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Code No. : 22867

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

M.E. (Mech. Engg.) II-Semester Main Examinations, August-2023

Design for Manufacture and Assembly

(Advanced Design & Manufacturing)

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	List the properties of low carbon and high carbon steels.	2	1	1	1
2.	What are the basic characteristics of stainless steels?	2	1	1	1
3.	Illustrate the parts produced through metal spinning and the materials suitable for the operation.	2	2	2	1
4.	Outline the importance of stamping operations and materials suitable for the same operation.	2	2	2	1
5.	List the materials suitable for Electro Discharge Machining and why.	2	1	3	1
6.	What is Investment casting and give its applications.	2	1	3	1
7.	Identify the difference between Thermo plastic and Thermo setting plastics. Give two applications for each of them.	2	3	4	2
8.	What do you understand by Ergonomics and why the consideration is important in design?	2	1	4	2
9.	What are basic guidelines for designing a Press fit and Snap fit.	2	2	5	2
10.	Distinguish between soldering and brazing and give their specific applications.	2	4	5	2
<i>Part-B (5 × 8 = 40 Marks)</i>					
11. a)	Outline the basic principles of designing for economical production.	4	2	1	3
b)	Summarize the material selection based on property profile.	4	2	1	3
12. a)	Explain the design recommendations for parts made of Metal extrusion.	4	2	2	3
b)	Examine the design recommendations for drilled parts with neat sketches	4	4	2	3
13. a)	Demonstrate the design considerations to be considered for the parts made of Sand casting.	4	2	3	2
b)	Explain with neat sketches the design issues to be considered for making the parts with Centerless grinding.	4	2	3	3

Contd... 2

14. a)	List the steps to be observed for the parts made through blow moulding.	4	4	4	3
b)	Explain the concept of "Design for X components".	4	2	4	1
15. a)	What are the guidelines specific to the riveting and screw fasteners for effective assembly.	4	1	5	1
b)	List the design consideration for Resistance welding and Brazing.	4	1	5	2
16. a)	List the characteristics of Aluminum, Brass and Copper and their applications.	4	4	1	1
b)	Distinguish Fine blanking and metal stamping in terms of their characteristics and applications.	4	4	2	3
17.	Answer any <i>two</i> of the following:				
a)	Examine Electro chemical machining, give an account of the design recommendations for the same.	4	4	3	1
b)	Analyze the design considerations for rubber parts.	4	4	4	1
c)	Identify precautions to be taken in design for the components undergoing Automated assembly	4	3	5	2

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level - 1	20%
ii)	Blooms Taxonomy Level - 2	40%
iii)	Blooms Taxonomy Level - 3 & 4	40%
