A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 99710

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Elective

Mechanical Engineering

19UME910– UNCONVENTIONAL MACHINING PROCESSES

(Regulation 2019)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Non-Traditional machining can also be called as? CO1- U

   (a) Contact Machining (b) Non-Contact Machining

   (c) Half contact machining (d) Partial contact machining

2. Nozzle material in AWJM CO1- U

   (a) Silica (b) Gelatin (c) Tungsten carbide (d) All the above

3. Wire cut EDM process wire made up of CO2- U

   (a) Brass. (b) Silica (c) Tungsten (d) None of these

4. Which of the following is used as dielectric medium in EDM CO2- U

   (a) tap water (b) kerosene (c) NaCL solution ° (d) KOH solution

5. In electro chemical reaction due to _____and it causes the material to remove CO3- U

   (a) Maskant (b) Flow of ions (c) Abrasives (d) None of these

6. In CHM to obtain uniform depth of metal removal rate depend upon CO3- U

   (a) Temperature control (b) Nitric acid (c) Maskant (d) None of these

7. In laser beam machining process lens is used to CO4- U

   (a) Deflect laser beams (b) Diverge laser beams

   (c) Converge laser beams (d) None of the mentioned

8. Electron beam machining is carried in CO4- U

(a) Inert atmosphere (b) Partially filled chamber

(c) Vacuum (d) Partially vacuum

9. The surface roughness achieved in AFM process is generally around _____ times more than the initial surface roughness. CO5- U

(a) 10 (b) 5 (c) 2 (d) 6

10 Which of the following processes cannot be machined using Magnetic abrasive finishing CO5- U

(a) Surface finishing (b) Surface polishing (c) Hole drilling (d) None of the above

PART – B (5 x 2= 10 Marks)

11 Classify the different types of non-traditional processes CO1- U

12 List the process parameter of EDM CO2- U

13 List out the function of electrolyte used in ECM CO3- U

14 State the working principle of EBM. CO4- U

15 Write the applications of chemo-mechanical polishing CO5- U

PART – C (5 x 16= 80 Marks)

16 (a) Describe the principle and equipment for Abrasive Water Jet machining with neat sketch CO1-U (16)

Or

(b) With neat sketch the construction working of a ultrasonic machining process with a neat sketch and list the advantages CO1-U (16)

17 (a) With the help of neat sketch, describe the EDM process. CO2-U (16)

Or

(b) What are the desirable properties of a dielectric fluid? Give some examples for dielectric fluids. Explain the functions of dielectric fluid. CO2-U (16)

18 (a) Describe the principle and working of Chemical Machining process. CO3-U (16)

Or

(b) Sketch the Electro chemical honing with neat diagram and describe the working merits and demerits CO3-U (16)

19	(a)	Why is Electron Beam Machining (EBM) carried out in vacuum? Explain the processes with a neat sketch	CO4-U	(16)
		Or		
	(b)	Describe the Plasma Arc Machining (PAM) process with a simple sketch and write about its process parameters, advantages and applications.	CO4-U	(16)
20.	(a)	Explain the principle, construction and working of Abrasive flow machining with neat diagram	CO5-U	(16)
		Or		
	(b)	Explain the principle, construction and working of magneto rheological finishing.	CO5-U	(16)