, Carbon (d) Iron, Copper
2. \_\_\_\_\_ property is required in mould steel.  
 (a) Excellent machinability (b) Good polishability (c) Wear resistance (d) All of these
3. In electrical discharge machining, the spark gap is maintained between \_\_\_\_\_ mm  
 (a) 0.5 to 5.0 (b) 0.05 to 0.5 (c) 0.005 to 0.05 (d) 0.0005 to 0.005
4. Case hardening is a \_\_\_\_\_ process.  
 (a) Machining (b) Forming (c) Heat treatment (d) Metal joining
5. Which machine is required to make guide pillar & guide bush?  
 (a) Milling (b) Lathe (c) Surface grinding (d) Shaping
6. Surface roughness on a drawing is represented by \_\_\_\_\_.  
 (a) Circle (b) Square (c) Triangle (d) Rectangle
7. In wire-cut EDM, \_\_\_\_\_ wire is used to cut the metal.  
 (a) Steel (b) Brass (c) Copper (d) Iron
8. \_\_\_\_\_ machine is used to do the machining of inside sharp corner in blind square pocket.  
 (a) Lathe (b) Shaping (c) EDM (d) Drilling
9. Stylus is also called as \_\_\_\_\_.  
 (a) Tracer (b) Electrode (c) Cutter (d) Tool
10. Venting is used for the purpose of \_\_\_\_\_.  
 (a) Ejection (b) Cooling (c) Mould lifting (d) Removal of trapped air from impression
11. The fit recommended for mating of Guide pillar and Guide bush is \_\_\_\_\_.  
 (a) H7g8 (b) H7g6 (c) H6h5 (d) H7G8
12. The Roughness value for N1 Roughness grade number is \_\_\_\_\_  $\mu\text{m}$ .  
 (a) 0.25 (b) 0.0025 (c) 0.025 (d) 2.5
13. During mould assembly work, tightening and loosening of socket headed screw is done by \_\_\_\_\_.  
 (a) Screw driver (b) Spanner (c) Allen key (d) Cutting plier
14. \_\_\_\_\_ type of heat treatment is required for Guide pillar and guide bush.  
 (a) Annealing (b) Hardening (c) Normalizing (d) None of these
15. \_\_\_\_\_ material is suitable for blow mould construction.  
 (a) Aluminum alloy (b) Beryllium Copper alloy (c) Steel (d) All of these
16. During mould polishing, \_\_\_\_\_ paste is used to obtain mirror finish of core & cavity surface.
17. Be-Cu material is used in moulds when high \_\_\_\_\_ conductivity is required.
18. \_\_\_\_\_ is used to align the mould & injection moulding machine nozzle.
19. \_\_\_\_\_ tool is used to create the internal thread in small diameter holes.
20. Slide fit (H7g6) is suitable for mating of guide pillar and guide bush, in which g means \_\_\_\_\_.
21. Carbide tool is harder than HSS tool. Say True or False
22. Texturing is the process of adding a pattern (the texture or grain) to the molding surface of a mold. Say True or False.
23. Graphite cannot be used as an electrode material. Say True or False
24. The guide pillar and guide bush is machined in milling machine. Say True or False
25. Hard chrome plating gives good abrasion resistance to mould cavity surface. Say True or false
26. Write the abbreviation of MRR \_\_\_\_\_.
27. Write the abbreviation of ATC \_\_\_\_\_.
28. Write the abbreviation of EDM \_\_\_\_\_.
29. The abbreviation of metal BeCu is \_\_\_\_\_.
30. The abbreviation of metal MS is \_\_\_\_\_.

**PART – B**

Answer **all** questions (Max. 40 words)

4 x 2 = 8

1. Name few metals best suitable for core& cavity part of injection mould.
2. What is mean by blue matching?
3. Give examples for electrode materials used in CNC EDM?
4. What is mould polishing?

**PART – C**

Answer any **four** questions (Max. 100 words)

4 x 3 = 12

1. Explain the essential Properties of mould steel.
2. Write down the procedure to manufacture the following mould parts (i) locating ring (ii) Spacer block
3. Differentiate the following machining operations performed in mould parts: Drilling, Reaming & Tapping
4. Write short notes on Pantograph engraving machine.
5. Write down the Application of CNC EDM machine in mould manufacturing.

**PART – D**

Answer any **two** questions (Max. 300 words)

2 x 5 = 10

1. Explain working principle of CNC EDM Machine with sketch.
2. Write the mould material selection criteria according to Product Designer, Mould Designer, Mould Maker & Moulder.
3. Write short notes on following:
  - (i) Chemical Etching
  - (ii) Application of CNC milling machine in mould manufacturing

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**FIFTH SEMESTER EXAMINATION – JANUARY - 2023**

Duration : 3 Hours  
 Course : DPMT  
 Subject : Process Planning & Cost Estimation

Max. Marks: 60  
 Date : 12.01.2023  
 Time : 02.00 p.m. to 05.00 p.m.

**(DO NOT CHANGE SEQUENCE OF QUESTION NUMBER IN ANSWER SCRIPT)**

**PART – A**

Answer **all** questions

30 x 1 = 30

1. Work cost = Prime cost + \_\_\_\_\_.  
 a) Direct Expenses    b) Administration Overheads    c) Factory Overheads    d) Material Cost
2. Printing and stationary for office comes under  
 (a) Factory overheads    (b) Administrative overheads    (c) Selling overheads    (d) Distribution expenses
3. Productivity is an average measure of the efficiency of \_\_\_\_\_.  
 a) Cost    b) Production    c) Manufacturing System    d) Design
4. Selling price = Total cost + \_\_\_\_\_.  
 a) Profit margin    b) Prime Cost    c) Labour Cost    d) Production Cost
5. A \_\_\_\_\_ is an article obtained by the transformation of raw material.  
 a) Production    b) Product    c) Material    d) Costing
6. Process selection is primarily considered during:  
 a) Planning    b) Organizing    c) Leading    d) Controlling
7. Production rate = No. of Produced unit/ \_\_\_\_\_.  
 a) Cycle time    b) Production Hour    c) tag time    d) stage time
8. Cost structure refers to the type and relative proportion of \_\_\_\_\_ & \_\_\_\_\_ cost.  
 a) Random & fixed    b) fixed & variable    c) discrete & random    d) All of the above
9. Which is the basic element of cost;  
 a) Material & Labour    b) Machine Cost    c) Production Cost    d) All of the above
10. \_\_\_\_\_ is the distance which tool travels along the material in one minute.  
 a) Feed rate    b) Cutting Speed    c) spindle speed    d) none of these
11. Work study is done with the help of  
 (a) process chart    (b) material handling    (c) stop watch    (d) all of the above
12. Tolerance is the amount of variation permitted in the \_\_\_\_\_.  
 a) Dimension    b) Manufacturing process    c) feature    d) none
13. \_\_\_\_\_ is the removal of material to produce helix on external or internal circular surfaces for fastening purposes.  
 a) Grinding Operations    b) Scaling    c) Sealing    d) Threading
14. \_\_\_\_\_ is the process of removing very small amount of material, to make the drilled holes in very accurate size.  
 a) Reaming    b) Shaping    c) Threading    d) Scaling
15. Material removal rate = \_\_\_\_\_.  
 a) Volume removed/Cutting time    b) Cutting time/Volume removed  
 c) (Volume removed/Cutting time)\* density of material    d) None of these
16. Factory cost of Elements = \_\_\_\_\_ + Factory Overheads
17. \_\_\_\_\_ is essential for proper control of product manufacturing and also for fixation of sale price.
18. \_\_\_\_\_ implies the creation of goods and services to satisfy human needs.
19. The cost which does not vary proportionately but simultaneously cannot remain stationary at all time is called as \_\_\_\_\_.
20. Selling price = Total cost + \_\_\_\_\_.
21. Estimating is the technique of calculating the various quantities and is needed for controlling the expenditure during the execution of the work. True / False
22. Process Planning results in higher cost. True/False
23. Spindle speed is the distance which tool travels along the material in one minute. True/False
24. Basic tool in work study is Stop Watch. True/False
25. Tolerance is the amount of variation permitted in the Manufacturing. True/ False

- 26. GST stands for \_\_\_\_\_.
- 27. FIFO stands for \_\_\_\_\_.
- 28. BOQ stands for \_\_\_\_\_.
- 29. FMS stands for \_\_\_\_\_.
- 30. SIMO chart stands for \_\_\_\_\_.

**PART – B**

Answer **all** questions (Max. 40 words)

4 x 2 = 8

- 1. What is meant by Process planning?
- 2. What is Flow Chart?
- 3. What are the three elements of cost
- 4. List the allowances in machining time.

**PART – C**

Answer any **four** questions (Max. 100 words)

4 x 3 = 12

- 1. Explain Time Study.
- 2. Explain the term - Ergonomics
- 3. Mention any three advantages of Automation.
- 4. Write any two objectives of Cost estimation.
- 5. What are the advantages of CAPP?

**PART – D**

Answer any **two** questions (Max. 300 words)

2 x 5 = 10

- 1. Explain the manual approach to process planning with advantages and limitations.
- 2. Define Depreciation and objectives of depreciation.
- 3. Write the difference between Estimation and Costing.

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FIFTH SEMESTER EXAMINATION – JANUARY - 2023

Duration : 3 Hours  
Course : DPMT  
Subject : Industrial Management & Entrepreneurship

Max. Marks: 60  
Date : 13.01.2023  
Time : 02.00 p.m. to 05.00 p.m.

**(DO NOT CHANGE SEQUENCE OF QUESTION NUMBER IN ANSWER SCRIPT)**

**PART – A**

Answer **all** questions

30 x 1 = 30

1. The most logical criterion to distinguish a line function from staff is
  - a. the functional relationship
  - b. the authority relationship
  - c. the departmentalization
  - d. the grouping
2. .... is suitable for draughts man, machinist, printer, tool maker and electricians etc.
  - a. Coaching
  - b. Vestibule Training
  - c. Apprenticeship Training
  - d. None of these
3. In.....employee involvement in major decision making was less as compared to.....approach
  - a. Traditional, TQM
  - b. Conventional, PM
  - c. Modern, TQM
  - d. none of these
4. Which the following type of leader encourages the participation of team members in the formulation of policies and decision making?
  - a. Autocratic leader
  - b. Democratic leader
  - c. Laissez-faire leader
  - d. Benevolent leader
5. ....are at a minimum where the morale is high
  - a. Grievance
  - b. Managerial
  - c. Control
  - d. Fore Casting
6. Which of the following is the types of degree of delegations?
  - a. Low degree
  - b. Moderate degree
  - c. High degree
  - d. All of these
7. ....is the ability to sense understands and effectively applies emotion.
  - a. strategy
  - b. Emotional intelligence
  - c. Basic needs
  - d. All of these
8. LPG stands for liberalization ..... and globalization.
  - a. planning
  - b. Privatization
  - c. Presenting
  - d. All of these
9. Certain important motivational techniques are
  - a. Monetary incentives
  - b. Job-based techniques
  - c. MBO techniques
  - d. All of these
10. Which of the following are not the external sources of the recurrent?
  - a. Advertisement
  - b. Promotion
  - c. Employee agencies
  - d. Employee referral
11. What is meant by the acronym CIPD?
  - a. chartered Institute of personal Director
  - b. chartered institute of personal and development
  - c. Both A&B
  - d. None of these
12. A.....is a lie detector test.
  - a. intelligence test
  - b. aptitude test
  - c. personality test
  - d. Polygraph Test
13. ....Means the employee is shifted to a job lower in status grade and responsibilities.
  - a. Demotion
  - b. Recruitment
  - c. placement
  - d. None of these
14. HRP Stand for
  - a. Human Resource planning
  - b. human resource plan
  - c. human Recruitment plan
  - d. All of these
15. ....is an employee final interview following separation
  - a. Group interview
  - b. Exit Interview
  - c. panel interview
  - d. None of these
16. There is a payment for 1% participating bonus for every 1% increases in productivity the plan is
  - a. profit sharing
  - b. Scanlon plan
  - c. Co-Partnership plan
  - d. All of these
17. ----- is that process of management which develops and manages the human elements of an enterprise.
  - a. HRM
  - b. HR
  - c. HRD
  - d. All of these
18. Techniques of management development programme are
  - a. Decision making skill Development
  - b. Job knowledge Development
  - c. Interpersonal skill Development
  - d. All of these
19. Individual who achieve the goal through other people is/are
  - a. Individual
  - b. Group
  - c. Manager
  - d. All of these
20. Which is/are the highest need of the Maslow hierarchy?
  - a. Physiological
  - b. Social
  - c. Ego need
  - d. self actualization need
21. Two factor theory was given by
  - a. Abraham Maslow
  - b. Fredrick Herzberg
  - c. Chester Barnard
  - d. All of these

22. What is the full form of "TIN"?
  - a. Tax Investment Network
  - b. Tax Information Network
  - c. Tax Identification Number
  - d. Tax Investment Number
23. What is the full form of "TAN"?
  - a. Tax Collected Account Number
  - b. Tax Authentication Number
  - c. Tax Accounting Number
  - d. None Of The Above
24. What is the full form of "GST"?
  - a. Goods and State Tax
  - b. General Service Tax
  - c. Goods and Service Tax
  - d. None of The Above
25. What is the full form of "P&L"?
  - a. Premium and Liability
  - b. Planning and Leaving
  - c. Profit and Loss
  - d. Promoting and Liquidity
26. What is the full form of "IDBI"?
  - a. Industrial Development Bank of India
  - b. Industrial Dividend Bank of India
  - c. Investment Development of India
  - d. None of the above
27. What is the full form of "SEBI"?
  - a. Stock and Exchange Board of India
  - b. Securities and Exchange Board of India
  - c. Securities and Education Board of India
  - d. None of the above
28. State Bank of India Head Office is Located in Which Place?
  - a) Kolkata
  - b) Hyderabad
  - c. Mumbai
  - d. Bangalore
29. What does "I" in IGST stands stand for?
  - a. Internal
  - b. Integrated
  - c. Indian
  - d. Intra
30. GST rates applicable on goods and services are:
  - a) 0% 5% 12% 18% 26%
  - b) 0% 6% 12% 18% 28%
  - c. 0% 5% 12% 18% 28%
  - d. 0% 5% 12% 16% 28%

**PART – B**

Answer **all** questions (Max. 40 words)

4 x 2 = 8

1. Define Functions of management?
2. What is 5 M in management?
3. Define Quality Assurance Concept?
4. What is grapevine communication?

**PART – C**

Answer any **four** questions (Max. 100 words)

4 x 3 = 12

1. Illustrate the Techniques of TQM with examples?
2. "Define Group dynamics?"
3. Job rotation is key to efficiency. Explain?
4. "Negative motivation supports discipline." illustrate with example.
5. Explain the concept of 360 degree appraisal?

**PART – D**

Answer any **two** questions (Max. 300 words)

2 x 5 = 10

1. Define Two Factor theory of motivation?
2. What is Off-job Training? Also explain types of Off Job training with the help of Example?
3. What is Cost Sheet? Illustrate with examples.

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