



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code: Modern Machining Methods (20ME0342)

Course & Branch: B.Tech - MECH

Regulation: R20

Year & Sem: IV-B.Tech & I-Sem

UNIT –I

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| 1 | Discuss the Modern Machining Methods with their advantages in the current industry. | L2 | CO1 | 12M |
| a | Explain the need and characteristics for Modern Machining Methods. | L2 | CO1 | 6M |
| 2 | b What are the advantages, disadvantages and applications of Non-Traditional Machining Methods. | L1 | CO1 | 6M |
| 3 | Explain the differences between Conventional and Non-Conventional machining are used. | L2 | CO1 | 12M |
| 4 | Discuss the classification of Traditional Machining Processes and their machining tools. | L2 | CO1 | 12M |
| a | Illustrate a neat sketch, and explain the working process of the Ultrasonic Machining Process (USM). | L4 | CO1 | 6M |
| 5 | b Mention the advantages, disadvantages, and applications of the Ultrasonic Machining Process. | L2 | CO1 | 6M |
| 6 | Analyze the effects of the following parameters on MRR as applied to the Ultrasonic Machining Process (USM). a) Amplitude & Frequency of Vibrations, b) Grain Size, c) Applied Static Load, and d) Effect of Slurry | L3 | CO1 | 12M |
| 7 | Explain the working principle of Abrasive Jet Machining (AJM) and also describe its parts briefly. | L2 | CO1 | 12M |
| a | Explain the working principle of water jet machining (WJM). | L4 | CO1 | 6M |
| 8 | b What are the advantages, disadvantages and applications of water jet machining (WJM). | L1 | CO1 | 6M |
| 9 | a List out the Machining techniques and write a short note need for MRR in Industrial sectors. | L1 | CO1 | 6M |
| b | What are the advantages, disadvantages and applications of MRR. | L1 | CO1 | 6M |

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| 10 | a | Illustrate the Constriction parts of Ultrasonic Machining. | L2 | CO1 | 6M |
| | b | What are the advantages, disadvantages, and applications of Abrasive Jet Machining (AJM). | L2 | CO1 | 6M |

UNIT –II

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| 1 | a | Discuss about Process Parameters of MRR, Power Circuits, Tool Wear in EDM machining process | L4 | CO2 | 6M |
| | b | Write a short note on optimization of Wire Electrical Discharge Machining and its applications. | L2 | CO2 | 6M |
| 2 | | Explain the parts and working principle of EDM (Electrical Discharge machining) with a neat sketch. | L2 | CO2 | 12M |
| | a | List out Types and Mechanisms of tool wear. | L2 | CO2 | 6M |
| 3 | b | List the advantages, disadvantages and applications of EDM (Electrical Discharge Machining). | L2 | CO2 | 6M |
| | a | What is flushing, and explain any two methods of flushing in the EDM process. | L3 | CO2 | 6M |
| 4 | b | What are the functions of dielectric fluid in EDM (Electrical Discharge Machining). | L3 | CO2 | 6M |
| | a | Explain the working principle of wire cut EDM. | L2 | CO2 | 6M |
| 5 | b | With a neat sketch, explain the working of a Wire Electrical Discharge Machining Process (WEDM). | L1 | CO2 | 6M |
| | a | List the advantages, disadvantages and applications of WIRE Electrical Discharge machining. | L2 | CO2 | 6M |
| 6 | b | What are the functions and properties of Dielectric. | L2 | CO2 | 6M |
| 7 | | Explain the parameters for improved the Electrical Discharge Machining (EDM) process. | L5 | CO2 | 12M |
| 8 | | With a neat sketch, explain the construction and working of an electrical discharge grinding (EDG) process. | L1 | CO2 | 12M |
| 9 | a | Give a brief note on the advantages, disadvantages, and applications of the Electrical Discharge Grinding (EDG) process. | L4 | CO2 | 6M |

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| | b | List out the Parameters that effect EDG and limitations | L2 | CO2 | 6M |
| 10 | | Differentiate between EDM (Electrical Discharge Machining) and Electrical Discharge Grinding (EDG) process. | L5 | CO2 | 12M |

UNIT-III

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|---|---|--|----|-----|-----|
| 1 | | Discuss the need for Electro Chemical Machining (ECM) and its applications. | L4 | CO3 | 12M |
| 2 | a | Discuss the function of electrolytes in this process of ECM. | L1 | CO3 | 12M |
| | b | What are the advantages, disadvantages and applications of Electro Chemical Machining? | | | |
| 3 | | Explain the parts and working principle of chemical machining with a neat sketch. | L2 | CO3 | 12M |
| 4 | | Draw the schematic layout of the Electro Chemical Machining (ECM) setup and explain the major parts in it. | L2 | CO3 | 12M |
| 5 | a | Write the advantages, disadvantages and applications of Electro Chemical Machining (ECM). | L2 | CO3 | 6M |
| | b | Discuss the types and significant techniques used for Chemical Machining Operations | L3 | CO3 | 6M |
| 6 | a | Explain the working principle of Electro Chemical Machining (ECM) process. | L5 | CO3 | 6M |
| | b | List out the major techniques used in the Chemical machining process. | L2 | CO3 | 6M |
| 7 | | Explain the parts and working principle of the Electro Chemical Grinding (ECG) process with a schematic diagram. | L1 | CO3 | 12M |
| | a | Write short note on electrolytes used in Electro Chemical Machining (ECM). | L1 | CO3 | 6M |
| 8 | b | Discuss the surface finish, accuracy and economic aspects of Electro Chemical Machining (ECM). | L1 | CO3 | 6M |

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| 9 | a | Write the advantages, disadvantages and applications of Electro Chemical Grinding (ECG). | L4 | CO3 | 6M |
| | b | Write a short note on electrochemical honing (ECH) and the tool construction process | L1 | CO3 | 6M |
| | a | Explain the working principle of the Electro-Chemical Honing (ECH) process with a schematic diagram and specify the parameters. | L2 | CO3 | 6M |
| 10 | b | Write the advantages, disadvantages, and applications of Electro Chemical Honing (ECH). | L2 | CO3 | 6M |

UNIT-IV

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|---|---|--|----|-----|-----|
| 1 | | Draw the schematic layout of the Electron Beam Machining (EBM) set-up and explain the major parts in it. | L1 | CO4 | 12M |
| 2 | a | Explain the working principle of the Electron beam machining process. | L2 | CO4 | 6M |
| | b | Write the advantages, disadvantages Electron Beam Machining (EBM). | L2 | CO4 | 6M |
| 3 | | Explain the working principle of the Ion Beam Machining (IBM) process with a schematic diagram. | L1 | CO4 | 12M |
| 4 | a | Draw the schematic layout of Laser Beam Machining (LBM) set-up and explain its working principle. | L4 | CO4 | 6M |
| | b | Write the advantages, disadvantages, and applications of Laser Beam Machining (LBM). | L2 | CO4 | 6M |
| 5 | | Differentiate between Electron Beam Machining (EBM) and Laser Beam Machining (LBM). | L3 | CO4 | 12M |
| 6 | a | Write the advantages, disadvantages, and applications of Ion Beam Machining | L2 | CO4 | 6M |

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| | b | Differentiate between Ion Beam Machining and Electron Beam Machining. | L2 | CO4 | 6M |
| 7 | | Draw the schematic layout of Plasma Arc Machining (PAM) set-up and explain its parts. | L2 | CO4 | 12M |
| 8 | a | Write the advantages, disadvantages, applications of Plasma Arc Machining (PAM). | L1 | CO4 | 6M |
| | b | Explain the parts of Laser Beam Machining (LBM) briefly. | L1 | CO4 | 6M |
| 9 | | Differentiate between Plasma Arc Machining and Ion Beam Machining. | L2 | CO4 | 12M |
| 10. | | Differentiate between Plasma Arc Machining (PAM) and Laser Beam Machining (LBM). | L1 | CO4 | 12M |

UNIT-V

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|---|---|---|----|-----|-----|
| 1 | | Discuss briefly about the need of Micro fabrication Techniques, its advantages, disadvantages, and applications. | L2 | CO5 | 12M |
| 2 | | Explain about the Micro Fabrication Technique - Lithography with neat Lithography flow diagram. | L1 | CO5 | 12M |
| 3 | | Explain about the Micro Fabrication Technique of Thin-Film Deposition and show classifications in the form of layout. | L1 | CO5 | 12M |
| 4 | a | Discuss about the Micro Fabrication Technique-Doping. | L2 | CO5 | 6M |
| | b | Write a short note on doping technique of Sol-gel method. | L1 | CO5 | 6M |
| 5 | | Explain about the Micro Fabrication Technique of Chemical vapor deposition with neat diagram. | L1 | CO5 | 12M |

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| 6 | | Explain about the Micro Fabrication Technique of Physical vapor deposition with a neat diagram. | L1 | CO6 | 12M |
| 7 | | Discuss briefly about the need of Nano fabrication Techniques and specify advantages and disadvantages. | L2 | CO6 | 12M |
| 8 | | Explain about Nanofabrication Techniques-E-Beam Nanofabrication. | L1 | CO6 | 12M |
| 9 | | Explain about Nanofabrication Techniques- Scanning Probe Technique with neat diagram. | L1 | CO6 | 12M |
| 10 | a | Explain the types of micro fabrication techniques used in Industrial sectors. | L2 | CO6 | 6M |
| | b | Discuss briefly about the its advantages, disadvantages and applications of Scanning Probe Microscopy. | L2 | CO6 | 6M |