T.Y. BSc Sem VI

Subject : Industrial Biotechnology

Day : Thursday
Date : 06/04/2017

34746

Time : 10.00 AM TO 01.00 PM
Max Marks : 80 Total Pages : 1

N.B:

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Both the sections written in **SEPARATE** answer sheet.

SECTION-I

Q.1 A) Answer **Any ONE** of the following: **(06)**

a) What is media formulation? Discuss various carbon sources used in fermentation media.
b) Discuss process of screening of industrially important microorganism in brief.

B) Answer **Any TWO** of the following: **(10)**

a) Discuss role of antifoam agents in fermentation media.
b) Explain industrial production of bacterial amylase in brief.
c) Discuss inoculum development process with reference to fungi.

Q.2 Answer **ALL EIGHT** of the following: **(16)**

a) Define solid state fermentation.
b) What is inoculum development?
c) Enlist criteria for selection of industrially important microorganisms.
d) Define scale up.
e) What is the role of chelators in media?
f) What is maintenance media?
g) What is the role of buffers in media?
h) Enlist various nitrogen sources in fermentation media.
i) What do you mean by downstream processing?

SECTION-II

Q.3 A) Answer **Any ONE** of the following: **(06)**

a) Discuss functions of various parts of fermenter in brief.
b) Explain the industrial production of streptomycin.

B) Answer **Any TWO** of the following: **(10)**

a) What is process monitoring? Explain measurement and control of oxygen during fermentation.
b) Discuss rotary vacuum filter used in product recovery.
c) Explain the process of Latex Collection for papain production.

Q.4 Answer **Any FOUR** of the following: **(16)**

a) Discuss ethanol fermentation in brief.
b) Give an account on various methods of enzyme immobilization.
c) Discuss the production of Lactic acid.
d) Explain the applications of reserves osmosis in product recovery.
e) Discuss in brief about airlift fermenter.

Q.5 Write short notes on **Any FOUR** of the following: **(16)**

a) Caretenoid production
b) Assessment of papain activity
c) Insulin Productions
d) Trickling filters
e) Scenario of enzyme production in India and world

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Subject : Applied Biotechnology

Day : Saturday
Date : 08/04/2017

34747

Time : 10.00 AM TO 01.00 PM
Max Marks : 80 Total Pages : 1

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

Q.1 Attempt any **ONE** of the following: **(06)**

a) What is the role of Lipase in dairy industry? Which other enzymes have a role in dairy industry?
b) Why are immobilized enzymes preferred over soluble enzymes?

Q.2 Attempt any **TWO** of the following: **(10)**

a) What is invert sugar? Why is it preferred? Which enzyme is important for its production?
b) How is semi synthetic penicillin different from natural penicillin?
c) How can bamboo be preserved? Discuss the chemical methods in brief?

Q.3 Answer any **FOUR** of the following: **(16)**

a) Why does haze develop in beer? How can it be removed?
b) What is gluten? How does it affect bakery products?
c) What are surfactants? What is their role in detergents?
d) Why is grape pomace not suitable to be used as animal feed?
e) How can you detect spoilage in fish? Discuss briefly.

SECTION – II

Q.4 Attempt any **ONE** of the following: **(06)**

a) Compare between activity of papain and ficin for food processing.
b) What are the advantages of fish visera silage?

Q.5 Attempt any **TWO** of the following: **(10)**

a) Describe the role of any two enzymes in bakery industry.
b) What is role of pectinases in juice extraction?
c) Method of preservation of bamboo- discuss briefly.

Q.6 Write short notes: **(16)**

a) Importance of silvery recovery
b) Grape seed oil as a value added product
c) Meat tenderizing enzymes (any two)
d) Haze removal in fruit juice

Q.7 Answer the following: **(16)**

a) Name the immobilized enzyme and its support matrix used for chill proofing of beer.
b) Which amino acids in fish provide a good balance for vegetable proteins?
c) What is Bromelin?
d) What is the role of pentosans in bread making?
e) Which hydrolytic enzymes can be produced on a large scale using grape pomace?
f) Name the sea-borne pathogens found in fish.
g) Why is it difficult to detect adulteration of honey?
h) Which immobilized enzymes are used for freshness testing in fish?

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Subject : Clinical Biotechnology

Day : Monday
Date : 10/04/2017

34748

Time : 10.00 AM TO 01.00 PM
Max Marks : 80 Total Pages : 1

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labeled diagrams **WHEREVER** necessary.
4) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

Q.1 **A)** Attempt **ANY ONE** of the following: **[06]**

i) What is the difference between blood plasma and serum? Add a note on various anticoagulants.
ii) Define anemia. Explain different types of anemias in detail.

B) Attempt **ANY TWO** of the following: **[10]**

i) Explain the steps of blood coagulation process.
ii) Discuss the use of enzyme in clinical diagnosis. Explain any two enzymes in detail.
iii) Describe the lipid profile tests. Explain its clinical significance.

Q.2 Attempt **ANY FOUR** of the following: **[16]**

a) Explain the structure and function of kidney.
b) Describe any two types of jaundice.
c) Give a note on quantitative estimation of blood glucose and creatinine with their clinical significance.
d) Describe Erythrocyte sedimentation rate test.
e) Explain the O – A – B blood group system and the reactions in body because of mismatched blood group.

SECTION – II

Q.3 **A)** Attempt **ANY ONE** of the following: **[06]**

i) Explain the clonol selection theory.
ii) Discuss the structure, class, subclasses of antibodies. Add a note on allotypes, isotypes and idiotypes.

B) Attempt **ANY TWO** of the following: **[10]**

i) Describe the primary lymphoid organs. State the functions of each.
ii) Describe the structure and functions of the cells of immune system.
iii) Differentiate between adaptive and innate immunity.

Q.4 Write short notes on **ANY FOUR** of the following: **[16]**

a) Immunogens and proteins as antigens
b) Rocket immuno – electrophoresis
c) Subsets of T helper cells
d) Development and maturation of B cells
e) Monoclonal antibodies as diagnostic reagents

Q.5 Answer **ANY EIGHT** in one or two sentences: **[16]**

a) Define any two of the following: **i)** Epitopes **ii)** Haptens **iii)** Carrier effect.
b) Explain the terms: MALT, ELISA.
c) Describe the role of spleen in immune system.
d) Name different types of immunoglobins.
e) Explain the terms of affinity and avidity.
f) Name the applications of histochemistry and immuno histochemistry.
g) Which hormones are detected by Radio-immuno assay?
h) Name the different organs of immune system.
i) What are cytokines? Explain their different types.

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