Register Number.....

ME DEGREE EXAMINATIONS: OCTOBER/NOVEMBER 2008

Third Semester

CAD/CAM

P07CCE17 Design for Manufacture, Assembly and Environment

Time: Three Hours **Maximum Marks: 100**

Answer ALL Questions:-

PART A (20 X 1 = 20 Marks)

1._____ concept is one of the guidelines used in DFM.
A. Tool life B. Modular design
C Throttling D. Cavitations

2.Tolerance related to roundness, squareness, flatness etc. is known as_____
A. Geometric tolerance B. Unilateral tolerance
C. Bilateral tolerance D. Shape tolerance

3._____ is numerically equal to mean(μ)$\pm$ 3σ .
A. Range B. Lower control limit
C. Upper Control Limit D. Process capability

4. From knowing _____ the designer can identify the manufacturing datum face.
A. Component Dimensions B. Machining Sequence
C. Tool geometry D. Machine tool specifications

5._____ materials are loaded mainly in compression.
A. Steel B. Aluminium
C. Grey cast iron D. Copper

6.Taper provided in the pattern for easy removal from the mould is known as_____
A. machining allowance B. shrinkage allowance
C. Draft allowance D. Distortion allowance

7. Sharp corners are to be avoided in forgings because of
A. stress concentration B. Scaling
C. Extra forging work D. Both A and B

8. The most satisfactory weld form from the point of force pattern is
A. Butt weld B. Fillet weld
C. Slot weld D. Plug weld

9.When an external screw thread is adjacent to a shoulder, the tool run-out is provided by
A. Chamfering B. Taper
C. Sharp corner D. Undercut

10.Open end keyway is preferable to sunken keyway because of
A. faster machining time B. better surface finish
C. longer tool life D. more accuracy

11. Drilling at angle to a surface is to be avoided because it can cause
A. reduction of rotational speed
B. poor surface finish
C. deflection of the drill
D. low accuracy

12. Ease of assembly can be obtained by using
A. chamfers on mating parts
B. threaded fasteners
C. multiple direction assembly
D. tiny parts

13. Perfect small holes in castings can be better obtained by
A. Cored holes
B. Drilled holes
C. Cast holes
D. Bored holes

14. Which one of the following is not a part design attribute in part classification system?
A. Rotational or rectangular shape
B. Length/diameter ratio
C. Operation sequence
D. Part function

15. _____ has made significant contribution in the area of design for assembly.
A. Boothroyd
B. Taylor
C. Merchant
D. Taguchi

16. The extensions incorporated in the pattern for suitable location of core in the mold are known as
A. Chaplets
B. Core baking
C. Holding part
D. Core prints

17. The family of standards pertaining to International Environmental Management System is
A. ISO 90000
B. ISO 22000
C. ISO 14000
D. QS 9000

18. Recycling is not possible in _____ materials.
A. Rubber
B. Aluminium
C. Thermoplastics
D. Thermo sets

19. The evaluation of impact of a product on environment, during its cycle from raw material to end use is called as
A. Product life cycle
B. Design for environment
C. Life cycle assessment
D. Reliability

20. The refrigerant responsible for ozone depletion is
A. R-12
B. Ammonia
C. R-134a
D. R-290

PART-B (5X16=80 Marks)

21. a) Explain the general principles followed in design for manufacture. (16)

(OR)

b) i) Explain how limits of the components in assembly are obtained. (8)

ii) Describe the procedure involved in changing the datum face. (8)

22.a) Explain with examples how the design can be modified to avoid the following in grey iron castings.

i) metal concentration

ii) distortion

iii) mold wall damage during the removal of pattern

iv) rambling shapes (4x4=16)

(OR)

b) Explain with sketches the design rules followed in forgings. (16)

23.a) i) Explain with an examples the principles of simplification by separation and simplification by amalgamation in machining. (12)

ii) Explain with sketches how clampability can be obtained by redesign (4)

(OR)

b. Give the design rules for the following operations.

i) Ease of assembly.

ii) Better machining practices. (8+8=16)

24.a.i) Explain with sketches how redesign can be made based on parting line considerations. (10)

ii) Explain the benefits of group technology in design for assembly. (6)

(OR)

b.i) Explain the considerations that are applied to identify the uneconomical design. (8)

ii) Explain with examples how cores can be avoided in castings. (8)

25.a. Describe the guidelines followed in design for environment. (16)

(OR)

b. List the techniques used to reduce environmental impact. Explain any two techniques in detail. (16)

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