

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019
(Second Semester)

Branch - **APPLIED MICROBIOLOGY**

FERMENTATION AND BIOPROCESS TECHNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks!)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 x 1 = 10)

- 1 Which of the following is an upstream process?
(i) Product recovery (ii) Product purification
(iii) Media formulation (iv) Cell lysis
- 2 What is liquid nitrogen storage temperature?
(i) -186°C (ii) -176°C
(iii) -196 °C (iv) -166 °C
- 3 What is rotameter?
(i) Control the media flow rate (ii) Control the air flow rate
(iii) Control the water flow rate (iv) Control the pressure flow rate
- 4 An air lift fermentor uses
(i) An impeller for mixing (ii) Air baffles for mixing the contents
(iii) Differential density for mixing purpose
(iv) A sparger for mixing the contents
- 5 An Ion exchange resin is composed of
(i) Polymeric network (ii) Ionic functional groups
(iii) Counter Ions (iv) All of these
- 6 Which of the following is not the physical method of cell disruption?
(i) Milling (ii) Homogenization
(iii) Ultra sonication (iv) Enzymatic digestion
- 7 Final alcohol content in wine varies from
(i) 6-9% by weight (ii) 8-13% by weight
(iii) Both(i)&(ii) (iv) 13-15% by weight
- 8 Lagers are the beer in which fermentation is carried out using
(i) Top yeast (ii) Bottom yeast
(iii) Either of these (iv) Middle yeast
- 9 Penicillin is produced by
(i) Aerobic fermentation (ii) Anaerobic fermentation
(iii) Aerobic fermentation followed by anaerobic fermentation
(iv) Anaerobic fermentation followed by aerobic fermentation
- 10 What is SOP?
(i) Standard operation practice (ii) Standard operating procedure
(iii) Standard optimization practical (iv) Standard operating practical

Cont...

SECTION - B (25 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 5 = 25)

- 11 a Explain the primary screening techniques.
OR
b Illustrate the raw material for production media.
- 12 a With the help of diagram explain the basic design of fermentor.
OR
b How is p^H measured and monitored in fermentor?
- 13 a Explain in briefly about affinity chromatography.
OR
b Differentiate the solid state and submerged fermentation.
- 14 a Explain about the production of lactic acid.
OR
b Discuss in details about microbial exo polysaccharides.
- 15 a Flow will you prepare the SOP?
OR
b Explain about the biosensors and its applications?

SECTION -C (40 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 8 = 40)

- 16 a Explain the various ranges of fermentation products.
OR
b Discuss in detail methods in sterilization of fermentation media.
- 17 a Explain the significance of computer aid control in fermentation technology.
OR
b Discuss about the new tonian and non new tanian fluid.
- 18 a Discuss in detail about the purification of products by column chromatography.
OR
b Discuss in details about concentration methods.
- 19 a Explain - Wine production.
OR
b Illustrate the microbial transformation of steroid and non steroid compounds.
- 20 a Briefly explain the production of antibiotics.
OR
b Explain in details about the production of any two industrial enzymes and its applications.