

315359

12526

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answer with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: **10****
- a) State any two design limitations in plastic products.
 - b) State meaning of tolerance in product design.
 - c) State the importance of uniform wall thickness in plastic product.
 - d) State any two considerations while designing ribs and bosses.
 - e) Define living hinge. Give one example.
 - f) State the importance of gate location in moulded products.
 - g) List any two performance characteristics of thermoplastics.
- 2. Attempt any THREE of the following: **12****
- a) Explain the need for plastic product design in today's industry.
 - b) Explain the role of draft angle in product design.
 - c) Describe design consideration for electric switch.
 - d) Explain with examples the process selection for thermoplastics, thermosets and composite products.

P.T.O.

3. Attempt any THREE of the following: 12
- a) Describe the importance of rim in plastic products.
 - b) Explain the concept and advantages of snap fitting in plastic product design.
 - c) Describe suitable processes for manufacturing water bath.
 - d) Explain the design considerations for gears and ball bearings.
4. Attempt any THREE of the following: 12
- a) Explain the fundamental product design consideration on the basis of environment aspect.
 - b) Suggest design considerations for ball and socket joints.
 - c) Compare process selection for hollow products and thin-wall products.
 - d) Describe manufacturing process for wind mill blade with neat figure.
 - e) Describe the process and material selection for plastic syringes.
5. Attempt any TWO of the following: 12
- a) Explain in detail various product design considerations for under cut.
 - b) Describe the design and material considerations for manufacturing automobile panels and car hoods.
 - c) Describe plastic product design consideration, material and process selection for :-
 - i) Plastic bottle
 - ii) Plastic chair.
6. Attempt any TWO of the following: 12
- a) Explain design guidelines for hinges in plastic product design.
 - b) Describe modified product design considerations for moulded plastics threads design.
 - c) Explain the product design aspects for car reflectors and head lamps.
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