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Question Paper Code: 99710

B.E./B.Tech. DEGREE EXAMINATION, APRIL 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. In mechanical machining, material is removed by_____ CO1- R
(a) Erosion (b) Corrosion (c) Abrasion (d) Vaporization
2. Nozzle material in AWJM CO1- R
(a) Silica (b) Gelatin (c) Tungsten carbide (d) All the above
3. EDM Tool should not have CO2- R
(a) low thermal conductivity (b) high machinability
(c) high melting point (d) high specific heat
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. Optic lenses are polished using? CO5- R
 (a) MRF (b) Lapping (c) Honing (d) AFF
- 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 Define standoff distance CO1- U
- 12 List the process parameter of EDM CO2- U
- 13 Differentiate ECG and conventional grinding CO2- 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 working of a USM with a neat sketch CO1-U (16)
 and discuss the process parameters of the process
 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) Sketch and describe the working principle of EDM process with CO2-U (16)
 neat diagram.
 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 STEM machining Process. CO3-U (16)
 Or
 (b) Sketch the Electro chemical honing with neat diagram and CO3-U (16)
 describe the working merits and demerits.

- 19 (a) Explain the process of PAM with a neat sketch. With respect to principle, equipment process parameter and applications CO4-U (16)
- Or
- (b) Explain the principle of LBM with neat sketch and list out the advantages and disadvantages? CO4-U (16)
- 20 (a) Describe the construction and working of magnetic abrasive finishing process. Write its advantages, limitations and applications. CO5-U (16)
- Or
- (b) Explain the principle, construction and working of magneto rheological finishing. CO5-U (16)

