Exam Date & Time: 01-Dec-2018 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

BPharm SemesterIII - End Semester Examination, December 2018
Course Code:PBT-BP303T Course Title: Pharmaceutical Microbiology (Theory)
Date:01-12-2018
Pharmaceutical Microbiology [PBT-BP 303T]

Marks: 75 **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) ---microscope helps to view internal structures of cells without staining. (1)

1) Phase contrast 2) Fluorescent 3) Confocal 4) SEM

2) Organotrophs are (1)

1) Organisms utilising organic material as source of carbon 2) Organisms utilising organic material as source of electron 3) Organisms utilising organic material as source of energy 4) None of the above

3) Microorganism that requires a specific vitamin or amino acid in the medium for its growth is called------ (1)

1) Autotroph 2) Auxotroph 3) Phototroph 4) Prototroph

4) Counterstain used in acid-fast staining is (1)

1) Crystal violet 2) Safranin 3) Carbol fuchsin 4) Methylene blue

5) The relative humidity in the case of sterilization by Ethylene oxide has to be (1)

1) 5 to 10 % 2) 50 to 60 % 3) Above 70 % 4) 30 to 33 %

6) Suitable method of sterilization for a culture medium containing gelatin is (1)

1) Autoclaving 2) Tyndallisation 3) Pasteurisation 4) Heating with Bactericide

7) Identify the proper sequence of events in the replication of viruses (1)

1) Penetration & Uncoating, Attachment, 2) Penetration & Uncoating, Biosynthesis, 3) Attachment , Penetration & Uncoating, 4) Attachment , Penetration & Uncoating,

Biosynthesis, Maturation, Release	Maturation, Release, Attachment	Biosynthesis, Maturation, Release	Maturation, Release, Biosynthesis

8) In sterility testing, positive control is incubated along with the samples for the following reason.

1) To ensure the sterility of the medium	2) To ensure that the medium is suitable for the growth of microorganisms	3) To enhance the growth of damaged organisms	4) To compare the turbidity of the sample	(1)

9) One of the following statements is true with respect to the events that follow the addition of soap solution to phenol beyond c.m.c.

1) Surface tension decreases enhancing the activity of phenol further	2) Surface tension remains constant but the activity of phenol increases	3) Surface tension remains constant and the activity of phenol decreases	4) Surface tension increases and the activity of phenol decreases	(1)

10) A particle, which is associated with one or more culturable microorganisms, is known as

1) Non-viable particle	2) Coarse Particle	3) Viable Particle	4) Fine Particle	(1)

11) Walls, Floors and Ceiling in the clean rooms should

1) have smooth, seamless materials	2) be coated with durable, chemical resistant materials	3) have HEPA filters to provide filtered air	4) All of the above	(1)

12) Number of air changes per hour in clean room areas is

1) 1 to 5 2) 10 to 20 3) 50 to 100 4) 5 to 10 (1)

13) In class A grade clean rooms, the maximum permitted number of air borne particles per cubic meter equal to or above 0.5 micrometer are

1) 35,000 2) 3,500 3) 35 4) 350 (1)

14) According to IP, an antimicrobial preservative is effective in the product examined, if

1) The concentrations of viable bacteria are	2) The concentrations of viable yeasts and	3) The concentration of each test organism	4) All of the above.	(1)

not more than 0.1% of the initial concentrations by 14^{th} day	moulds remain at or below the initial concentration during the initial 14 days.	remains at or below these designated levels during the remainder of the test period.

15) Which, among the following statements, is not true in the determination of MIC

1) MIC determination is possible in solid medium as well as fluid medium.
2) During determination of MIC, double dilution technique is employed to dilute the sample.
3) Prior to the addition of antimicrobial to be tested, all the tubes are taken with equal volume and equal strength of the medium
4) MIC is usually expressed as a range. (1)

16) In evaluation of preservatives, sterile saline solution with 0.1% peptone is used for harvesting and suspending following organisms, **except.**

1) *Candida albicans* 2) *Aspergillus niger* 3) *Pseudomonas aeruginosa* 4) *Staphylococcus aureus* (1)

17) The greater the solute concentration, the lower is the water activity, with the exception of-------

1) Phototrophic bacteria 2) Lithotrophic bacteria 3) Halophilic bacteria 4) Capnophilic bacteria (1)

18) ------- is an example for transformed cell line

1) Vero 2) HeLa 3) MRC-5 4) BEAS-2B (1)

19) -----is an indicator used to check the pH of medium used for tissue culture

1) Methyl red 2) Phenol red 3) Phenolphthalein 4) Bromothymol blue (1)

20) ---- is used as a cryoprotectant for cryopreservation of cells

1) DMF 2) Ethanol 3) IPA 4) DMSO (1)

II Long Answers

Answer all the questions.

1) Discuss the methods of preservation of microorganisms. Add a note of cultivation of anaerobic bacteria (10)

2) Discuss the influence of time of contact, temperature and presence of organic matter on the course of disinfection process. Enlist any other four factors influencing the activity of disinfectants, other than the above. (10)

III Short Answers

Answer all the questions.

1)	Compare the cell walls of Gram positive bacteria and Gram negative bacteria.	(5)
2)	Briefly outline the principle involved in citrate utilisation test and indole production test.	(5)
3)	Explain the working principle of a 'Hot Air Oven' and give an account of its operation.	(5)
4)	Enlist any two disadvantages of sterilisation by filtration and explain the theories behind it.	(5)
5)	Differentiate yeasts from molds. Through schematic representation, describe sporangiospores and conidiospores.	(5)
6)	Write notes on protocol and calculations involved in the assay of antibiotics using tube dilution method.	(5)
7)	write a note on water activity and its importance in microbial spoilage.	(5)

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