KATHMANDU UNIVERSITY
End Semester Examination [C]
May/June, 2019

Marks scored:

Level : B. Pharm.
Year : II

Course : PHAR 201
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date 06 JUN 2019

SECTION "A"
[20Q. × 1 = 20 marks]

I. Choose and encircle the correct answer.

1. Microorganism produced by genetic engineering produce important medicinal substance like ..... extracted from the pancreas of calves.
[a] Insulin [b] Enzymes [c] Pancreatic alpha-amylase [d] Protein

2. According to EU GGMP, the microbial contamination in Grade A area should be
[a] Less than 1 [b] Less than 10 [c] Less than 100 [d] Less than 200

3. According to EU pharmacopoeia 2017, total microbial count (CFU/g) for non aqueous oral products should be
[a] Less than 100 [b] Less than 10 [c] Less than 1 [d] Less than 0.5

4. Diphtheria is caused by
[a] *Corynebacterium diphtheriae* [b] *Clostridium tetani*
[c] *Vibrio cholera* [d] Rhabdo virus

5. 'Lag phase' during the bacterial growth indicates all except ....
[a] The cell stop its division/take rest, the number remains constant
[b] There is complete depletion of nutritive source for cell division
[c] Dead cells outnumber the dividing cells
[d] A sharp rise in the curve

6. Curved rod shaped bacteria are known as
[a] Cocci [b] Vibrio forms [c] Bacilli [d] Plemorphic forms

7. Greenish-Brownish halo-ring is observed in
[a] EMB agar [b] MSA agar [c] Blood agar [d] MacConkey agar

8. An example for common air borne epidemic disease is:
[a] Influenza [b] Typhoid [c] Diphtheria [d] Malaria

9. Water for injection should meet following requirement
[a] Microbial limit is 10 CFU/ ml and bacterial endotoxin limit is 0.25 EU/ ml
[b] Microbial limit is 10 CFU/100 ml and bacterial endotoxin limit is 0.25 EU/ ml
[c] Microbial limit is 10 CFU/100 ml and bacterial endotoxin limit is 0.25 EU/100 ml
[d] Microbial limit is 10 CFU/ ml and bacterial endotoxin limit is 0.25 EU/100 ml

10. .....is the pore size of filtration that removes microorganism to sterilize pharmaceutical agents.
[a] 1 μm [b] 0.45 μm [c] 0.46 μm [d] 0.2 μm

11. These are the spores bearing eukaryotic protists
[a] Mucors [b] Cytomegalovirus
[c] Salmonella species [d] *Bacillus subtilis*

12. Saprophytic species of fungi can grow in this temperature range
[a] 0° C [b] 20°-30° C [c] 70°-80° C [d]-20° - 10°C

13. These are the characteristics of viruses except
[a] Contains single type of nucleic acid
[b] Can be grown on culture media
[c] They are obligatory parasite
[d] Its multiplication causes death of the host cell

14. It is one of the very common cause of gastroenteritis in infants
[a] Measles virus [b] Rotavirus [c] Rabies virus [d] Ebola virus

15. It is the characteristic of gram negative cell wall
[a] Contains teichoic acids
[b] Consists of 60-80% peptidoglycan
[c] Lipopolysaccharide determines its antigenicity
[d] It is 20-80 nm thick

16. It is gram negative enteric rod
[a] *E. coli.* [b] *Staphylococcus aureus*
[c] *Neisseria meningitides* [d] *Clostridium tetani*

17. These bacteria use light energy to produce food
[a] Heterotropes [b] Saprophytes [c] Photoautotrophs [d] Heterotrophs

18. Visible growth of microbes on the surface of a solid media is called
[a] Inoculum [b] Colony [c] Culture [d] Media

19. These are indicator medias except
[a] CLED agar [b] TCBS agar [c] XLD agar [d] Stuart's media

20. Red heat sterilization is commonly performed for all of these except
[a] Forceps [b] Needles [c] Glass slides [d] Inoculating loop

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F.M. : 55

Indicate by checking (√) of each question you have answered in the cover page of main answer book.

SECTION "B"
[5Q. × 3 = 15 marks]

II. Answer *ANY FIVE* of the following questions:

1. Define
   a. Clean room
   b. Pharmaceutical microbiology
   c. At rest and operational occupancy state
2. List down the advantages and disadvantages of microbes in pharmacy.
3. Explain about the factors affecting preservative efficacy.
4. Write about the significances of flaming the loop and flaming the mouth of the test tube. Justify the statement: "Partially lift the lid of the plate culture and open it just enough to insert the inoculation loop".
5. Define terminal and aseptic sterilization.
6. Give an account on bacterial reproduction.
7. Elaborate on viral growth curve.

SECTION "C"
[5Q. × 5 = 25 marks]

III. Answer *ANY FIVE* of the following questions.

8. What do you mean by culture media? Discuss about its types.
9. What is microbiological assay? Explain about the advantages and limitation of microbiological assay.
10. Explain about cholera including its causative agent, mode of transmission, pathogenesis clinical features and treatment.
11. Why are the raw materials brought into the premise are source of microbial contamination? How can we eliminate such contamination?
12. Explain the contributions of Robert Koch in the development of microbiology.
13. Elaborate on the moist heat sterilization at temp below and above 100°C.
14. Elaborate on different culture media.

SECTION "D"

[2Q. × 7.5 = 15 marks]

IV. Answer *ANY TWO* of the following questions:

15. On what principle, microbiological assay of antibiotics are carried out? Why are accuracy and precision checked in microbiological assay? Explain the methods to carry out microbiological assay.

16. Classify pyrogen. What are its physiological effects? Explain the detail procedures of pyrogen testing.

17. List out the different types of microscope. What is limit of resolution? Write in detail about electron, fluorescent and phase contrast microscopes.