

8E1823

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B.Tech. VIII - Sem (Back) Examination, April/May - 2024  
Mechanical Engg.

8ME5-13 Additive Manufacturing.

Time : 3 Hours

Maximum Marks : 120

Min. Passing Marks : 42

**Instructions to Candidates:**

Attempt **all ten** questions from **Part A**, **five** questions out of **Seven** from **Part B** and **Four** questions out of **Five** from **Part C**.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

**Section - A**

(Answer should be given up to 25 words only)

All questions are **compulsory**

(10×2=20)

1. What is Rapid Prototyping?
2. Do you think Additive Manufacturing will ever be able to produce large structures, such as an aircraft wing? If so, what's needed to make this happen?
3. Define the fundamental principle of stereo lithography process.
4. Define fused deposition modeling.
5. What is Full Mold Casting?
6. What is investment casting?
7. What are the disadvantages of Selective laser sintering?
8. What is Reverse Engineering?
9. What is Laminated Object Manufacturing?
10. What is STL file format?

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## Section - B

(Analytical/Problem solving questions)

Attempt any **five** questions

(5×8=40)

1. Classify rapid prototyping and give its basic principle.
2. Compare and contrast the liquid-based stereo lithography systems and the solid ground curing systems. What are the advantages disadvantages for each of the systems?
3. Explain merits and demerits of Laminated Object Manufacturing. Describe the principle of FDM with its advantages, disadvantages and applications.
4. Explain the critical factors that influence the performance and functions of Selective Laser Sintering and 3-Dimensional printing.
5. What is rapid tooling and explain about evaporative pattern casting processes.
6. What are the various Emerging trends in RP?
7. Explain the history of rapid prototyping systems and its fundamental development?

## Section - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Four** questions

(4×15=60)

1. Explain Polyhedral B-Rep modeling? What are the various defects in STL file format and repair of STL files is carried out?
2. Explain the procedure of modeling, STL file creation and layering steps before printing 3D model in RP machine for the following types of models (i) Economical model. (ii) Precision model.
3. Describe how reverse engineering will be applied to rapid prototyping techniques.
4. Categorize how the material relationship will contribute in rapid prototype technique. Specify the applications in aerospace industry.
5. Explain the futures of RP software and summarize about solid view, magics software in brief.

**8E1856**

Roll No. \_\_\_\_\_

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**8E1856****B.Tech. VIII-Sem. (Back) Examination, April/May - 2024  
Open Elective - II****8MI6-60.2 Open Elective - II Maintenance Management****Time : 3 Hours****Maximum Marks : 120****Min. Passing Marks : 42****Instructions to Candidates:**

*Attempt all Ten questions from Part A, Five questions out of Seven from Part B and Four questions out of Five from Part C.*

*Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

*Use of following supporting material is permitted during examination. (Mentioned in form No. 205).*

**PART - A**

(Answer should be given up to 25 words only)

**ALL questions are Compulsory**

**(10×2=20)**

1. What do you understand by failure analysis?
2. What is zero memory case?
3. What is reliability concepts?
4. What do you understand by maintenance budget?
5. Explain salvage value.
6. Define preventive maintenance.
7. What do you understand by stand by machines?
8. What is maintenance planning?
9. Define maintenance control indices.
10. What is economics of overhaul?

**PART - B**

(Analytical/Problem solving questions)

Attempt any **FIVE** questions

(5×8=40)

1. Explain organization and administration of maintenance systems for opencast mechanized mines.
2. Discuss the statistical & reliability concepts and models for failure analysis.
3. Discuss the decision models for maintenance planning.
4. Discuss the computerization of maintenance activities.
5. Explain general management of lubrication system for machinery used open-pit mines.
6. Explain spare planning and control with respect to static spares, insurance spares & low moving spares.
7. Discuss the basis and models for various maintenance systems.

**PART - C**

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **FOUR** questions

(4×15=60)

1. What do you understand by cost management for maintenance? Discuss the cost estimates with recording, summarizing and distributing cost data.
2. Explain following:
  - a) Replacement vs. reconditioning
  - b) Maintenance service contract
  - c) Major plant shut-down procedures
3. Discuss the economical and operational aspects of maintenance management. Also discuss the monitoring, updating and resource allocation aspects.
4. Explain organizing preventive maintenance program using vibration signature analysis with suitable example.
5. Explain following:
  - a) Maintenance control indices
  - b) Man power planning-crew size
  - c) Optimum level of maintenance

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	<div style="border: 1px solid black; display: inline-block; padding: 2px;"><b>8E1860</b></div> <b>B.Tech. VIII Sem. (Main) Examination, April/May - 2024</b> <b>Open Elective - II</b> <b>8TT6-60.2 Disaster Management</b>	

**Time : 3 Hours**

**Maximum Marks : 120**

**Min. Passing Marks : 42**

**Instructions to Candidates:**

*Attempt all ten questions from Part A, five questions out of Seven from Part B and Four questions out of Five from Part C.*

*Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

*Use of following supporting material is permitted during examination. (Mentioned in form No. 205).*

**PART - A**

(Answer should be given up to 25 words only)

**All questions are compulsory. (10×2=20)**

1. Define disasters and hazards.
2. Differentiate between natural and manmade disasters.
3. What are environmental issues hazards?
4. Why has the frequency of natural disasters increased in recent times, and what types of disasters are becoming more common?
5. What are geological based disasters?
6. What are industry based hazards?
7. Write disaster management cycle.
8. What are the effects of environmental hazards on health?
9. What is management role in mitigation of industry based hazards?
10. What is tsunami and why it occurs?

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## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions.

(5×8=40)

1. What types of health hazards has society recently faced, and what are their implications?
2. Explore hydro-meteorological-based disasters and their impact.
3. Investigate geological disasters, particularly the increasing occurrences of landslides in the Himalayan range.
4. Examine the causes of fire hazards and strategies for their control.
5. Analyze the reasons for power breakdowns and their effects on both social life and industries.
6. Define tsunamis, explore their causes, and evaluate their impact on human life.
7. Discuss the role of management in disaster mitigation within textile industries, considering government policies.

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Four** questions.

(4×15=60)

1. Outline the various types of natural disasters, their social impact, and preventive measures.
2. Explore the causes of flash floods and cloud bursts, along with management strategies to mitigate their damage.
3. Define volcanic eruptions, their global occurrence, and how they lead to disasters.
4. Analyze the recent increase in traffic accidents, assess their significant impact as disasters, and suggest management approaches to address related issues.
5. Identify the segment of the textile industry contributing to environmental disasters and examine government measures for its management and mitigation.