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Reg. No. :

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**Question Paper Code: 99710**

B.E./B.Tech. DEGREE EXAMINATION, MAY 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- R  
(a) Contact Machining (b) Non-Contact Machining  
(c) Half contact machining (d) Partial contact machining
2. Nozzle material in AWJM CO1- R  
(a) Silica (b) Gelatin (c) Tungsten carbide (d) All the above
3. Wire cut EDM process wire made up of CO2- R  
(a) Brass. (b) Silica (c) Tungsten (d) None of these
4. Which of the following is used as dielectric medium in EDM CO2- R  
(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- R  
(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- R
- (a) Inert atmosphere (b) Partially filled chamber
- (c) Vacuum (d) Partially vacuum
9. The surface roughness achieved in AFM process is generally around CO5- R  
 \_\_\_\_\_ times more than the initial surface roughness.
- (a) 10 (b) 5 (c) 2 (d) 6
- 10 Which of the following processes cannot be machined using Magnetic CO5- R  
 abrasive finishing
- (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 CO1-U (16)  
 machining with neat sketch
- Or
- (b) With neat sketch the construction working of a ultrasonic CO1-U (16)  
 machining process with a neat sketch and list the advantages
- 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 CO2-U (16)  
 examples for dielectric fluids. Explain the functions of dielectric  
 fluid.
- 18 (a) Describe the principle and working of Chemical Machining CO3-U (16)  
 process.
- Or
- (b) Sketch the Electro chemical honing with neat diagram and CO3-U (16)  
 describe the working merits and demerits

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

