

**M.E. DEGREE EXAMINATIONS: JANUARY 2009**

First Semester

**CAD/CAM**

P07CCE07 Computer Aided Process Planning

**Time: Three Hours**

**Maximum Marks: 100**

**Answer ALL Questions:-**

**PART A (20 x 1 = 20 Marks)**

1. The following technique created a better and more uniform process planning method:

- A. Quality control
- B. Quality assurance
- C. Interchangeability
- D. Benchmarking

2. Match List 1 and List 2 and select the correct answer using the codes given below:

**List I**

- a. Production efficiency
- b. Transformation process
- c. Transportation process
- d. Economic constraints

**List II**

- 1. Material processing
- 2. Material handling
- 3. Material planning
- 4. Design for machining

- A. a3, b4, c2, d1
- B. a2, b3, c4, d1
- C. a4, b3, c1, d2
- D. a4, b1, c2, d3

3. The operation and route sheet is used to find out

- A. Service life
- B. Standard time
- C. Safety stock
- D. Safety precautions

4. A systematic approach to integrated product development that emphasizes the response to customer expectations.

- A. Concurrent Engineering
- B. Human Engineering
- C. Value Engineering
- D. Reverse Engineering

5. When drafting a symmetrical object, two views are sufficient to represent the object and typically one view is omitted. This is called as

- A. Multi view drawings
- B. Partial view drawings
- C. Perspective drawings
- D. Machine drawings

6. Control of surface characteristics are essential in the following type of machining of components:

- A. Engine block
- B. Crank case
- C. Bearings
- D. Differential housing

7. The condition of a part feature where the maximum amount of material is contained is termed as

- A. Highest Material Weight (HMW)
- B. Least Material Condition (LMC)
- C. Lowest Material Weight (LMW)
- D. Maximum Material Condition (MMC)

8. The basic relationships of the geometries of the object is represented by  
 A. Surface topology                      B. Surface roughness  
 C. Surface flaws                          D. Surface temperature
9. Which of the following statement(s) is/are not correct?  
 (i) Process capability is the data base of knowledge for each process  
 (ii) Conventional process planning utilizes process capability information in the form of experience or handbook guides  
 (iii) Computer Aided Process Planning (CAPP) system functions does not based on the process capability information  
 (iv) The data structure of the process capabilities is generally depends on process planning method  
 A. (i) & (iii)    B. (ii) & (iv)    C. (iv) only    D. (iii) only
10. It is a graph with single root and branches emanating from the root.  
 A. Decision trees    B. Decision charts  
 C. Decision tables    D. Decision figures
11. During the \_\_\_\_\_ stage of process planning, existing components are coded, classified and subsequently grouped into families.  
 A. Inspection            B. Production            C. Preparatory            D. Despatch
12. In the following process planning, the process plans are created from information available in a manufacturing data base without human intervention.  
 A. Variant process planning            B. Generative process planning  
 C. Retrieval process planning            D. Component process planning
13. When the production volume is significantly different for the same component design, it is essential to use  
 A. Same process plans            B. Same process plans with slight modifications  
 C. Different process plans            D. Same or different process plans
14. The number of production families used in CAPP is a function of  
 A. Number of components being planned  
 B. Number and difference in the components being planned  
 C. Difference in the components being planned  
 D. Variety of components being planned
15. The following process planning system consists of a process optimization module  
 A. CAM-I CAPP    B. MIPLAN    C. APPAS    D. AUTOPLAN
16. The following are the acronyms of the CAPP systems  
 (i) APPAS – Automated Process Planning and Selection  
 (ii) CPPP – Computerized Production Planning Process  
 A. (i) and (ii) are true            B. (i) only true  
 C. (ii) only true                    D. (i) and (ii) are false
17. Totally Integrated Process Planning Systems (TIPPS) has evolved from  
 A. APPAS                                  B. AUTOPLAN  
 C. APPAS and CAD/CAM            D. CAD/CAM

18. Which of the following is not including in the data files of TIPPS in its data structure?
- A. CAD Data                      B. Process Data  
C. Surface Data                  D. Customer Data
19. In TIPPS, a description language namely 'Process Knowledge Interpreter (PKI)' is provided with the general format of
- A. IF... THEN... clause      B. FOR clause  
C. DO clause                      D. EITHER...OR... clause
20. The future expert process planning system must
- A. Minimize time  
B. Minimize human decision making  
C. Minimize time, effort and human decision making  
D. Minimize effort

**PART B (5 x 16 = 80 Marks)**

21. (a) (i) Explain the place of process planning in the manufacturing cycle. (8)
- (ii) Describe about the group technology and its coding with classifications. (8)
- (OR)
- (b) (i) Discuss about the process planning and production planning. (8)
- (ii) Explain the basics and modules of Computer Aided Process Planning (CAPP). (8)
22. (a) (i) List out the various input and output devices used in Computer Aided Design (CAD) and explain the basics of geometric and perspective transformations by using CAD and data structures. (8)
- (ii) Explain about geometric modeling for process planning. (8)
- (OR)
- (b) (i) Discuss about the geometric tolerance and its importance in part design presentation. (8)
- (ii) Describe briefly about Optiz coding system and MICLASS coding system using the concept of Group Technology (GT). (8)
23. (a) (i) Explain briefly about the experience based process planning. (8)
- (ii) Explain the variant approach of process planning with an own example. (8)
- (OR)
- (b) (i) Explain the salient features of process capability analysis. (8)
- (ii) Explain the generative approach of process planning with an own example. (8)

24. (a) (i) Explain the logical design of CAPP system with implementation considerations. (8)
- (ii) Explain briefly about the CAM-I CAPP, MIPLAN and APPAS systems. (8)
- (OR)**
- (b) (i) Describe the manufacturing system components, production volume and number of production families used in CAPP systems. (8)
- (ii) Explain briefly about the AUTOPLAN, RPO and CPPP systems. (8)
25. (a) (i) Write an overview about Totally Integrated Process Planning Systems (TIPPS). (8)
- (ii) Enumerate about the data structure and data files used in TIPPS. (8)
- (OR)**
- (b) (i) Describe the salient features of modular structure used in TIPPS. (8)
- (ii) Explain the TIPPS operation, report generation and expert process planning. (8)

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