

- Q.4 Explain the construction and working principle of Reciprocating Pump.
- Q.5 With neat and labelled sketch, explain the working of Rotameter.
- Q.6 Explain the various screening equipments and their effectiveness in the solid-solid separation.
- Q.7 Explain the construction and working of Blake crusher and compare it with Dodge crusher.

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Roll No.

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3rd Sem. / Plastic

Subject : UNIT OPERATIONS-I

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

- Q.1
- Define unit operation.
 - Give four examples of unit processes.
 - What is 'energy balance'?
 - State the basic concept of material balance.
 - Define fluid mechanics.
 - State the signification of Reynold number.
 - Define viscosity.
 - State the application of blowers.
 - Draw neat sketch of a weir.
 - State different types of flow.
 - State the necessity of size reduction.

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032232/2234

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032232/2234

- l) State the units of power.
- m) Define Bond's law.
- n) Draw neat sketch of roll crusher.
- o) State the difference between crushing and grinding.
- p) Give one example of solid-liquid separation.
- q) State the role of thickness in industry.
- r) Define paste.

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

- Q.2
- i) Explain the significance of any one unit process in plastic processing.
 - ii) 500kg of plastic raw material containing 10% moisture content by weight is subjected to drying in a dryer to reduce the moisture content to 1%. Calculate the weight of material leaving the dryer.
 - iii) Differentiate between Newtonian and Non-Newtonian fluids.
 - iv) Explain laminar and turbulent flow.

(2)

032232/2234

- v) Write a note on friction factor.
- vi) Explain the calculation of friction losses during flow of fluids in pipes.
- vii) Draw neat sketch of a compressor.
- viii) Explain the working principle of Pitot tube.
- ix) Explain 'cavitation' in pumps.
- x) Explain the characteristics of solid particles.
- xi) Define Rittinger's law and Kick's law.
- xii) Explain the role of cyclone separator in industry.
- xiii) Explain working principle of Kneaders.
- xiv) Explain the construction and working of Masticators.
- xv) Explain the working of Ultra fine grinder.

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.3 In detail, explain the significance of any two unit operations in the processing of plastics.

(3)

032232/2234