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8E1907

# 8E1907

## B.Tech. VIII - Sem. (Main) Examination, April/May - 2024
## Civil Engineering
## 8CE4-01 Project Planning and Construction Management

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt* ***all Ten*** *questions from* ***Part A****,* ***Five*** *questions out of* ***Seven*** *questions from* ***Part B*** *and* ***Three*** *questions out of* ***Five*** *questions 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. Write down the importance of Project planning.
2. Write short notes on Work breakdown structure of a project.
3. What are the shortcomings of a bar chart? How are these removed?
4. Enumerate various criteria of Financial evaluation of Construction projects.
5. Explain in brief about contract negotiation.
6. Define earnest money deposit and security deposit in a tender.
7. Define an 'event' and an 'activity'. Differentiate clearly between the two.
8. Write down the benefits of computerized information system in brief.
9. Write short notes on 'Time - Cost Trade off' and 'Cost Slope'.
10. Write a brief note on 'Environmental issues in construction'.

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×4=20)**

1. Explain the concept of Work Breakdown structure in the development of a project network.
2. Explain direct and indirect cost associated with project cost with the help of graph showing their variation with time.
3. Differentiate between the following :
   a) Activities On Arrows (AOA) and Activities On Nodes (AON) network diagrams.
   b) CPM and PERT Techniques.
4. Write down the rules for inviting and processing tenders and note down the legal aspects of contract.
5. Discuss steps in Resources allocation. Differentiate between Resources smoothing and Resources levelling.
6. Define the Project Management Information System (PMIS) and discuss its components.
7. Define Earliest start time, earliest Finish time and latest start and latest finish time in a CPM networks. A project consists of nine activities and details about them are given below. Draw the project network the event identify critical path and determine duration of the project.

| Activity | A | B | C | D | E | F | G | H | I (Last) |
|---|---|---|---|---|---|---|---|---|---|
| Predecessor (s) | - | A | B | C | D | B | B | G | E,F,H |
| Duration (D) in weeks | 8 | 6 | 3 | 7 | 5 | 6 | 3 | 10 | 5 |

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions. **(3×10=30)**

1. A PERT network consists of seven activities as follows. The optimistic time ($t_0$), most likely ($t_m$) and pessimistic time ($t_p$) as estimated for different activities in weeks are given in table below. Draw the network. Determine critical path and standard deviation of project. What is the probability of completing the project 3 weeks earlier than the expected time?

| **Activity/Time** | **1-2** | **1-3** | **1-4** | **2-5** | **3-5** | **4-6** | **5-6** |
|---|---|---|---|---|---|---|---|
| $t_o$ | 1 | 1 | 2 | 1 | 2 | 2 | 3 |
| $t_m$ | 1 | 4 | 2 | 1 | 5 | 5 | 6 |
| $t_p$ | 7 | 7 | 8 | 1 | 14 | 8 | 15 |

2. Write notes on the following :

   a) Legal aspects of contract and contract negotiation.

   b) Detail specification in tender document.

   c) Breach of contract and arbitration.

   d) Determination of contract.

3. Discuss causes and prevention of accidents at construction site. Also discuss the objectives of accident prevention programs.

4. Explain benefits of computerized information system in project management. Explain environmental and social aspects of various types of construction projects with example.

5. Write a brief note on 'Time - Cost trade off'. A project consists of eight activities including one dummy activity. The normal and crash time in days and cost in rupees for different activities are given in the table shown below. Determine the optimum duration and associated cost of the project. Also draw the least - cost time scaled network. Indirect cost is Rs. 80 per day.

| Activity | Normal Time (Days) | Crash Time (Days) | Normal Cost (Rs.) | Crash Cost (Rs.) |
|---|---|---|---|---|
| 1-2 | 2 | 2 | 1000 | 1000 |
| 1-3 | 7 | 3 | 500 | 900 |
| 2-3 | 6 | 3 | 300 | 420 |
| 2-4 | 5 | 4 | 200 | 250 |
| 3-4 | 0 | 0 | 0 | 0 |
| 3-5 | 9 | 4 | 600 | 900 |
| 4-6 | 11 | 6 | 600 | 1000 |
| 5-6 | 6 | 3 | 700 | 910 |

8E1961

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# 8E1961

## B.Tech. VIII Sem. (Main) Examination, April/May - 2024
## Artificial Intelligence and Data Science
## 8AID4-01 Deep Learning and Its Applications

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt **all ten** questions from **Part A**, **five** questions out of **Seven** questions from **Part B** and **three** questions out of **Five** questions 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 the scope of deep learning.
2. Explain the back-propagation algorithm.
3. Differentiate between machine learning and deep learning.
4. Describe the curse of dimensionality.
5. What are the popular activation functions in deep learning?
6. Explain the concept of unsupervised training in neural networks.
7. Define Restricted Boltzmann Machines (RBMs).
8. What are the applications of Convolutional Neural Networks (CNNs)?
9. Explain the concept of Bidirectional RNNs.
10. Provide examples of applications of Auto Encoders.

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## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×4=20)**

1. Discuss the architectural overview of Convolutional Neural Networks (CNNs).
2. Explain the training process of Recurrent Neural Networks (RNNs).
3. Describe the motivation behind using sequence-to-sequence architectures.
4. Compare and contrast ResNet and AlexNet architectures.
5. Discuss the applications of deep learning in computer vision.
6. Explain the significance of Long Short Term Memory Networks (LSTMs) in sequence modeling.
7. Describe the process of regularization in deep learning.

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions. **(3×10=30)**

1. Design a deep feed-forward network for a classification task, specifying the architecture and activation functions used.
2. Analyze the role of autoencoders in dimensionality reduction, providing mathematical insights where necessary.
3. Discuss the challenges faced in training deep neural networks and propose strategies to overcome them.
4. Design a deep learning model for natural language processing, outlining the layers and training process involved.
5. Describe the process of fine-tuning pre-trained deep learning models for a specific task, providing examples.

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8E1909

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# 8E1909

## B.Tech. VIII - Sem. (Main) Examination, April/May - 2024
## Computer Science and Engineering (AI)
## 8CAI 4-01 Big Data Analytics
## CS, CAI

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt **all Ten** questions from **Part A**, **Five** questions out of **Seven** questions from **Part B** and **Three** questions out of **Five** questions 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 is 3 V's Big Data? Why we need to analyze big data.
2. What is the role of Job Tracker.
3. How the limitations of Map Reduce is overcome in future versions of Hadoop?
4. What are the functions of a combiner?
5. Differentiate between object writable and Null - writable?
6. What is the role of Data node and Name node in HDFS?
7. What is ABCs of Pig Latin?
8. Explain scripting with Pig Latin?
9. What is meaning of Hive Clients?
10. Differentiate between Hive and pig?

### PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×4=20)**

1. What is Big Data? Describe the main features of a big data in detail.
2. Write the difference between Old and new Hadoop API for Map reduce framework.

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8E1910

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# 8E1910

## B.Tech. VIII - Sem. (Main) Examination, April/May - 2024
## Information Technology
## 8IT4-01 Internet of Things

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt **all Ten** questions from **Part A**, **Five** questions out of **Seven** questions from **Part B** and **Three** questions out of **Five** questions 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 the role of smart object in Internet of Things.
2. Give the name of any four IoT Enabling Technologies?
3. What is the use of ultrasonic sensor?
4. When do you use an analog sensor and a digital sensor?
5. Draw the block diagram of Raspberry Pi?
6. What is the REST API?
7. List any five development challanges in IoT?
8. Differentiate between CoAP and MQTT protocols.
9. How software defined networks is useful in IoT applications?
10. List the Eight applications of IoT in industry automation?

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×4=20)**

1. Explain about the communication APIs of IoT.
2. What is the role of big data analytics in IoT applications?
3. How is RFID tag ID, location and time information communicated to the server for IoT applications?
4. Brief about the best practices for REST API design? What are the Four most common REST API operations?
5. Explain about the security challenges associated with IoT?
6. Why is a gateway necessary in a communication framework for IoT and M2M applications and services?
7. How IoT networks can be useful in Heath and Lifestyle domain.

## Part - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions. **(3×10=30)**

1. Explain the IoT Levels and deployment templates in details.
2. Differentiate the features of LiteOS, RIoTOS, Contiki OS, Tiny OS.
3. How do we handle long-running processes in a REST API?
4. What are the open protocols, tools and frameworks generally used in M2M? Give examples of IoTs used in smart agriculture, with sensors, actuators, and agriculture automation software.
5. Draw and explain the architectural view of a cloud-based IoT platform for a smart home.

8E1914

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# 8E1914

## B.Tech. VIII - Sem. (Main) Examination, April/May - 2024
## ELECTRICAL ENGINEERING
## 8EE4-11 HVDC Transmission System

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt **all Ten** questions from **Part A**. **Five** questions out of **Seven** questions from **Part B** and **Three** questions out of **Five** questions 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 are the main components of HVDC system?
2. List the different types of HVDC systems?
3. What is Firing Angle Control?
4. What do you understand by MTDC Links?
5. What is Transient Over-voltages?
6. Differentiate Voltage and frequency stability.
7. What is selective harmonic elimination?
8. What is power system angular stability?
9. What is ground electrodes?
10. What are equations of rotating frame?

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×4=20)**

1. Discuss the effect of commutation overlap.
2. Describe the twelve pulse converters with suitable diagrams(s).
3. Explain the modular multi-level converters.
4. Discuss the smoothing reactors, reactive power sources and filters in LCC HVDC systems.
5. List out the problem in AC/DC systems.
6. What are the modern trends in HVDC Technology?
7. Describe the MTDC systems using VSCs.

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions. **(3×10=30)**

1. Discuss the effect of commutation failure, misfire and current extinction in LCC.
2. Designate the DC line faults in LCC systems.
3. Briefly explain the synchronous and asynchronous links for power modulation.
4. Explain the two and three-level VSCs with suitable diagrms.
5. Differentiate the series and parallel MTDC systems using LCCs in detail.

8E1911

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# 8E1911

## B.Tech. VIII - Sem. (Main) Examination, April/May - 2024
## Electronics and Communication Engg.
## 8EC5-11 Artificial Intelligence and Expert Systems
## EC, EI

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt* ***all Ten*** *questions from* ***Part A****,* ***Five*** *questions out of* ***Seven*** *questions from* ***Part B*** *and* ***Three*** *questions out of* ***Five*** *questions 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 is intelligent agent?
2. Represent the structure of an agent in an environment.
3. Define state space.
4. What is heuristic function?
5. Write the time and space complexity associated with breadth first search and depth first search.
6. Define quantifiers and its types.
7. What are decision trees?
8. What is the need for probability theory in uncertainty?
9. What do you mean by Rule - based system?
10. What is the major difference between informed and uninformed search algorithm?

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×4=20)**

1. What factors justify whether the reasoning is to be done in forward or backward reasoning?
2. Explain single layer perception model of the neural network. What are its features?
3. Explain various steps followed in NLP
4. How fuzzy logic is different from conventional binary logic? Explain it with appropriate example.
5. What are semantic frames? How do they differ from semantic nets?
6. Differentiate informed and uninformed search algorithms.
7. How first order logic is different from propositional logic?

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions. **(3×10=30)**

1. Explain in detail about different types of intelligent agents based on their properties and performance.
2. Discuss the A* search algorithm taking an example and show its advantage over best first search.
3. Explain the concept of rule induction in decision trees. Give decision trees to represent the following boolean functions.

   a) $A \wedge \neg B$

   b) $A \vee [B \wedge C]$

   c) A XOR B

   d) $[A \wedge B] \vee [C \wedge D]$

4. Discuss in detail about the various components in rule - based expert system and their functions.
5. Encode the following sentences in first order logic and prove the validity using resolution in a stepwise manner.

   "The law says that it is crime for an American to sell weapons to hostile nations. The country Nono, an enemy of America has missiles, and all of its missiles were sold to it by **colond** west, who is American".

   Prove by resolution that 'West is Criminal'.

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# 8E1912

## B.Tech. VIII-Sem. (Main) Examination, April/May - 2024
## Electronics and Communication Engg.
## 8EC5-12 Digital Image and Video Processing

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt* ***all Ten*** *questions from* ***Part A***, ***Five*** *questions out of* ***Seven*** *questions from* ***Part B*** *and* ***Three*** *questions out of* ***Five*** *questions 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. Write relation between RGB and HSI color model.
2. Discuss briefly about image quantization.
3. Draw 3×3 mean filter mask used for image filtering.
4. What do you understand about wavelet in signal processing?
5. Explain inter - frame redundancy in context to Video signals.
6. What is the meaning of edge linking?
7. What do you mean by motion estimation.
8. What do you understand by lossy image compression?
9. Explain entropy by writing its mathematical expression.
10. Write the names of different lossless still image formats.

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×4=20)**

1. Apply histogram equalization for enhancing the following 3 - bit image.

| | | | | |
|---|---|---|---|---|
| 0 | 0 | 2 | 1 | 0 |
| 2 | 0 | 2 | 2 | 1 |
| 2 | 1 | 3 | 2 | 3 |
| 2 | 2 | 2 | 2 | 0 |

2. Apply 3×3 median filter on the marked pixels to minimize the salt - and - pepper noise

| | | | | | |
|---|---|---|---|---|---|
| 19 | 22 | 33 | 20 | 32 | 54 |
| 77 | **255** | 67 | **0** | 26 | 78 |
| 49 | 67 | 75 | 39 | 99 | 110 |

3. Discuss about "Gamma Correction" technique used for image enhancement. Use a suitable example for showing enhancement of under exposed and over exposed image pixels.

4. Discuss about global thresholding based image segmentation with suitable example.

5. Discuss digital image acquisition process using CCD sensor arrays.

6. What is the benefit of using different color models in digital images? Write about different color models briefly and state about their transformation formulation.

7. Discuss watershed transform along with its suitable application.

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions. **(3×10=30)**

1. Discuss the MPEG video coding standard along with it's application.

2. What do you understand by sub band filter banks? Draw a diagram showing the application of such type of filter.

3. For the given 8×8 binary image, apply the image erosion process by using the structuring elements as shown below :

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | |
|---|---|---|
| 1 | **1** | 1 |

4. Discuss briefly about the following terms in context to digital images :

   i) Multi - resolution analysis.

   ii) Video encoder and decoder.

5. By using the Sobel mask, compute the magnitude and direction of gradient for the bold marked pixels of image as shown below.

| | | | |
|---|---|---|---|
| 217 | 137 | 19 | 77 |
| 143 | **45** | **39** | 113 |
| 55 | 50 | 231 | 200 |

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8E1922

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# 8E1922

## B.Tech. VIII-Sem. (Main) Examination, April/May - 2024
## Mechanical Engineering
## 8ME5-12 Supply and Operations Management

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

***Attempt all Ten questions from Part A, Five questions out of Seven questions from Part B and Three questions out of Five questions 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 is Operation Management?
2. Define productivity in the context of operations management?
3. What is demand forecasting?
4. Enlist the Components of demand forecasting?
5. What is product design and why is it important?
6. What is fixed position and cellular layout?
7. What is aggregate planning?
8. What is the primary goal of Just-in-Time(JIT) production systems?
9. What are "Push" and "Pull strategies in Supply Chain Management?
10. Explain the bullwhip effect in SCM?

### PART - B

(Analytical/Problem solving questions)

**Attempt any FIVE questions.** **(5×4=20)**

1. What is operation Management? Discuss the main functions of Operation Management within an organization?
2. Discuss the relationship between product design and process selection?

3. A company wants to forecast the demand for a product using a 3-month moving average. The sales data for the past 6 months is as follows: 120,130,140,150,160,170 units. Calculate the forecasted demand for the next month using the 3-month moving average method.
4. A factory has a maximum production capacity of 1,000 units per day. However, due to maintenance, downtime, and other inefficiencies, it is currently operating at 80% capacity. Calculate the actual number of units produced per day and the potential increase in production if the factory could improve its capacity utilization to 90%?
5. Write a short note on cost-volume Analysis.
6. What is SCM? Discuss its need and elements of SCM?
7. Discuss the key challenges faced by organizations in managing global supply chains?

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

**Attempt any THREE questions.** **(3×10=30)**

1. Discuss the Role of Operation Management in the growth of an organization?

2. A retail store sells a seasonal product with fluctuating demand. The demand for the next six months is as follows:

| Month1 | Month2 | Month3 | Month4 | Month5 | Month6 |
|---|---|---|---|---|---|
| 100 units | 120 units | 80 units | 150 units | 90 units | 110 units |

The lead time for replenishing inventory is one month, and the store currently has 200 units in stock. Determine the optimal reorder point and order quantity using the Periodic Review System to minimize stockouts.

3. A company having annual requirement of 40000 units in 8 installments. Each unit cost is Rs.2 and ordering cost is Rs.30. The inventory carrying cost is estimated as 30% of unit value. Find the total annual cost of the existing inventory policy. How much money can be saved by the economic order quantity.

4. What is facility planning, and what are its objectives? Discuss the factors that affect facility planning, and how can they be addressed?

5. a) Define Lean operations and its core principles of waste reduction.
   b) How does MRP-II differ from MRP, and what are the advantages of MRP-II.

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8E1923

B.Tech. VIII - Sem. (Main) Examination, April/May - 2024
Mechanical Engineering
8ME5-13 Additive Manufacturing

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt **all Ten** questions from **Part A**, **Five** questions out of **Seven** questions from Part B and **Three** questions out of **Five** questions 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 Rapid Product Development (RPD) and explain its significance in modern product development processes.

2. What are the key components of Rapid Prototyping (RP), and how do they contribute to accelearating product development cycles?

3. Describe the principle of Stereo Lithography systems and their applications in additive manufacturing.

4. Explain the process parameters and applications of Selective Laser Sintering (SLS) in additive manufacturing.

5. Discuss the principle of solid ground Curing and its applications in rapid product development.

6. What are the main principles behind Rapid Tooling (RT), and how do indirect RT processes differ from direct RT processes?

7. Describe the concept of reverse engineering in additive manufacturing, including its applications and case studies.

8. Explain the process of processing polyhedral data in additive manufacturing, focusing on STL format and defects repair.

9. Discuss the emerging trends in Rapid Tooling (RT), including advancements in materials and technologies.

10. Provide a brief overview of software used in Rapid prototyping, such as Solid view and magics, highlighting their functionalities.

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×4=20)**

1. Describe the classification of Rapid Prototyping (RP) technologies and their respective advantages and limitations in product development.

2. Compare and contrast Selective Laser Sintering (SLS) and Fusion Deposition Modeling (FDM) in terms of their operating principles, process parameters, and typical applications.

3. Discuss the applications of Laminated Object Manufacturing (LOM) and its advantages over other rapid prototyping technologies.

4. Differentiate between indirect and direct Rapid Tooling (RT) processes, and provide examples of each process type.

5. Explain the concept of Reverse Engineering in additive manufacturing focusing on its role in product design, quality assurance, and legacy part reproduction.

6. Describe the significance of processing polyhedral data in additive manufacturing, highlighting its role in ensuring geometric accuracy and printability of 3D models.

7. Discuss the importance of software tools like SolidView and Magics in the Rapid prototyping process, emphasizing their functionalities and benefits in data preparation and optimization.

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions. **(3×10=30)**

1. Explain the historical evolution of Rapid Product Development (RPD) systems and their significance in modern manufacturing. Discuss how RPD addresses the need for compression in product development cycles and the components that constitute an effective RPD framework.

2. Delve into the principles underlying Rapid Prototyping (RP) technologies and their classifications. Compare and contrast different RP technologies, highlighting their unique characteristics, advantages, and limitations.
3. Explore advanced techniques in Rapid Tooling (RT), including powder metallurgy based technologies, welding - based technologies, and direct pattern making. Provide detailed explanations of each technique, their respective advantages, and applications.
4. Analyze emerging trends in additive manufacturing, focusing on advancements in materials, technologies, and applications. Discuss innovations such as 4D printing, bioprinting, and hybrid additive - subtractive manufacturing processes.
5. Explore the principles and methodologies of reverse engineering in additive manufacturing, with a focus on geometric data acquisition techniques. Evaluate the challenges and limitations associated with reverse engineering processes and propose strategies for overcoming them.

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# 8E1960

## B.Tech. VIII Sem. (Main) Examination, April / May - 2024

## Open Elective - II

## 8TT6-60.2 Disaster Management

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt **all Ten** questions from **Part A**. **Five** questions out of **Seven** questions from **Part B** and **Three** questions out of **Five** questions 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 man-made disasters.
3. What are environmental issues hazards?
4. Why natural disasters frequency increased in present time and which type?
5. What are geological based disasters?
6. What are industries based hazards?
7. Write disaster management cycles.
8. What are impacts of environmental hazards and health issues?
9. What is management role in mitigation of industry based hazards?
10. What is Tsunami and why it occurs?

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions . **(5×4=20)**

1. What are health related hazards, which type of health hazard has society faced recently?
2. What are hydro meteorological based disasters, discuss.
3. What are geological based disaster, why landslides has increased in Himalayan range?
4. What are the caused of fire hazards and how they can be controlled, discuss?
5. Discuss reasons of power breakdowns and its impact on social life, and industries.
6. What is Tsunami and reasons of its eruption with impact on human life?
7. What is the role of management in mitigation of disaster in textile industries with Govt. Policies.

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions . **(3×10=30)**

1. Explain types of natural disasters their impact on social life with preventive measures.
2. Discuss reasons of flash flood and cloud burst with suggestions for management and control its damages.
3. What is volcanic eruption and in which part of the world its frequently occur and how it creat disasters?
4. Why traffic accidents has increased now - a- days and how big its disasters impact is Suggest its management issues also?
5. Which section of Textile industry is creating environmental disaster and what measures Govt. has taken for its management?

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8E1937

Roll No. _____ [Total No. of Pages : 2

# 8E1937

## B.Tech. VIII - Sem. (Main) Examination, April/May - 2024
## Open Elective - II
## 8AG6-60.1 Energy Management

**Time : 3 Hours** **Maximum Marks : 70**

***Instructions to Candidates:***

*Attempt **all ten** questions from **Part A**, **five** questions out of **Seven** questions from **Part B** and **three** questions out of **Five** questions 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 Energy Efficiency.
2. Define Energy Integration
3. What is Energy matrix
4. How sustainable development can be achieved in the energy industry?
5. What is the relationship between energy development and sustainability?
6. Define Energy management.
7. What is the objective of energy management?
8. What is renewable energy and list at least three renewable energy sources?
9. List the different phases involved in energy management planning.
10. Define payback period

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions **(5×4=20)**

1. What is the difference between energy conservation and energy efficiency?
2. What are the steps involved in an energy management strategy?
3. What is the objective of sustainable energy management system?
4. Briefly discuss about the necessity of energy conservation.
5. Distinguish between 'preliminary energy audit' and 'detailed energy audit'?
6. What is the basis for aim of Energy Security for any country?
7. What are the cleaner production techniques?

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Three** questions **(3×10=30)**

1. Discuss present energy scenario of our country.
2. Briefly explain different energy forecasting techniques.
3. Explain the principle of Energy management for Cleaner production and its assessment with neat sketch.
4. What is Energy Integration and explain its role in achieving decarbonization of the global economy.
5. How do an Industry, nation and globe would benefit from energy efficiency programs? Mention some of the long-term energy strategies available for the better energy secured nation?

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8E1956

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# 8E1956

## B.Tech. VIII - Sem. (Main) Examination, April / May - 2024
## Open Elective - II
## 8MI6-60.2 Maintenance Management

Time : 3 Hours Maximum Marks : 70

*Instructions to Candidates:*

***Attempt all Ten questions from Part A, Five questions out of Seven questions from Part B and Three questions out of Five questions 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 mean by MTTR, MTBF and MTTF?
2. Write objectives of maintenance management.
3. What is spare parts management?
4. What is Total Planned Quality Maintenance (TPQM) Programme.
5. Differentiate between maintenance and maintainability.
6. List out main factors of maintenance cost.
7. State the types of reliability.
8. State the types of maintenance budget.
9. What is preventive maintenance? list down its elements.
10. Define maintenance scheduling.

## PART - B

(Analytical/Problem solving questions)

**Attempt any Five questions .** **(5×4=20)**

1. Differentiate between Replacement vs. Reconditioning.
2. Explain general management of lubrication system and Enumerate types of lubrication mechanism.
3. Draw and describe organisation chart of maintenance department.
4. Explain addition replacement model.
5. The MTBF of a drilling machine is 300 hrs. If 100 machines for the same make, same life are working for atleast 100 hrs. How many machines should have failed during this time.
6. Explain models for failure analysis.
7. Write a short note on computerization of maintenance activities.

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

**Attempt any Three questions .** **(3×10=30)**

1. "Forecasting of maintenance workload of a Mine/Plant is essential for carrying out proper planning and scheduling." Comment on the statement.
2. Write short notes on any **three** of the following:
   a) Manpower planning
   b) Advantages of planned maintenance
   c) Reliability Centered Maintenance (RCM).
   d) Risk priority number
   e) Maintenance service contract.
3. a) Define the meaning of TQM. Describe various elements for implementation of TQM.
   b) Explain administration of maintenance systems.
4. a) Explain the failure analysis of a machine element of your own interest.
   b) Explain plant shut down procedure.
5. Explain the various costs associated with maintenance. State the steps necessary to reduce the maintenance cost in an industry.

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Sub Back

8E1807

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# 8E1807

## B.Tech. VIII - Sem. (Back) Examination, April/May - 2024
## Civil Engineering
## 8CE4-01 Project Planning and Construction 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. Write down the importance of project planning.
2. What are the shortcomings of a bar chart? How are these removed?
3. What do you understand by Direct and indirect project cost?
4. Enumerate various criteria of financial evaluation of construction projects.
5. Explain in brief about important condition of contract.
6. Write down the essential characteristicsof a tender notice.
7. Write a brief note on 'Environmental issues in construction'.
8. Write importance of project scheduling in brief.
9. Define the term 'Project Updating'. Why it is necessary?
10. Write down the benefits of computerized information system in brief.

## PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions. **(5×8=40)**

1. Discuss main causes of project failure.

2. Explain the concept of work breakdown structure in the development of a project network.

3. What is Arbitration? Mention its advantages and qualification of [illegible].

4. Differentiate between the following:

   a) Activities on arrows (AOA) and Activities on Nodes (AON) network diagrams.

   b) CPM and PERT techniques.

5. Discuss cost slop, resources allocation and updating of project networks.

6. Explain environmental and social aspects of various types of construction projects with example.

7. Discuss earnest money deposit and security deposit related to a tender.

## PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Four** questions. **(4×15=60)**

1. A PERT network consists of 7 activities as follows. Calculate $T_E$ and $T_L$ for each event, identify critical path and calculate the expected duration of the project. Find out the probability of completion of project in 35 days. Event number 5 is the last event of the network.

| Activity/time | 1-2 | 1-3 | 2-4 | 3-4 | 2-5 | 3-5 | 4-5 |
|---|---|---|---|---|---|---|---|
| $t_o$ | 6 | 5 | 4 | 4 | 4 | 2 | 4 |
| $t_m$ | 9 | 8 | 7 | 7 | 7 | 5 | 10 |
| $t_p$ | 18 | 17 | 22 | 16 | 10 | 8 | 22 |
| Predecessor | - | - | 1-2 | 1-3 | 1-2 | 1-3 | 2-4 and 3-4 |

2. A small project consisting of 7 activities A,B,C,D,E,F and G has its duration and cost data for normal and crash is given below. Draw the network crash to achieve optimum duration and optimum cost if the indirect ost is estimated to Rs. 180 per day of the project duration.

| Activity | Normal time (Days) | Crash time (Days) | Normal cost (Rs.) | Crash cost (Rs.) |
|---|---|---|---|---|
| A(1-2) | 3 | 2 | 350 | 400 |
| B(2-3) | 6 | 4 | 1440 | 1620 |
| C(2-4) | 9 | 8 | 2160 | 2320 |
| D(2-5) | 7 | 5 | 1300 | 1600 |
| E(3-5) | 8 | 7 | 500 | 600 |
| F(4-5) | 5 | 3 | 1600 | 1770 |
| G(5-6) | 8 | 7 | 450 | 750 |

3. Write notes on the following :
   a) Legal aspects of contract and contract negotiation.
   b) Detail specification in tender document.
   c) Breach of contract and arbitration.
4. Discuss safety measures for demolition. Also discuss causes and prevention of accidents at construction site.
5. Define the project management information system (PMIS) and discuss its components. Draw the structure of PMIS emphasising functional subsystem information.