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**P1221**

**[3768] - 1**

**S.Y. B.Des. (Product Design)**

**ERGONOMICS - II**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the Candidates:*

- 1) All questions are compulsory*
- 2) Figures to the right indicate the marks.*
- 3) Illustrate with sketches wherever necessary.*

**Q1)** Write short notes on any four:

**[20]**

- a) Different human Postures.
- b) Hand tools.
- c) What is reach and why is it important.
- d) Importance of ergonomics in product design.
- e) Repetitiveness with respect to a task and its impact on health. Elaborate c example and explain with.

**2)** Draw line diagrams and explain with brief description the musculoskeletal disorder / stress, which is generated due to the postures while performing the following tasks. **[20]**

- a) Vegetable Vendors with a cart.
- b) Drafting work by a draftsman in architects office.

**Q3)** What are different types of controls? Where are they recommend and why? Elaborate with examples. **[20]**

**Q4)** Redesign the grip of a screw driver (domestic use) and elaborate with proportionate sketches the issues of a grip. (Give dimension to your final solution). **[20]**

**P.T.O.**

**Q5)** Write the activity task analysis of using hand shower and identify the issues of concern from ergonomic perspective. Elaborate with sketches. **[20]**

OR

Write the activity task analysis of using a toothbrush and identify the issues of concern from ergonomic perspective. Elaborate c sketches.

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**P1222**

**[3768] - 2**

**S.Y. B.Des. (Product Design)**

**MATERIALS AND PROCESS - II**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the Candidates:*

- 1) All questions carry equal marks.*
- 2) Attempt any five questions.*

**Q1)** Explain in brief (any four)

- a) Property and application of Nylon.
- b) Property and application of PVC.
- c) Injection moulding.
- d) Transfer moulding.
- e) Blow moulding.

**Q2)** Explain compression moulding and transfer moulding in detail with suitable example of products. Also mention about recyclability of these materials.

**Q3)** Explain the thermoplastics and thermoset family of polymer. Explain with 3 materials from each family.

**Q4)** Explain the injection moulding process in detail with sketches. Explain cycle time, machine parts etc.

**Q5)** Explain the extrusion process with a detail sketch. Suggest household products which can be made with the process.

**Q6)** Explain ferrous / non ferrous material. Based upon carbon percentage, define steel. Explain the application of each grade of steel.

**Q7)** Design a water bottle cap, mention about product expectations, and suggest suitable polymer material. Explain how the specific properties of polymer are fulfilling your design requirement.

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**[3768] - 3**

**S.Y. B.Des. (Product Design)**

**HISTORY**

*Time : 3 Hours]*

*[Max. Marks : 100*

**Instructions to the Candidates:**

- 1) All questions carry equal marks.*
- 2) Solve any five of the questions.*
- 3) Sketches and illustrations as per requirement of the questions.*

**Q1)** Explain the following design movements.

- a) Art nouveau.
- b) Pop.
- c) Modern movement.
- d) Deconstructivism.

**Q2)** Explain development of 'helmet' as product with the issues of utility, form and safety.

**Q3)** The industrial revolution and the technological developments have played a major role in today's social and cultural world. Explain with various examples.

**Q4)** Explain evolution of a form of a selected product in context of a particular region.

**Q5)** a) Art Deco in product design.

- b) Use of machine aesthetics in product design.

**P.T.O**

**Q6)** Write short notes on:

- a) Zaha Hadid.
- b) Charles Voysey.
- c) Marcel Breuer.
- d) Ross Lovegrove.

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**[3768] - 9**

**T.Y. B.Des. (Product Design)**  
**MATERIAL AND PROCESS - IV**

*Time : 3 Hours]*

*[Max. Marks : 100*

**Instructions to the Candidates:**

- 1) Attempt any five questions.*
- 2) All questions carry equal marks.*

**Q1)** Write short notes on:

- a) Horn material as used in ultrasonic process.
- b) Longitudinal waves.
- c) Transverse waves.
- d) Curved waves.

**Q2)** Write short notes on:

- a) Cylindrical grinding.
- b) Surface grinding.
- c) Bench grinding.

**Q3)** Explain metal finishing process like grinding, buffing, electro plating and powder coating. Explain any two processes in detail.

**Q4)** Explain the ultrasonic welding process and its horn design. Suggest suitable plastic material for this process.

**P.T.O**

- Q5)** Explain “Insert Moulding” and its benefits to a product designer. Explain different applications of this concept. Give enough sketches to understand this technology.
- Q6)** What is anodising process and chrome plating process? Explain the application in consumer durable industry.
- Q7)** Explain hot plate welding process with its parameters and features. Describe the advantages and disadvantages of the process.

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