Reg. No.															

B.Tech. DEGREE EXAMINATION, MAY 2024
Fifth Semester

18MEE328T – NON-TRADITIONAL MACHINING TECHNIQUES
(For the candidates admitted from the academic year 2018-2019 to 2021-2022)

Note:
(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours Max. Marks: 100

PART – A (20 × 1 = 20 Marks) Marks BL CO PO
Answer **ALL** Questions

1. In which method material is removed by ion displacement of the work piece in contact with a chemical solution? 1 1 1 1,7
   (A) Electrical Discharge Machining (B) Laser Beam Machining
   (C) Plasma Arc Machining (D) Electro Chemical Machining

2. For machining deep holes _____ process is well suited 1 1 1 1,7
   (A) Electro Chemical Machining (B) Abrasive Jet Machining
   (C) Laser Beam Machining (D) Water Jet Machining

3. The average life of tungsten carbide material used in nozzle is ___ 1 1 1 1,7
   (A) 12 to 20 hours (B) 12 to 20 minutes
   (C) 12 to 20 sec (D) 50 hours

4. Abrasive Jet Machining process is not suitable only for _____ 1 1 1 1,7
   (A) Soft materials (B) Brittle material
   (C) Hard and Brittle materials (D) Metals only

5. Which of the following process is suitable for machining soft and non-metallic materials? 1 1 2 1
   (A) Abrasive Jet Machining (B) Water Jet Machining
   (C) Laser Beam Machining (D) Ultrasonic Machining

6. Accumulator is used for _____ in WJM process. 1 1 2 1
   (A) Increasing pressure (B) Decreasing Pressure
   (C) Neither Pressure is decreasing or increasing (D) Eliminating pulsation

7. When compared to the conventional machining, how much time faster, is the Abrasive water jet machining? 1 2 2 1
   (A) 5 times (B) 10 times
   (C) 15 times (D) 20 times

8. Abrasive flow machining is used for _____	1	1	2	1
(A) De-burring (B) Etching (C) Drilling (D) Cutting				
9. In ECM process, electrolyte acts as _____	1	1	3	1,5
(A) Insulating medium (B) Conducting medium (C) Semiconductor (D) Electromagnetic force				
10. In ECH process honing tool motion is _____.	1	1	3	1,5
(A) Rotating (B) Reciprocating only (C) Both (a) & (b) (D) Vibrating only				
11. Electro Chemical Machining process is used for Machining_____	1	1	3	1,5
(A) HSTR (B) Alloy (C) Non-metals (D) Brittle material				
12. In Electro Chemical Grinding process the grinding wheel runs at a speed of _____	1	2	3	1,5
(A) 2000 – 4000 m/min (B) Above 5000 m/min (C) 900 to 1800 m/min (D) Below 1000 m/min				
13. In Electrical discharge machining, the temperature developed is of the order of	1	1	4	1,5
(A) 2000^0c (B) 6000^0c (C) 10000^0c (D) 14000^0c				
14. Which of the following process is suitable for threading?	1	1	4	1,5
(A) Electro Chemical Machining (B) Electrical Discharge Machining (C) Abrasive Jet Machining (D) Electron Beam Machining				
15. Which of the following is used as dielectric medium in EDM?	1	2	4	1,5
(A) Tap water (B) Kerosene (C) NaCL solution (D) KOH solution				
16. Wire electric discharge machining is based on the same principle as that of _____	1	1	4	1,5
(A) Hydro-dynamic Electrical Discharge Machining (B) Die-sink Electrical Discharge Machining (C) Polar Electrical Discharge Machining (D) Non-conventional Electrical Discharge Machining				
17. The cathode filament is heated to a temperature of _____ in case of Electron beam machining.	1	1	5	1,5,7
(A) 1200°c (B) 1700°c (C) 2000°c (D) 2500°c				
18. In Electron beam machining, as the electrons strikes the work piece	1	2	5	1,5,7
(A) Their kinetic energy is converted into heat (B) They get scattered (C) Mechanical erosion in work piece takes place (D) Electro-chemical etching takes place				

19.	Which of the following methods is used for trimming of sheet metal and plastic parts? (A) Ultrasonic Machining (B) Electrochemical Machining (C) Electrical Discharge Machining (D) Laser Beam Machining	1	1	5	1,5,7
20.	In Plasma arc welding the electrode is made of _____. (A) Tungsten (B) Copper (C) Brass (D) Steel	1	1	5	1,5,7

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

		Marks	BL	CO	PO
21.	Write short notes on need for Non-Traditional machining process.	4	2	1	1,7
22.	List the various process parameters of Abrasive Water Jet Machining Process.	4	2	2	1
23.	Describe the factors to be considered for the proper selection of Maskant.	4	3	3	1,5
24.	Differentiate between DM and Wire cut EDM.	4	2	4	1,5
25.	Write the Characteristics of EBM Process.	4	2	5	1,5,7
26.	Explain the feed mechanisms used in USM process.	4	2	1	1,7
27.	List the requirements of tool material used in ECM and write the tool materials.	4	2	3	1,5

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

		Marks	BL	CO	PO
28. a.	What are the various aspects to be considered while selecting a Non-Traditional machining process?	12	3	1	1,7
	(OR)				
b.	Explain the Construction and working principle of Abrasive Jet Machining with neat sketch.	12	3	1	1,7
29. a.	Explain the Construction and working principle of Water Jet Machining with neat sketch.	12	3	2	1
	(OR)				
b.	Explain (i) The Process parameters of magnetic abrasive machining. (ii) The advantages, disadvantages & applications of MAM.	12	4	2	1

30. a.	With neat sketch explain the working of principle of Electro Chemical Machining.	12	3	3	1,5
	(OR)				
b.	Explain (i) The process parameters of Electro Chemical Grinding process (ii) The advantages, disadvantages & Applications of ECG	12	4	3	1,5
31. a.	Explain the Construction and working principle of Electrical Discharge Machining with neat sketch.	12	3	4	1,5
	(OR)				
b.	Explain the Construction and working principle of Electrical Discharge Grinding with neat sketch.	12	3	4	1,5
32. a.	With neat sketch explain the working principle of Plasma Arc Machining.	12	3	5	1,5,7
	(OR)				
b.	Explain the process parameters of EBM and list its advantages, disadvantages & Applications.	12	4	5	1,5,7

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