SC

106 SEAT No._____

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SARDAR PATEL UNIVERSITY

M.Sc. (Polymer Science &Technology) Semester-II Examination-2019

Tuesday, 26th March – 2019

10:00 A.M. to 1:00 P.M.

PS02EPST21: INDUSTRIAL CHEMISTRY -II

Total Marks: 70

Note: (1) Attempt all questions.
(2) Figures to the right indicate marks.

Q. 1 Answer the following multiple choice questions. **08**

(1) Termination of pipeline_____.

(i) plug (ii) tee (iii) reducer (iv) elbow.

(2) The operating speed of the trommel is_____ of the critical speed.

(i) 20-30% (ii) 30-50% (iii) 30-70% (iv) 80-90%.

(3) In gas absorption, mass transfer takes place from_____.

(i) liquid phase to gas phase (iii) gas phase to liquid phase

(ii) gas phase to gas phase (iv) none of above.

(4) The filters which operate with high pressures are called _____.

(i) pressure Filters (ii) rotary Drum Filter

(iii) filter Medium (iv) none of this.

(5) _____ Meter can give direct visual index of flow rate.

(i)Variable area (ii) Variable head (iii) Variable height (iv) None of above.

(6) Coefficients of discharge for orifice meter is _____.

(i) 0.51 (ii) 0.61 (iii) 0.71 (iv) 0.81.

(7) Blake jaw crusher works on principle of _____.

(i) compression (ii) attrition (iii) impact (iii) none of above.

(8) _____ impeller generate flow current in tangential.

(i) Redial flow (ii) Axial flow (iii) i & ii both (iv) None of above.

Q. 2 Attempt **any seven** of the following. **14**

(1) Explain electrostatic separator.

(2) Enlist the requirements for a good filter medium.

(3) Distinguish between gas absorption & desorption with examples.

(4) Explain magnetic separator.

(5) What are filter aids? Why are they used?

(6) Explain boundary layer concept.

(P.T.O)

(7) Write a note on pitot tube.

(8) Enlist various factors affecting on size reduction.

(9) Write a note on paddles.

Q. 3 (a) Explain in detail about vibrating screens. **06**

(b) Write a note on pipe, tubing and fittings. **06**

OR

(b) Differentiate between constant pressure & constant rate filtration. Why is combination of constant pressure & constant rate filtration preferred? **06**

Q. 4 (a) Answer the following: **06**

a) What is the importance of minimum L/V ratio in absorption?

b) Enlist the desirable characteristics of good tower packing.

(b) Write a note on Grizzly. **06**

OR

(b) Write a note on trommels. **06**

Q. 5 (a) Give difference of following: **06**

a) Orifice meter and venture meter

b) Variable Head meter and Variable area meter

(b) 8000kg/hr. of air at 105^0C is cooled by passing it through a counter flow heat exchanger. Find exit temperature of air and LMTD. If water enters at 15^0C and flow at a rate of 7500kg/hr. overall heat transfer coefficient is 521.24 KJ/m^2kgk and surface area is 20 m^2. **06**

OR

(b) Calculate the heat transfer across the wall per unit area. Also find temperature at all interface. Inside temperature of wall is 200^0C and outside temperature is 20^0C. Wall consist of 7.5cm marble, 8.0cm brick, 2.5cm wood, 2.0cm POP. Their thermal conductivity 1.15, 0.6, 0.3, 0.06 respectively. **06**

Q. 6 (a) Discuss in detail about ball mill with neat labelled diagram. **06**

(b) Give a difference between crushing and grinding. **06**

OR

(b) Write a note on impellers. **06**

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