



M.E. DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2014)

Second Semester

CAD/CAM

P14CCT204: Design for Manufacture, Assembly and Environments

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Assertion (A): In CO₂ casting process, the mould or core attaining max strength [K₁]
Reason (R): The optimum gassing time of CO₂ through the mould or core forms silica gel which impacts sufficient strength to the mould or core
- a) Both A and R are true and R is the Correct explanation of A b) Both A and R are true but R is Not the correct explanation of A
c) A is true but R is false d) A is false but R is true
2. Ease of assembly can be obtained by using [K₁]
a) Chamfers on mating parts b) Tiny parts
c) Threaded fasteners d) Multi direction assembly
3. Sharp corners are to be avoided in forging because of [K₂]
a) Stress concentration b) Scaling
c) Extra forging work d) Both A and B
4. Matching type item with multiple choice code [K₂]

List I	List II
A. Local Issue	i. 2010.04
B. Bharat Stage III	ii. Acid Rain
C. Global Issue	iii. 2005.04
D. Bharat Stage IV	iv. Biodiversity loss

- A B C D
- a) 1 2 3 4
b) 2 3 4 1

- c) 3 2 4 1
d) 4 3 2 1
5. Gears are best mass produced by [K₂]
a) Milling b) Shaping
c) Forming d) hobbing
6. The most satisfactory weld form from the point of force pattern is [K₂]
a) Butt weld b) Fillet weld
c) Slot weld d) Plug weld
7. In gating system design, which one of the following is correct sequence in which [K₂]
1) choke area 2) pouring time 3) pouring basin 4) sprue
sizes are calculated
a) 1-2-3-4 b) 3-4-1-2
c) 1-4-3-2 d) 3-2-1-4
8. Perfect small holes in casting can be better obtained by [K₂]
a) Cored Holes b) Drilled Holes
c) Cast holes d) Bored holes
9. The family of standards pertaining to international Environmental Management System is [K₁]
a) ISO14000 b) ISO22000
c) ISO90000 d) QS9000
10. Proper gating design metal casting [K₂]
P) Influences the freezing range of melt
Q) Compensates the loss of fluidity of the melt
R) Avoids misruns
S) Facilitates top feeding of the melt
a) P, R b) Q, S
c) R, S d) P,S

PART B (10 x 2 = 20 Marks)

11. Define the term Tolerance Stack. [K₁]
12. Differentiate Functional Datum and Manufacturing Datum. [K₂]
13. State any two rules for form Design-Welding. [K₂]
14. Define Doweling. [K₂]
15. Define the role of computer in DFMA. [K₂]
16. Explain GT. [K₂]

17. Sketch an idea to determine location of parting line in a forging design. [K₁]
18. List any four factors causing uneconomical design. [K₄]
19. Define global issue with two examples. [K₂]
20. What are the techniques that help designers to improve the environmental performance? [K₃]

PART C (10 x 5 = 50 Marks)

21. Explain the basic principle for manufacturability. [K₂]
22. Discuss the evaluation scheme for mechanism selection. [K₂]
23. Explain DFM Process with simple Flow chart. [K₂]
24. Explain factors influencing form design of forging with its parameters. [K₂]
25. Explain error free assembly with suitable case study. [K₃]
26. Define clampability and Design a clamp to hold a Shaft to drill a hole on it. [K₂]
27. Explain with example how cores can be avoided in casting. [K₂]
28. Give an application to define the identification of Uneconomical Design. [K₃]
29. Describe the Guidelines for Energy Efficiency [K₂]
30. Explain the concept of 3R principles. [K₂]

PART D (2 x 10 = 20 Marks)

31. Describe the Concept of Simplification by Separation and Simplification by Amalgamation with an example. [K₂]
32. Explain with a neat sketch how redesign can be made based on the parting line consideration. [K₂]
