Me-606/AMM/6th Sem/ Elective/ME/2018/J/A
ADVANCE MACHINING METHOD

Full Marks-70

Time - Three hours

The figure in the margin indicate full marks for the questions.

Answer All question from PART -A and ANY FIVE from PART-B

PART-A

1. **Read each question carefully and choose the correct answer: a,b,c or d.** 1x10=10

i) In which of the following industries, Non-traditional machining methods play an important role?

a) Automobile
b) Aerospace
c) Medical
d) All of the mentioned

ii) Non-Traditional machining can also be called as?

a) Contact machining
b) Non-contact machining
c) Partial contact machining
d) Half contact machining

iii) Material in thermal machining is removed by which of the following means?

a) Vaporization
b) Melting
c) Electro-plating
d) All of the mentioned

iv) Which of the following process comes under mechanical machining?

a) USM b) EDM c) LBM d) PAM

v) In chemical machining material removal takes by?

a) Chemical reaction
b) Erosion
c) Electron removal
d) None of the mentioned

vi) In advanced machining processes, what is the full form of AJM ?
a) Automatic Jet Manufacturing
b) Abrasive Jet Machining
c) Automated Jet Machining
d) Abrasive Jet Manufacturing

vii) In advanced machining processes, what is the full form of CHM?
a) Chemical machining
b) Chemical manufacturing
c) Chemical milling
d) None of the mentioned

viii) What are the values of gaps between the electrodes in EDM?
a) 0.001 - 0.05 mm
b) 0.01 - 0.5 mm
c) 0.1 - 5 mm
d) 1 - 15 mm

ix) What is the full form of LBM in advanced machining processes?
a) Laser Beam Manufacturing
b) Laser Beam Machining
c) Light Blast Manufacturing
d) Light Beam Machining

x) What is the full form of EBM in the advanced machining processes?
a) Electro Blast Manufacturing
b) Electron Beam Machining
c) Electron Beam Manufacturing
d) Electron Blast Manufacturing

2. **Fill in the blanks with appropriate words:-** 1x5=5

a. USM is a non-conventional machining method in which an abrasive _____ is used.

b. In spark erosion machining process the gap between the tool electrode and the _____ is filled with dielectric fluid.

c. ECM is capable of machining metals and alloys irrespective of their _____.

d. In EDM process, erosion takes place on _____.

e. Full form of ECG in the advanced machining processes is _____.

3. **Select true or false :** 1x5=5

a. IBM is capable of machining metals and alloys irrespective of their strength and hardness

b. Very small space is required to set up ECM process
c. In Laser Beam Machining process the material is removed due to the action of abrasive grains
d. EDM process consumes very high power
e. No cutting forces are involved in LBM process

4 **Match column 1 (Machining process) with column 2 (Operating media)** 1x5=5

Column 1	**Column 2**
a. Electric Discharge Machining	i. Ruby Crystal.
b. Laser Beam Machining	ii. Abrasive slurry.
c. Chemical machining	iii. Di-electric fluid
d. Electron Beam Machining	iv. Vacuum.
e. Ultrasonic drilling	v. Masking.

PART-B

Answer any five questions : 9x5=45

1. List out the different types of Unconventional Machining Processes. Write the important characteristics of any four Unconventional Machining Processes.

2. Describe the principle involved in Ultrasonic Machining Method and explain with simple sketch. List any four advantages and disadvantages while machining the components using Ultrasonic Method

3. Explain any four factors that affect the material removal rate in Electric Discharge Machining? Describe, with the help of simple sketch, the process of Wire-cut EDM.

PTO

4. Describe the working process of Chemical Machining. Discuss the advantages and limitations of Chemical Machining process.

5. Explain the working of ' Abrasive Jet Machining ' with a neat sketch. Mention the advantages and disadvantages of 'Abrasive Jet Machining ' .

6. What is plasma ? Sketch and explain PAM set-up. Write the application of PAM.

7. Sketch a 'Laser Beam Machining' set-up. Explain lasing process. Mention the advantages, limitation of the LBM process.

8. With a neat sketch, explain how the electron beam is generated in ' Electron Beam Machining' process. Mention the application of the EBM process.