

Total No. of Questions : 4]

SEAT No. :

PA-5000

[Total No. of Pages : 1

[6008]-254

S.E. (Automation & Robotics/Mechanical/Automobile & Mechanical) (Insem.)

**MANUFACTURING PROCESSES**  
**(2019 Pattern) (Semester - II) (202050)**

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) All questions are compulsory i.e. Solve Q.1 or Q.2, Q.3 or Q.4.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data if necessary and mention it clearly.

Q1) a) What is Permeability Number? What are the effects of low permeability? Calculate the permeability number of a sand if it takes 1 min 25 sec. to pass 2000 cm<sup>3</sup> of air at a pressure 5 g/cm<sup>2</sup> through a standard sample size of 50.8 mm in diameter and 50.8 mm height. [7]

b) Explain the elements of gating system and their functions, with neat sketch. [8]

OR

Q2) a) Explain Shell molding process with neat sketch. Give its advantages and limitations. [7]

b) A sand mold takes 155 seconds for a cube shaped casting to solidify. The cube was 50 mm side. [8]

i) Determine the value of mold constant in Chvorinov's rule.

ii) If the same material and mold type were used, find the total solidification time for cylindrical casting in which the diameter, D = 30 mm and length, L = 50 mm.

Q3) a) Enlist different rolling mill stand arrangements. Explain planetary rolling mill in detail. [7]

b) Differentiate between Direct extrusion and Indirect extrusion. What common types of defects occurred in extrusion process? [8]

OR

Q4) a) Explain the factors affecting on plastic deformation. [7]

b) Explain the different operations for forging a connecting rod with neat sketch. [8]

