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Subject Code:- AME0401

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - CARRY OVER THEORY EXAMINATION - SEPTEMBER 2022

Subject: Manufacturing Technology-II

Time: 3 Hours

Max. Marks: 100

General Instructions:

1. The question paper comprises three sections, A, B, and C. You are expected to answer them as directed.
2. Section A - Question No- 1 is 1 marker & Question No- 2 carries 2 mark each.
3. Section B - Question No-3 is based on external choice carrying 6 marks each.
4. Section C - Questions No. 4-8 are within unit choice questions carrying 10 marks each.
5. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A 20

1. Attempt all parts:-

1-a. Which of the following is the type of nontraditional machining? (CO1) 1

(a) turning

(b) drilling

(c) milling

(d) none of the mentioned

1-b. In how many groups, cutting tools can be divided? (CO1) 1

(a) 4

(b) none of the mentioned

(c) 3

(d) 2

1-c. Which type of surface is produced by turning operation in lathe machine? (CO2) 1

(a) flat

(b) cylindrical

(c) taper

(d) none of the mentioned

1-d. Geared lathe is the type of____ (CO2) 1

(a) engine lathe

(b) bench lathe

(c) room lathe

(d) special purpose lathe

1-e. Which of the following grinding wheel will have fine grain size? (CO3) 1

(a) A 46 K 5 B 17

(b) C 600 K 5 B 17

(c) C 8 K 5 B 17

(d) A 80 K 5 B 17

1-f. What is the function of the GUI (Graphical user interface)? (CO3) 1

(a) To control motion and speed

(b) Converts program into the action of the driver

(c) To record the data from the sensor

(d) To understand the position of the tool according to the input program

1-g. Material in thermal machining is removed by which of the following means? (CO4) 1

(a) Vaporization

(b) Melting

(c) Electro-plating

(d) All of the mentioned

1-h. Which type of materials can be machined using Abrasive jet machining? (CO4) 1

(a) Glass

(b) Ceramics

(c) Hard materials

(d) All of the mentioned

1-i. What is the approximate value of faraday's constant? (CO5) 1

(a) 65,200 C

(b) 53,800 C

(c) 96,500 C

(d) 85,600 C

1-j. In ECM, gap increase proportional to which relation of time below? (CO5) 1

(a) Square of time

(b) Square root of time

(c) Cube of time

(d) Cube root of time

2. Attempt all parts:-

2.a.	Draw the nomenclature of cutting tool geometry or cutting tool signature. (CO1)	2
2.b.	List the gear generation process? (CO2)	2
2.c.	Define grinding ratio. (CO3)	2
2.d.	Define tool wear ratio. (CO4)	2
2.e.	What are the factors affecting metal removal rate? (CO5)	2

SECTION B 30

3. Answer any five of the following:-

3	Discuss the various type of cutting fluids? (CO1)	6
3	Explain parameters control the tool life in a single point cutting tool? (CO1)	6
3-c.	Explain parallel action and progressive action multi-spindle automatics? (CO2)	6
3-d.	What do you understand by Gang milling? (CO2)	6
3.e.	State the limitations of CNC machine tools. (CO3)	6
3.f.	Explain the reasons for the development of Unconventional Machining Process. Discuss about the criteria recommended in selection of these processes. (CO4)	6
3.g.	Write the principle of ECM process. (CO5)	6

SECTION C 50

4. Answer any one of the following:-

4-a.	Discuss the different types of chips produced during machining process with neat sketches? (CO1)	10
4-b.	Calculate the specific energy and unit power in a turning process. The machining data are:Diameter of workpiece = 50 mm Cutting speed = 40 m/min Feed = 0.24 mm/sec Depth of cut = 1.8 mm Tangential component of force = 800 N Axial component of force = 290 N. (CO1)	10

5. Answer any one of the following:-

5-a.	Why is gear finishing required? Discuss the various types of gear finishing operations? (CO2)	10

5-b.	Explain the hydraulic drive of a horizontal shaper with neat sketch? (CO2)	10

6. Answer any one of the following:-

6-a.	Write briefly about open loop, closed loop and adoptive control systems in CNC Machine tools? (CO3)	10
6-b.	Explain the “lapping” and “buffing” process indicating clearly the tool involved? (CO3)	10

7. Answer any one of the following:-

7-a.	State the working principle and construction detail of Abrasive Jet Machining. (CO4)	10
7-b.	State the principle of ultrasonic machining process? State the benefits of Water Jet Machining process. (CO4)	10

8. Answer any one of the following:-

8-a.	. Briefly discuss about electro chemical deburring process parameters of chemical machining process that influence the performance of the machining? (CO5)	10
8-b.	Compare the CHM with ECM with respect to their process parameters. (CO5)	10