

(3 Hours)

[Total Marks : 80]

N.B. (1) Question no. 1 is **compulsory**.(2) Attempt any **three** questions out of remaining **five** questions.(3) **Illustrate** your answer with **necessary** sketch wherever **necessary**.(4) **Figures** to the **right** indicate full **marks**.(5) **Assume** suitable data wherever **necessary**.**1. Attempt any FOUR of the following :****(20)**

(a) How does Additive Manufacturing differ from CNC machining?

(b) What is the difference between traditional and non-traditional machining processes?

(c) What is meant by grit, grade and structure of a grinding wheel?

(d) Differentiate between a compound die and combination die.

(e) What is meant by chip thickness ratio? What does it depend on? Draw a neat labelled sketch to show various angles and velocities related to chip thickness ratio.

2. (a) What are the factors determining the material removal rate in Electric Discharge Machining Process. Elaborate on them. (10)**(b) Differentiate between Orthogonal and Oblique cutting. (10)****3. (a) Differentiate between blanking and punching process with a neat labelled sketch. (10)****(b) What is meant by locating, Clamping and resting w.r.t. Jigs and Fixtures. (10)****4. (a) What is meant by a cutting tool signature? How do you express it in ORS and NRS system. Draw a neat labelled sketch to show it in the two systems along with the nomenclature. (10)****(b) Describe the process of photo-polymerization with a neat labelled sketch. (10)****5. (a) What are the parameters governing Photo-polymerization process? (10)****(b) What is meant by Tool Life Equation? How is it useful? (10)****6. Write short notes on: (20)****(a) Geometry of a broach.****(b) Laser Beam Machining****(c) Types of dynamometers used in machine tools.****(d) Use of locators in designing jigs and fixtures.****(e) Requirements of a Milling Fixture.**