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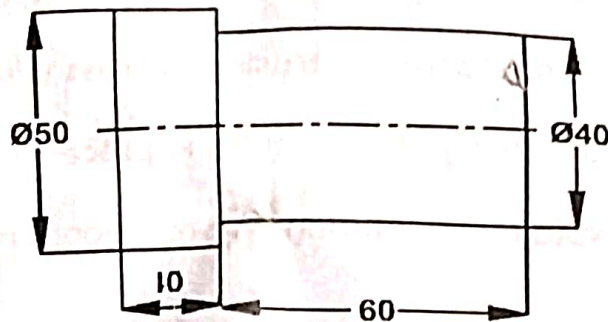
APRIL 2025

Time - Three hours
(Maximum Marks: 100)

[N.B. Answer all the questions, choosing any two subdivision from each question. Each subdivision carries 10 marks.]

1.
 - (a) What are the types of plastics? Write the differences between them.
 - (b) Describe the single screw extrusion process with neat sketch.
 - (c) Explain about gas injection moulding process with neat sketch.
 - (d) Draw and explain calendaring and rotational moulding processes.
2.
 - (a) Explain the working principle of nano machining process. Also state its applications.
 - (b) Write about the following processes: (5+5)
(i) Honing (ii) Lapping
 - (c) Write about the following processes: (5+5)
(i) shot peening (ii) galvanizing process
 - (d) Explain about CVD method of surface treatment. Also state its applications.
3.
 - (a) Explain about abrasive jet machining with neat sketch.
 - (b) Describe laser beam machining with neat sketch.
 - (c)
 - (i) What are the functions of dielectric fluids used in EDM process? (4)
 - (ii) Write about metal removal rate and surface finish in EDM process. (6)
 - (d) Explain the construction of electro chemical machining process.

4. (a) (i) Write the differences between NC and CNC machine. (6)
(ii) List the advantages of CNC machines. (4)
- (b) Explain the working principle of Coordinate Measuring Machine (CMM).
- (c) (i) Write the purpose of G and M codes. (5)
(ii) Explain about absolute and incremental positioning. (5)
- (d) Write the CNC Turning part programme for the given model using G00 and G01 code. (Raw material size $\varnothing 52 \times 70$ mm)



5. (a) Define rapid prototyping. Also write the differences between additive and subtractive manufacturing.
- (b) Discuss about rapid tooling.
- (c) Explain the working principle of laser sintering process. Also write its applications.
- (d) Discuss the working principle of 3D printing process.
