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CENTRAL INSTITUTE OF PETROCHEMICALS ENGINEERING & TECHNOLOGY
HEAD OFFICE : GUINDY, CHENNAI – 600 032.
ACADEMIC CELL
FOURTH SEMESTER EXAMINATION – JULY 2023

Duration : 3 Hours
Course : DPT
Subject : Industrial Management & Entrepreneurship

Max. Marks: 60
Date : 04.07.2023
Time : 10.00 a.m. to 01.00 p.m.

(DO NOT CHANGE SEQUENCE OF QUESTION NUMBER IN ANSWER SCRIPT)

PART – A

Answer **all** questions

30 x 1 = 30

- Strike the odd one out:
a) Management is a process, b) Management is an activity,
c) Management is a discipline d) Management is a game
- Which of the following is 'determining in advance, what should be done in future'?
a) Staffing b) Directing c) Planning d) All the above.
- Carrot & Stick Approach is one of thetheories of management.
a) motivational b) chaos c) contingency d)none of the above
- Which one of the following is the next stage to the Concept Stage of Product Planning and Development Process?
a) Idea Stage b) Product Planning Stage
c) Product Development Stage d) Test Marketing Stage
- Which of the following is responsible for quality objective?
a) Top level management b) Middle level management
c) Lower level management d) All of the above.
- A skill or capability that enables an organization to conceive of and implement its strategies is its:
a) Strength b) Weakness c) Opportunity d) Threat
- TQM & ISO both focuses on:-
a) Customer b) Employee c) Supplier d) Entrepreneur
- Total cost is also known as
a) Manufacturing Cost b) Cost of Goods sold c) Works cost d) Direct cost
- What is meant by Kaizen?
a) Card signal b) to avoid inadvertent errors
c) change for better quality d) none of the above.
- The bill of material does not consist of.....
a) Part number b) Specification of Part c) Name of Part d) Price of part
- If Works cost is Rs 4,75,000 and Administration expenses are Rs 45,000, what is the Cost of Production?
a) Rs 4,75,000 b) Rs 5,20,000 c) Rs 4,30,000 d) 5,30,000
- Depreciation is a kind of
a) Liability b) Assets c) Expenses d) Income
- Facial expressing is a form of communication.
a) Verbal b) Oral c) Sign d) None of these.
- Which of the following statement about JIT is correct?
a) JIT seeks to reduce inventory in an effort to reduce waste.
b) JIT is only useful in a high product variety environment
c) JIT will overcome poor component manufacture.
d) JIT pushes inventory through the operations process.
- Body of Individuals (BoI) consist of:
a) Individual only b) Persons other than individual only
c) Persons including individual d) None of these
- The process of developing ideas by a team of people on a specific topic and collectively seeking the solution of a problem is known as
- Electricity expenses is an example ofcost.
- Contingency theory, Chaos theory and Systems theory are popular..... theories.
- A organizational structure is the simplest form and has clear lines of authority and ease of decision making.
- A part of quality management focused on fulfilling quality requirements is called.....
- The income tax slab rate for male and female individuals are same. (True/False).
- The list of quantities of components, ingredients and materials required to produce a product is the Master schedule. (True/False).
- In ABC analysis 'A' items represent more value and less quantity. (True/False).

24. ISO – 27001 is for Environmental Management. (True/False).
25. A systematic evaluation of an employee's performance on the job in terms of requirements of the job is known as Job Evaluation. (True/False).
26. SSI stands for.....
27. ISO stands for.....
28. HSN stands for.....
29. MRP stands for.....
30. EDP stands for.....

PART – B

Answer **all** questions (Max. 40 words)

4 x 2 = 8

1. What is EOQ?
2. Differentiate between Vision and Mission.
3. Write a short note on Entrepreneur.
4. Define motivation.

PART – C

Answer any **four** questions (Max. 100 words)

4 x 3 = 12

1. Write a note on SWOT analysis ?
2. Draft a proforma for cost estimation.
3. Describe the advantages of quality circle.
4. Explain the barriers of communications.
5. What are the advantages of on-the job training?

PART – D

Answer any **two** questions (Max. 300 words)

2 x 5 = 10

1. Explain the Maslow's need Hierarchy model as a theory of Motivation.
2. What are the steps are required to be taken by an entrepreneur for starting a small scale industry?
3. What is costing and elaborate the main objectives of costing?

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HEAD OFFICE : GUINDY, CHENNAI – 600 032.
ACADEMIC CELL
FOURTH SEMESTER EXAMINATION – JULY 2023

Duration : 3 Hours
 Course : DPT
 Subject : Plastics Product & Mould Design

Max. Marks: 60
 Date : 05.07.2023
 Time : 10.00 a.m. to 01.00 p.m.

(DO NOT CHANGE SEQUENCE OF QUESTION NUMBER IN ANSWER SCRIPT)

PART – A

Answer **all** questions

30 x 1 = 30

- 1 What is the primary goal of product design?
 a) Aesthetics b) Functionality c) Cost-effectiveness d) All of the above
- 2 What does the term "user-centered design" refer to?
 a) Designing products that are easy to manufacture
 b) Designing products that are visually appealing
 c) Designing products that prioritize the needs and preferences of the end-users
 d) Designing products that are environmentally friendly
- 3 In product design, what is the purpose of a parting line?
 a) To create an aesthetic feature on the product
 b) To indicate the point of assembly for different components
 c) To ensure proper alignment of the product during manufacturing
 d) To facilitate the mold separation process during manufacturing
- 4 The parting line in product design is typically found in which type of products?
 a) Injection-molded plastic products b) Wood and metal products
 c) Textile and fabric products d) Electronics and electrical products
- 5 What is the purpose of a runner in injection molding?
 a) To connect the mold cavity with the injection unit
 b) To create decorative patterns on the product surface
 c) To enhance the structural strength of the product
 d) To facilitate the ejection of the finished product
- 6 Which of the following statements about the gate in injection molding is true?
 a) The gate determines the shape and size of the final product.
 b) The gate is located at the parting line of the mold.
 c) The gate controls the flow of molten material into the mold cavity.
 d) The gate is responsible for cooling the product during the molding process.
- 7 What is the purpose of an ejection system in injection molding?
 a) To cool the mold cavity during the molding process
 b) To create decorative patterns on the product surface
 c) To facilitate the removal of the finished product from the mold
 d) To control the flow of molten material into the mold cavity
- 8 Which of the following components is commonly used in an ejection system to push the finished product out of the mold?
 a) Runner b) Gate c) Ejector pin d) Sprue bushing
- 9 Which type of injection mold is commonly used for manufacturing complex and intricate parts with undercuts?
 a) Two-plate mold b) Three-plate mold c) Hot runner mold d) Stack mold
- 10 Which type of compression mold is commonly used for molding thermosetting materials?
 a) Open-bottom mold b) Closed-bottom mold c) Transfer mold d) Injection mold
- 11 What is the primary characteristic of a shuttle transfer mold?
 a) It has a single mold cavity. b) It allows for the simultaneous molding of multiple parts.
 c) It utilizes a hydraulic system for material transfer. d) It is suitable for high-volume production.
- 12 Which type of transfer mold is commonly used for molding large or complex parts with multiple cavities?
 a) Shuttle mold b) Rotary mold c) Multi-cavity mold d) Insert mold
- 13 Which of the following is a primary consideration in extrusion die design?
 a) Die material strength b) Die surface finish c) Die temperature control d) Die shape and profile
- 14 What is a key consideration in the design of thermoforming molds?
 a) Gate location b) Mold temperature control c) Mold material strength d) Mold surface finish
- 15 Which type of mold is commonly used in vacuum forming?
 a) Injection mold b) Blow mold c) Compression mold d) Positive mold
- 16 The primary material used for the construction of injection molds is _____.

- 17 In compression molding, an _____ mold is commonly used, which allows for the formation of intricate shapes and undercuts.
- 18 A _____ mold is commonly used in transfer molding for molding large or complex parts with multiple cavities.
- 19 In extrusion die design, the _____ of the die plays a crucial role in determining the shape and dimensions of the extruded product.
- 20 The temperature control is a key aspect in the design of thermoforming to ensure proper _____ of the thermoplastic material.
- 21 The purpose of a runner system in a plastic product mold is to distribute molten plastic to the mold cavities. True/False
- 22 Venting is not necessary in plastic product molds as it may affect the structural integrity of the molded part. True/False
- 23 Overmolding is a process in which multiple materials are sequentially injected into the same mold to create a composite product. True/False
- 24 Cooling channels are essential in plastic product molds to accelerate the cooling of the molten plastic and reduce cycle times. True/False.
- 25 Undercuts are features in the molded part that make it easier to eject from the mold. True/False.
- 26 What does "CAD" stand for?
- 27 What does "DFM" stand for?
- 28 What does "CAE" stand for?
- 29 What does "BOM" stand for?
- 30 What does "RPT" stand for?

PART – B

Answer **all** questions (Max. 40 words)

4 x 2 = 8

- 1 What are the two significant components of a thermoforming system.
- 2 Elaborate two different extrusion processes for which dies are designed
- 3 Define the term "pot" in transfer moulding.
- 4 Discuss in detail the two types of transfer moulds used in the industry.

PART – C

Answer any **four** questions (Max. 100 words)

4 x 3 = 12

- 1 Explain the purpose and function of the parting line in injection mould design.
- 2 Describe the role of the gate in controlling the flow of molten plastic in an injection mould.
- 3 How does mould cooling affect the quality and efficiency of the injection moulding process?
- 4 Describe the basic concept of compression mould design and its advantages.
- 5 Discuss the basic concepts of transfer mould design and explain the purpose of transfer molds in the injection moulding process.

PART – D

Answer any **two** questions (Max. 300 words)

2 x 5 = 10

- 1 Discuss the importance of mould cooling in the injection moulding process. Explain the cooling methods used in injection moulds and their impact on part quality and cycle time.
- 2 Explain the role of gate design in the injection moulding process. Discuss different gate types and their effects on part quality, including considerations for gate location and size.
- 3 Describe the process of aligning and assembling injection moulds. Discuss the methods and techniques used for achieving precise mould alignment, ensuring proper part formation and minimizing defects.

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FOURTH SEMESTER EXAMINATION – JULY 2023

Duration : 3 Hours
 Course : DPT
 Subject : Plastics Materials-II

Max. Marks: 60
 Date : 06.07.2023
 Time : 10.00 a.m. to 01.00 p.m.

(DO NOT CHANGE SEQUENCE OF QUESTION NUMBER IN ANSWER SCRIPT)

PART – A

Answer **all** questions

30 x 1 = 30

1. Which of the following material is known with trade name Udel
 a. POM b. Polycarbonate c. PPO d. PSU
2. Teflon is commercial name for which of the following material?
 a. PTFE b. PES c. POM d. None of these
3. What is melting point of PEEK?
 a. 223 °C b. 264 °C c. 327 °C d. 343 °C
4. Ultem is trade name of which of the following material?
 a. PEI b. PVF c. PC d. None of these
5. What is density of PTFE ?
 a. 1.8 g/cc b. 2.2 g/cc c. 0.6 g/cc d. 1.5 g/cc
6. Which of the following is used as wire enamel and substrate for Printed Circuit Board?
 a. Polyimide b. PPO c. PS d. None of these
7. Torlon is the trade name of _____
 a. LCP b. PAI c. PEEK d. PBT
8. Polymer blend is a mixture of at least two _____
 a. Polymers b. Copolymers c. Both a and b d. None of these
9. Reason for blending EPDM with PP is _____
 a. To increase the barrier property b. To decrease the barrier property
 c. To increase the low-temperature impact strength d. To increase the modulus
10. Interfacial adhesion of polymer blend is improved using _____
 a. Compatibilizer b. Initiator c. Filler d. Diluent
11. Which of the following material is used for forming blend with Polycarbonate
 a. PP b. ABS c. PE d. None of these
12. Polymer blending can be done by _____
 a. Mechanical mixing b. Latex blending c. Fine powder mixing d. All of the above
13. Noryl is a blend of _____
 a. PP/ABS b. PPO/PS c. PE/POM d. PP/EPDM
14. Polyimide is synthesized by the reaction between.
 a. Isophthalic acid and glycerol b. Diamine and dibasic acid
 c. Diisocyanate and diol d. Dianhydride and diamine
15. Matrix is also known as _____
 a. Binder b. Cross-linker c. Interface d. Blender
16. Expand FRP _____
17. Kapton is the trade name of _____
 a. Polyamide b. Polyimide c. PPS d. PPO
18. Expand ATH _____
19. Expand PVDF _____
20. Compatibilisers are used to _____
 a. To cure the resin b. To initiate the polymerization c. To modify the interphase d. None of the above
21. Kevlar is _____
22. Full form of PEEK is _____
23. Full form PPO is _____
24. The monomer of acetal homopolymer is _____
25. Density of LCP is _____
26. High Injection speed of the molding machine is essential for nylon materials. (Say True/ False)
27. PTFE is a heat resistant plastic material. (Say True/ False)
28. Mindel is the blend of Polysulphone/SAN. (Say True/ False)
29. SEM is used for the determination of polymer blend miscibility. (Say True/ False)
30. Reason for blending POM with PE is to decrease rigidity. (Say True/ False)

PART – B

Answer **all** questions (Max. 40 words)

4 x 2 = 8

1. Define speciality plastics.
2. What is bleeding of an additive?
3. What are the raw materials required for the synthesis of Nylon 6,6
4. Give some examples of natural fibres.

PART – C

Answer any **four** questions (Max. 100 words)

4 x 3 = 12

1. Write few advantages of polymer blends.
2. Write down the properties & applications of PSU.
3. List out different types of glass fibers.
4. Write a few applications of composite materials.
5. What are conductive additives? Explain with example

PART – D

Answer any **two** questions (Max. 300 words)

2 x 5 = 10

1. Mention the method of manufacture, general characteristics & properties of PPO.
2. Explain the relation of structure & properties of PTFE. Mention its characteristics & applications.
3. Write the molecular structure of PVDF. Discuss its properties & applications.

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FOURTH SEMESTER EXAMINATION – JULY 2023

Duration : 3 Hours
Course : DPT
Subject : Plastics Testing - I

Max. Marks: 60
Date : 07.07.2023
Time : 10.00 a.m. to 01.00 p.m.

(DO NOT CHANGE SEQUENCE OF QUESTION NUMBER IN ANSWER SCRIPT)

PART – A

Answer **all** questions

30 x 1 = 30

- The ASTM standard for Tensile Strength Test is _____
a) ASTM D -790 b) ASTM D -648 c) ASTM D -638 d) ASTM D -256
- For MFI of ABS material, the temperature and load is _____
a) 190°C and 2.16 Kg. b) 210°C and 5 Kg. c) 270°C and 21.6 Kg. d) 190°C and 5Kg
- As per ASTM D 618, the ambient temperature and humidity for conditioning is
a) 23±5°C, 60±5% RH b) 23±2°C, 50±5% RH
c) 28±5°C, 50±5% RH d) 30±2°C, 50±5% RH
- The test performed to confirm PVC is
a) Copper wire test b) Aluminum wire test c) Thin wire test d) None of the above
- Which of the following measuring device is used to measure the wall thickness of the curved surface?
a) Ball ended micrometer b) Scale c) Tape d) None of the above
- The density of isopropyl alcohol at 23°C is
a) 0.786 g/cc b) 0.895 g/cc c) 0.914 g/cc d) 1.0 g/cc
- The unit of intrinsic viscosity is
a) g/dl b) dl/g c) g/cc d) None of the above
- Spiral Flow test is used to find the flow property of
a) Thermoplastics b) Thermoset plastics c) Both d) None
- As temperature increases, the viscosity of polymer solution is _____
a) Decreases b) Increases c) Remains same d) None of the above
- Elastic Modulus is also known as
a) Young's Modulus b) Poisson's ratio c) Secant Modulus d) Storage modulus
- Gradual decrease in stress with respect to time under constant deformation is called
a) Creep b) Fatigue c) Torsion d) Stress relaxation
- Rate of heating of heat transfer medium in HDT test as per ASTM D 648 is
a) 1.0°C/min. b) 3.0°C/min. c) 2.0°C/min. d) 4.0°C/min.
- Moisture in sample causes _____ in MFI value
a) Decrease b) Increase c) no change d) None of the above
- Which of the following is long term property
a) Creep b) Stress Relaxation c) both (a) & (b) d) none of the above
- Which test method is used for Density by Density Gradient Technique?
a) ASTM D1525 b) ASTM D792 c) ASTM D1505 d) ASTM D732
- HDT is defined as the temperature in which a standard test specimen of _____ size is used.
- The included angle of notch in the impact test specimen is _____
- Three Point & Four Point are the methods for testing _____ properties
- Brook Field Viscometer is used for measuring _____ of resin.
- Higher the modulus of the material means higher the _____ of the material
- As angle of notch is decreases, Izod Impact strength of specimen also decreases- Say True or False
- Nylon is a high viscous material .Say True or False
- Compression Molded specimen are relatively stress free. Say True or False
- Stress relaxation is short term mechanical properties. Say True or False
- The HDT value increases with the increase of load True or False
- What is full form of PLC
- What is full form of ISO
- What is full form of IEC
- What is full form of UTM
- What is full form of BIS

PART – B

Answer **all** questions (Max. 40 words)

4 x 2 = 8

1. What do you mean by Standard and specification.
2. Define toughness.
3. Define heat deflection temperature.
4. Why pre-drying and conditioning of test specimens are required.

PART – C

Answer any **four** questions (Max. 100 words)

4 x 3 = 12

1. How do you classify polymeric material based on stress – strain curve.
2. Define M.F.I., Explain the role of MFI in plastics conversion technology.
3. What is the importance of Standards in Plastics.
4. Write about various measuring instruments used for dimensions of Pipe.
5. Write about Cup & Spiral flow test.

PART – D

Answer any **two** questions (Max. 300 words)

2 x 5 = 10

1. Write in detail about the various identification techniques.
2. Explain tensile properties and various factors affecting test results.
3. Write a short note on the following:
(a) Specific gravity (b) Creep
