

AU – 2713

Fifth Semester B. Tech. Che. Tech. (Food, P and P, O and P and Petro.) (CGS)
Examination

MECHANICAL OPERATIONS

Paper – 5 CT 02

(USC – 11026)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Separate answer book must be used for each section in the subject Geology, Engineering material of civil branch and Separate answer book must be used for Section A and B in Pharmacy and Cosmetic Tech.
(2) All questions carry marks as indicated.
(3) Answer **Three** questions from Section A and **Three** questions from Section B.
(4) Due credit will be given to neatness and adequate dimensions.
(5) Assume suitable data wherever necessary.
(6) Illustrate your answer wherever necessary with the help of neat sketches.
(7) Use pen of Blue/Black ink/refill only for writing the answer book.

SECTION A

1. (a) Explain the principle and working of gyratory crusher with neat sketch. 8
(b) Give the details about the variables and their effect on screening operation. 6

OR

2. (a) Calculate the operating speed of ball mill from the following data :
(i) Diameter of ball mill = 800 mm.
(ii) Diameter of ball = 60 mm
If :
(A) Operating speed is 55% less than critical speed.
(B) Critical speed is 40% more than operating speed. 7
(b) Describe the closed circuit grinding. 7

AU-2713

P.T.O.

3. (a) Explain the different zones in continuous thickener. Mention the industrial applications of sedimentation process. 7
(b) Explain Hydraulic jig with neat sketch. 7

OR

4. Explain Kynch theory of sedimentation. 13
5. (a) Give the advantages and disadvantages of screw conveyor. 8
(b) Discuss the methods of transportation of solid in industry. 6

OR

6. (a) Derive an expression for mixing index in blending granular solids. 7
(b) Explain the difference between mixing and agitation with suitable example. 6

SECTION B

7. (a) A rotary filter operating at 0.03 Hz filters $0.0075 \text{ m}^3/\text{s}$ operating under the same vacuum and neglecting the resistance of the filter cloth, at what speed must the filter be operated to give a filtration rate of $0.016 \text{ m}^3/\text{s}$. 6
(b) Develop the relation between thickness of cake and volume of filtrate. 8

OR

8. Explain the following :
(i) Filter media.
(ii) Filter aid.
(iii) Use of coagulents.
9. (a) Discuss sedimentation and centrifugation. 6
(b) Explain the construction, working and principle of cyclone separator with neat sketch. 7

10. Explain the principle, construction and working of centrifuge with neat sketch. 13

11. (a) Explain BET Isotherm. 8

(b) Describe the significance of break through curve with neat sketch. 5

OR

12. (a) What do you mean by adsorbents ? Give the characteristics of adsorbents with its industrial application. 8

(b) Explain pressure swing adsorption. 5



<http://www.sgbauonline.com>

Whatsapp @ 9300930012

Your old paper & get 10/-

पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से