Sanjay Ghodawat University, Kolhapur

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EXM/P/09/00

Year and Program: TY B. Tech Mechanical Engineering	School of Technology	Department: Mechanical Engineering
Course Code: MET 301	Course Title: Product Design & Development	Semester : V
Day : Monday Date: 14.12.2020	End Semester Examination	Time:2 Hrs. Max Marks:50

Instructions: 1) All Questions are compulsory.
2) Assume suitable data wherever necessary and state it clearly in answersheet.

Q.1	**Answer the following (Any Two)**	Marks	Bloom's Level	CO
a)	Translate the following customer statements about a screw driver into proper need statement and convert the same into specifications. 1) "I need to drive screws faster than by hand." 2) "I like the pistol grip; it feels the best." 3) "I don't like when the tip slips off the screws." 4) "I can't drive screws into hard material."	8	3	301.1
b)	For the product (Pizza Box Oven) as shown in Figure 1, Write the product mission statement in standard format in tabular form.	8	3	301.1
c)	The DFMA analysis for an assembly is given both original and after in Figure 2. Study the details and comment on the improvements done. List the important steps in DFMA.	8	2	301.3



Figure 1: Pizza Box Oven

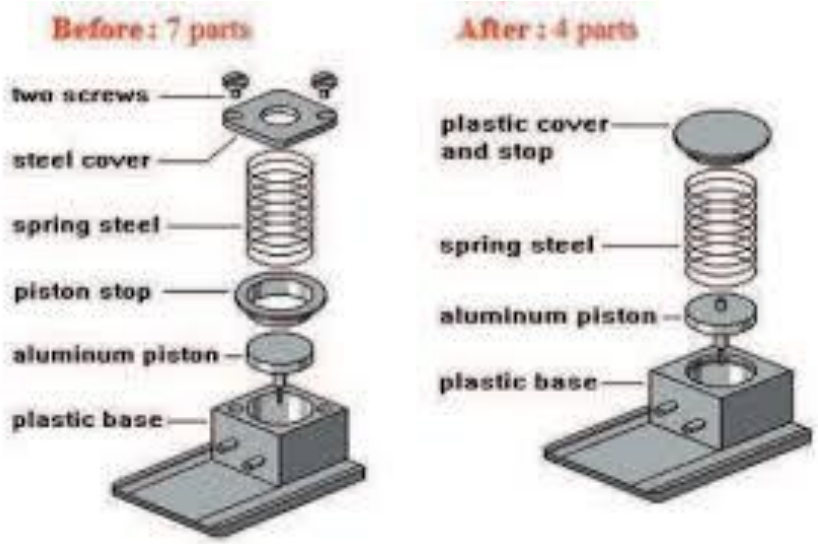


Figure 2: DFMA Analysis (Before & After)

Q.2 Answer the following (Any two)

a)	Draw at least four different concept sketches of foot operated sanitizer dispenser.	8	2	301.2
b)	Describe the architecture of a eco-tank inkjet printer as shown in Figure 3. What advantages and disadvantages do this architecture provide?	8	2	301.2



Figure 3: Eco-tank inkjet printer

c)	Explain the application of value engineering steps to the Ceiling fan as shown in Figure 4.	8	2	301.3



Figure 4: Ceiling fan

Q.3 Answer the following (Any two) –

a) Suggest suitable guidelines and parameters for the desigm of various components of Office chair as shown in Figure 5. 9 3 301.4



Figure 5 : Office Chair

b) Explain the need of aesthetic and ergonomic aspects for design of new products. Support your answer with at least three examples 9 3 301.4

c) QFD is a technique to translate voice of the customer in to successful product design? Justify the statement
Construct the house of quality for the Portable Air Cooler as shown in Figure 6. Assume the necessary data required in completing all the sections of the house of quality. 9 3 301.3



Figure 6 : Portable Air Cooler

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