Total No. of Questions : 7] **[Total No. of Pages : 1**

P920

[3868] - 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) What is Ergonomics?

b) What are different types of Ergonomics?

c) Relevance of Ergonomics in Product Design?

d) What is Work Station?

e) What are hand tools?

Q2) What are the factors responsible for the physical and mental comfort in the space? Explain each factor briefly with suitable examples. **[20]**

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

Q4) Write the Ergonomics task flow and its analysis of a food grinder (Mixer used in the kitchen environment-domestic use). **[20]**

Q5) What is Physical Ergonomics? **[05]**

Q6) What is Perceived Affordance? **[05]**

Q7) Elaborate the factors which contribute towards the development of musculoskeletal disorders in the users working on the railway platforms (Porters). **[10]**

Total No. of Questions : 7] **[Total No. of Pages : 1**

P921

[3868] - 2
S.Y.B.Des. (Product)
Materials & Processes - II

Time : 3 Hours] ***[Max. Marks : 100***

Instructions to the candidates:

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

Q1) Explain thermoplastics and thermoset family of polymer. Explain with 3 materials from each family.

Q2) Explain Compression moulding and transfer moulding in detail. Give examples of products made out of this process. Explain why the polymer used here can't be recycled.

Q3) Define grades of stainless steel and its application. Explain how the property of stainless steel is obtained in the material.

Q4) Explain in brief (any four):

a) Rotational moulding
b) Transfer moulding
c) Blow moulding
d) Property and application of PP-Co
e) Property and application of ABS
f) Properties of polymer.

Q5) Explain the Injection moulding process in detail with sketches.

Q6) Explain ferrous/non ferrous material. Also explain, how based upon carbon percentage, steel is defined. Explain the application of each grade of steel.

Q7) Design a Refrigerator handle, specify the product requirement and suggest the polymer material, Explain how the specific properties of polymer are fulfilling your design requirement.

Total No. of Questions : 7] **[Total No. of Pages : 1**

P922

[3868] - 9
T.Y.B.Des. (Product Design)
MATERIALS & PROCESSES - IV

Time : 3 Hours] ***[Max. Marks : 100***

Instructions to the candidates:

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

Q1) Draw and explain with nomenclature-Metric and British screws. Also explain different types of screws like machine screws and self tapping screws. Also explain Philips head, star head and wood working screws.

Q2) Describe Hot plate welding process. Define its parameters and features of the process. Explain the advantages and disadvantages of the process.

Q3) Write short on the following:

a) Standard design.
b) Flush design.
c) Spherical design.
d) Knurled design.

Q4) Explain metal finishing process like grinding, buffing and electro plating and powder coating. Explain any two out of this in detail.

Q5) Write short notes on:

a) Horn material.
b) Longitudinal waves.
c) Transverse waves.
d) Curved waves.

Q6) Explain the concept of prototyping, including advantage & disadvantages. Highlight how it is different from a production component. Explain the materials and procedure of prototyping. Explain prototyping technologies like SLA, SLS etc.

Q7) Explain the concept of Tampo printing with suitable application. Design two products for such application. Sketches for these two products carry 10 marks out of 20 for this question.

Total No. of Questions : 5] **[Total No. of Pages : 1**

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[3868] - 3

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

HISTORY

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 three. **[30]**

a) Organic Design
b) Art Nouveau
c) Biomimcry
d) Art Deco.

Q2) Describe a product of your choice, with respect to its evolution in form and technology. **[15]**

OR

"Bauhaus has played a major role in setting up the path for product design" Discuss this statement.

Q3) Write short notes on any three: **[30]**

a) Louis Tiffany
b) Alvar Aalto
c) Karim Rashid
d) Marcel Breuer

Q4) Discuss the following products (any three): **[15]**

a) Helmet
b) Pen
c) Toaster
d) Sharpners

Q5) Explain the following in short (any two): **[10]**

a) Stereo typical Design in history.
b) Role of the Craftsmen while designing a product.
c) Material and Product relation.