

Program: PhD/M.Sc.Engg./M.ScTE

Date: 05 March 2024

Time: 02:30PM to 4:00PM

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF MECHANICAL AND PRODUCTION ENGINEERING

MID SEMESTER EXAMINATION
MCE-6121 Advance Manufacturing Processes

SUMMER SEMESTER: 2022-2023
TIME : 1 HR 30 MIN
FULL MARKS : 75

There are 3 (Three) questions. Answer all Questions. Marks in the Margin indicate full marks

- 1(a) Explain briefly the recent development areas in advance manufacturing processes. (10)
- (b) Explain the working mechanism with necessary diagram of the following non-conventional machining processes mentioning the advantages, limitations and applications. (15)
 - (i) Laser Beam Machining
 - (ii) Plasma Arc Machining
- 2(a) Classify the different types of additive manufacturing processes. Explain the following additive manufacturing processes with necessary schematic illustration. (14)
 - (i) Laminated Object Manufacturing Technique
 - (ii) Digital Light Processing Technique
- (b) What do you mean by Lean Manufacturing? Explain the concept of 3M's of Lean and hence find out its importance in production systems. (11)
- 3 (a) Explain the different steps involved in production flow analysis techniques and hence identify the logical part families and machine groups from the following part-machine incidence matrix using rank order clustering technique. (18)

Machines	Parts					
	A	B	C	D	E	F
1	1				1	
2				1		1
3	1	1				
4			1	1		
5		1			1	
6			1	1		1

- (b) Explain the need for unconventional machining and hence make the comparison between the conventional and non-conventional machining. (7)