Printed Page:-04 **Subject Code:- AME0401**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - THEORY EXAMINATION (2024 - 2025)

Subject: Manufacturing Technology-II

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *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 process is not grouped under metal removal process? (CO1,K1) 1

(a) boring
(b) milling
(c) tumbling
(d) rolling

1-b. Which of the following is not a type of surface finishing process? (CO1,K1) 1

(a) sawing
(b) honing
(c) buffing
(d) polishing

1-c. What is the necessary condition for turning? (CO2,K2) 1

(a) material of work piece should be harder than the cutting tool
(b) cutting tool should be harder than the material of work piece
(c) hardness of the cutting tool and material of of piece should be same
(d) none of the mentioned

1-d. Traversing of tool parallel to the axis of job is termed as_____ (CO2,K1) 1

(a) cross feed
(b) longitudinal feed

.

(c) both cross feed and traversing feed

(d) none of the mentioned

1-e. Operation done to make periphery of grinding wheel concentric with its axis to recover its lost shape is known as (CO3,K2) 1

(a) Loading

(b) Glazing

(c) Dressing

(d) Truing

1-f. Removing dull grains in order to make grinding wheel sharp is known as (CO3,K1) 1

(a) Loading

(b) Glazing

(c) Dressing

(d) Trueing

1-g. For machining of plastic material which of the unconventional process can be used effectively? (CO4,K2) 1

(a) Electro chemical machining

(b) Electron beam machining

(c) Water jet machining process

(d) None of the mentioned

1-h. Material removal rate for USM decreases with (CO4,K2) 1

(a) Increase in amplitude

(b) Decrease in grain size of abrasives

(c) Increase in frequency

(d) Increase in amplitude

1-i. Which of the following material removal mechanisms is implemented by ECM? (CO5,K1) 1

(a) Mechanical abrasion

(b) Electrochemical dissolution

(c) Chemical corrosion

(d) Mechanical erosion

1-j. Electrolysis occur when which of the following takes place between electrodes? (CO5,K1) 1

(a) Electric current flow

(b) Electron flow

(c) All of the mentioned

(d) None of the mentioned

2. Attempt all parts:-

.

2.a.	Write any two reasons for flank wear in cutting tools? (CO1,K2)	2
2.b.	Define cutting ratio of the shaper (CO2,K2)	2
2.c.	Define hardness of grinding wheel? (CO3,K2)	2
2.d.	What is the purpose of transducer used in USM? (CO4,K2)	2
2.e.	List the applications of EDM.(CO5,K2)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Discuss the different types of chips produced during machining process with neat sketches? (CO1,K2)	6
3-b.	What are the various type of cutting tool material used in metal cutting and briefly explain their properties? (CO1,K2)	6
3-c.	Explain briefly Up-milling process and Down milling process. (CO2,K1)	6
3-d.	Write difference between the capstan and turret lathe? (CO2,K2)	6
3.e.	What is a grinding wheel? Give different bonding materials used in it. (CO3,K1)	6
3.f.	Explain the reasons for the development of Unconventional Machining Process. Discuss about the criteria recommended in selection of these processes. (CO4,K1)	6
3.g.	Explain the process of Electrical discharge wire cutting processes and list any two of its advantages, limitations and applications (CO5,K2)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Derive the Merchant metal cutting theory with suitable diagram? (CO1,K3)	10
4-b.	Explain parameters control the tool life in a single point cutting tool? (CO1,K2)	10

5. Answer any one of the following:-

5-a.	Explain the principle of operation of gear hobbing process? (CO2,K2)	10
5-b.	Explain the indexing Mechanism of a dividing head on milling machine? (CO2,K2)	10

6. Answer any one of the following:-

6-a.	Explain the advantages and limitations of NC Machines? (CO3,K2)	10
6-b.	Describe the main constructional features of CNC machines, which distinguish them from conventional machine tools? (CO3,K2)	10

7. Answer any one of the following:-

7-a.	State the working principle and construction detail of WJM process. (CO4,K2)	10
7-b.	Compare and contrast the various unconventional machining process on the basis of type of energy employed, material removal rate, transfer media and economical aspects. (CO4,K2)	10

8. Answer any one of the following:-

8-a.	Discuss the process parameters of EBM and their influence on Machining quality (CO5,K2)	10

8-b. Explain the process of LBM and PAM with neat sketches. (CO5,K3) 10

.