Register No.....

B.TECH. DEGREE EXAMINATIONS: OCTOBER/ NOVEMBER-2008

Third Semester

BIOTECHNOLOGY

U07BT301: Basic Industrial Biotechnology

Time: Three Hours **Maximum Marks: 100**

Answer ALL Questions:-

PART A (20X1=20 Marks)

1) _____ culture is an ideal process for production of intracellular metabolites in maximum amount.
A] Batch B] Fed batch C] Continuous D] Semi-continuous

2) The _____ metabolites play no role in growth of micro-organisms
A] primary B] secondary C] tertiary D] quaternary

3) Sulfite waste liquor – a sugar containing waste product is obtained from _____.
A] textile industry B] food industry C] leather industry D] paper industry

4) The efficiently metabolized nitrogen source by microorganisms is _____.
A] ammonium sulphate B] gaseous ammonia C] urea D] corn steep liquor

5) The organic acids are produced by microorganisms during their _____ of growth.
A] lag phase B] tropophase C] multiplication D] meta phase

6) The number of ATP molecules produced during the oxidation of ethanol into acetic acid is _____.
A] 6 B] 4 C] 2 D] 3

7) The commercially produced lactic acid by fermentation is _____.
A] meso lactic acid B] (+) lactic acid C] (-) lactic acid D] Alpha hydroxyl molecule

8) _____ is used as a low calorie sweetener in soft drinks.
A] L-phenylalanine B] L- cysteine C] Lysine D] Aspartame

9) *Penicillium notatum* strain produces the antibiotic_____.
A] Penicillin –X B] Penicillin- K C] Penicillin- F D] Penicillin- G

10) A commercial streptomycin fermentation passes through _____ phases.
A] 2 B] 4 C] 5 D] 3

11) Cephalosporin production is affected by _____

A] phosphate regulation B] nitrogen regulation
C] carbohydrate catabolite regulation D] All the above

12) _____ is a vitamin essential for the growth and regulation of both humans and animals.

A] Vitamin- A B] Vitamin-B_{12} C] Ascorbic acid D] Riboflavin

13) The removal of food spots in the dry cleaning industry is done with _____ enzymes.

A] transferase and amylase B] Oxidase and amylase
C] racemase and cellulose D] amylase and protease.

14) _____ type of enzymes could be utilized to increase the digestability of brewers' grains.

A] Catalase B] Peroxidase C] Invertase D] Cellulase

15) *Xanthomonas campestris* produces a heteropolysaccharide_____.

A] Cellulose B] Alginate C] Xanthan D] Curdlan

16) For the production of amylase enzyme by *Bacillus subtilis* , the medium should be enriched with crude _____.

A] carbohydrate B] vitamins C] lipids D] proteins

17) The fusion of myeloma cells with free lymphocytes is supported by _____.

A] lysozyme B] polyethylene glycol
C] sodium chloride D] 70% ethanol

18) _____ is a dye produced by the cells of *Lithospermum erythrorhizon* on a commercial scale.

A] Pyrithine B] Taxol C] Vanillin D] Shikonine

19) The first polypeptide hormone expressed in *E.coli* as a part of fusion peptide is _____.

A] somatostation B] penicillin C] alpha interferon D] growth hormone

20) _____ is a secondary metabolite produiced through the cell culture of *Papaver bracteatum.*

A] Thebain B] Taxol C] Saffron D] Jasmine

PART B (5X16=80 Marks)

21 A i] Discus the contributions of Pasteur in fermentation technology? (8)

ii] Discus any four traditional foods that produced through fermentation ? (8)

[OR]

21 B] Illustrate the overall schemes of fermentation process for the production of metabolites? (16)

22 A] Describe the commercial fermentation processes for acetic acid production? (16)

[OR]

22 B] Discus in detail about the fermentation processes of L-glutamic acid? (16)

23 A i] Discus in brief about the culture selection method of *Penicillium*? (6)

ii] Give a detailed account of fermentation of growth medium and fermentation process of penicillin? (10)

[OR]

23 B] Give a detailed account of commercial production of the following metabolites?
[i] Vitamin B_{12} [ii] Riboflavin (8+8)

24 A] Explain in detail about the commercial production of protease from bacteria and fungi? (16)

[OR]

24 B] Explain the commercial fermentation of the following products?
i] Nisin ii] Cheese (8+8)

25 A] Illustrate the production of various vaccines through genetic engineering of microorganisms? (16)

[OR]

25 B i] What are monoclonal antibodies? (4)

ii] Explain the production of monoclonal antibodies by hybridoma technology? (12)

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