Printed Pages: 3 | 299 | EBT-701

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

Paper ID : 154701 Roll No. | | | | | | | | | |

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 opeartes at unsteady state.

(iii) Sterilization is a unit of operation.

(iv) Thermodynamically batch process is an open system.

(v) Washout is an undesirable phenomenon.

(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 :

(10 x 5 = 50)

Q2. Give a brief outline of bioprocess with process flow diagram.

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.

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_2O) has following volumetric composition. Convert it into molar composition.

C_2H_5OH = 7.0%

H_2O = 93.0%

Q.9 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.

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