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Question Paper Code	12833
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B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Fifth Semester

Instrumentation and Control Engineering

20ICEL503 - UNIT OPERATIONS AND CONTROL

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

	Marks	K- Level	CO
1. Define Angle of repose.	2	K1	CO1
2. List the classification of size-reduction machines.	2	K1	CO1
3. State the Bernoulli's Theorem.	2	K1	CO2
4. Interpret Reynolds Number.	2	K2	CO2
5. What is Distillation?	2	K1	CO3
6. Recall the advantages of a floating head heat exchanger.	2	K1	CO3
7. State the reasons for carrying drying operation industrially.	2	K1	CO4
8. Explain Convection process.	2	K2	CO4
9. List the raw materials used in paper and pulp industry.	2	K1	CO5
10. List the different raw materials used in Leather industry.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Describe how Electromagnetic separation is performed in ore.	13	K2	CO1
OR			
b) Discuss how the size reduction concepts are inferred.	13	K2	CO1
12. a) Describe cone and double cone classifier with neat sketch.	13	K2	CO2
OR			
b) Paraphrase the gravity settling process with neat sketch.	13	K2	CO2
13. a) Illustrate the distillation column with a neat sketch, showing feed, condenser and reboiler.	13	K2	CO3
OR			
b) Explain the concepts of two types of general condenser.	13	K2	CO3

14. a) Discuss with neat diagrams the forward feed arrangement and backward feed arrangement for feeding multiple effect evaporation system. 13 K2 CO4

OR

- b) Explain in brief the fluidized bed dryer. 13 K2 CO4

15. a) Summarize steel production process with a neat sketch. 13 K2 CO5

OR

- b) Paraphrase the thermal power plant with a neat sketch. 13 K2 CO5

PART - C (1 × 15 = 15 Marks)

16. a) Explain with a neat sketch the fixed tube heat exchanger and label its parts. 15 K2 CO3

OR

- b) Illustrate the concepts of chemical reactors. 15 K2 CO3