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Program: B.Sc.Engg. (IPE)
Semster: 4th Semester

Date: 14 May 2024
Time: 10:00 AM-01:00PM

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

SEMESTER FINAL EXAMINATION
IPE-4403 Manufacturing Processes-II

SUMMER SEMESTER: 2022-2023
TIME : 3 HR 00 MIN
FULL MARKS : 150

There are 6 (Six) questions. Answer all Questions. Marks in the Margin indicate full marks

- 1(a) What are the different modes of tool failure that may be considered to determine the cutting tool life and hence explain the Taylor's tool life method with example. (13)
[CO1, PO1]
- (b) Write down the differences between Turret type drilling machine and Multi-Spindle drilling machine with necessary diagram. (12)
[CO1, PO1]
- 2(a) Write down the design considerations, general guidelines and process parameters selection for turning operations. How a lathe machine can be specified? (11)
[CO3, PO2]
- (b) What are the different forces acting in metal cutting processes and explain the merchant force circle diagram and hence find out the optimum value of shear angle minimizing the work done during cutting. (14)
[CO3, PO2]
- 3(a) Explain with necessary diagram the following drilling processes: (12)
(i) Broaching (ii) Counter Sinking (iii) Reaming [CO2, PO1]
- (b) What is milling operations? List the different types of milling processes and hence explain with schematic illustration of conventional milling and climb milling processes showing the different process parameters involved in this machining process. (13)
[CO2, PO1]
- 4(a) Explain the major differences between planning machines from shaping machines. How the machining time can be calculated in a Horizontal Shaping machine. (13)
[CO1, PO1]
- (b) Explain with necessary diagram the Rapid Hydraulic Quick Return Mechanisms used in planning machine. (12)
[CO1, PO1]
- 5(a) List the different forms of threads and hence write down the difference between British Standard Whitworth Thread and Brown and Sharpe Worm Thread. What is the depth, minor diameter, crest and root for an M 6.3 X 1 thread? (13)
[CO2, PO1]
- (b) List the different types of thread measurement method and hence explain the three wires method with necessary diagram. (12)
[CO2, PO1]
- 6(a) Why non-traditional machining is required? Explain with necessary diagram the following non-traditional machining processes. (i) Water Jet Machining (ii) Ultrasonic Machining (14)
[CO1, PO1]
- (b) How the Gear can be manufactured? Write down the differences between Direct Indexing and Indexing in Degree techniques used for the manufacturing of gear in machining process. (11)
[CO1, PO1]