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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, May – 2021

(Eighth Semester)

BMEP8011 – PRODUCT DESIGN AND PRODUCT TOOLING

(Mechanical Engineering)

Time: 2 hrs

Maximum: 50 Marks

Answer ALL Questions**The figures in the right hand margin indicate marks.****PART – A: (Multiple Choice Questions)****(1 x 10 = 10 Marks)**

- Q.1. Answer ALL questions** [CO#] [PO#]
- a. Which of the following is not a characteristic of “Market Introduction Stage” in PLC? CO1 PO 1
 (i) Costs are low (ii) Makes no money at this stage
 (iii) Demands has to be created (iv) Slow sales volume to start
- b. The term 'value' in value engineering refers to CO1 PO 1
 (i) Total cost of the product (ii) Utility of the product
 (iii) Selling price of the product (iv) Manufactured cost of the product
- c. To fasten the sheet metal with steel nail the ----- is used. CO2 PO 1
 (i) Rivet Pliers (ii) Punch
 (iii) Pliers (iv) Stapler
- d. A drill bit is used to cut circular holes of metal sheet and it is made of CO2 PO 1
 (i) High carbon steel (ii) Pure iron
 (iii) Wood (iv) Rubber
- e. Jigs are not used in CO3 PO 1
 (i) Milling (ii) Reaming
 (iii) Tapping (iv) Drilling
- f. The following holds the work piece securely in a jig or fixture against the cutting forces CO3 PO 1
 (i) Indexing device (ii) Guiding device
 (iii) Locating device (iv) Clamping device
- g. The following material is commonly used for making locating and clamping devices CO3 PO 1
 (i) High carbon steel (ii) Low carbon steel
 (iii) High speed steel (iv) Die steel
- h. The following type of jig is used for machining in more than one plane CO3 PO 1
 (i) Plate type jig (ii) Template jig
 (iii) Box type jig (iv) Open type jig
- i. In which type of operation, motion of cutting tool is translating? CO4 PO 1
 (i) drilling and milling (ii) boring and drilling
 (iii) turning and planning (iv) milling and turning
- j. In which type of operation, motion of cutting tool is rotary as well as translating? CO4 PO 1
 (i) planning (ii) milling
 (iii) drilling (iv) turning

PART – B: (Short Answer Questions)**(2 x 5 = 10 Marks)**

<u>Q.2. Answer ALL questions</u>	[CO#]	[PO#]
a. Define Process Planning. What are the two approaches of Process Planning?	CO1	PO 1
b. List out some of the advantages of press forging over drop forging.	CO2	PO 1
c. What is meant by ‘locating’ and ‘clamping’ a work piece?	CO3	PO 1
d. Why a negative rake angle is normally employed for cutting hard and strong materials?	CO4	PO 1
e. State the various types of tool wears.	CO4	PO 1

PART – C: (Long Answer Questions)**(6 x 5 = 30 Marks)**

<u>Answer ANY FIVE questions</u>	Marks	[CO#]	[PO#]
3. Discuss in detail the types of process planning in detail.	(6)	CO1	PO 1
4. Explain the Product Life Cycle with a neat sketch.	(6)	CO1	PO 1
5. Explain the basic rules for die design for upset forging.	(6)	CO2	PO 1
6. Discuss the design considerations for the design of a progressive die.	(6)	CO2	PO 1
7. With neat sketches give a brief note on vise fixtures and milling fixtures in detail.	(6)	CO3	PO 1
8. What are the different types of clamps used in jigs and fixtures? Explain with suitable sketches.	(6)	CO3	PO 1
9. Sketch the tooth shape of a broach and write briefly about its elements.	(6)	CO4	PO 1
10. Explain in detail the programmed automatic lathes with neat sketches.	(6)	CO4	PO 1

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