

Printed Pages: 3

299

EBT-701

(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID : 154701

Roll No.

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B. TECH.

(SEM. VII) THEORY EXAMINATION, 2015-16

DOWN STREAM PROCESSING

[Time:3 hours]

[Total Marks:100]

## Section-A

Q.1 Attempt **all** parts. All parts carry equal marks. Write answer of each part in short. (2 x 10 = 20)

(a) Indicate True (T) or False (F) :

- (i) Rectified spirit contains 50% Ethyl alcohol.
- (ii) Continuous process operates at unsteady state.
- (iii) Sterilization is a unit of operation.
- (iv) Thermodynamically batch process is an open system.
- (v) Washout is an undesirable phenomenon.

(1)

P.T.O.

(b) Fill in the gap(s) with suitable one word :

- (i) Substrate is a ..... acted by .....
- (ii)  $Y \frac{P}{X} = \frac{\Delta P}{-}$
- (iii) Penicillin ..... is an ..... process
- (iv) ..... of liquids that have ..... boiling points is carried out by distillation.
- (v) Ethyl alcohol has many uses such as ..... and .....

#### Section-B

**Note:** Attempt **any five** questions from this section :

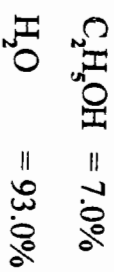
- Q2. Give a brief outline of bioprocess with process flow diagram. (10 x 5 = 50)
- Q3. How do you recover glutamic acid from the fermented mash ?
- Q4. Mention any two solid-liquid separation operations with a simple figure of each, showing inlet stream (mixed feed) and outlet streams (solid and liquid).
- Q5. Discuss the principle of chromatography for product purification.

(2)

Q6. Differentiate between Stoke's law and Dairey's law.

Q7. What are the advantages of membrane technologies over other methods.

Q8. A binary system (alcohol and H<sub>2</sub>O) has following volumetric composition. Convert it into molar composition.



Q9. Give the salient points of adsorption in connection with product isolation.

#### Section-C

**Note :** Attempt **any two** questions from this section. (15x2=30)

- Q10. Describe the recovery of citric acid from the fermented work with a neat flow diagram.
- Q11. Discuss the working of rotary drum vacuum filter as solid-liquid separation operation. Give the mathematic expression for overall batch cycle time.

Q12. Explain the following :

- (a) Problems and requirements of bioproduct purification.
- (b) Design aspects of sedimentation tank.

—X—

(3)

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