U.G. 2nd Semester Examination - 2020

MOLECULAR BIOLOGY

[PROGRAMME]

Course Code : MBG/201T CC4

Full Marks : 40 Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five**: 1×5=5

   a) How micro-organisms get transferred from place to place?

   b) What are attenuated bacteria?

   c) Define the term "titer".

   d) Where is peptidoglycan found?

   e) Write down the chemical composition of capsule in bacteria.

   f) Agar is added to prepare a solid nutrient medium for bacterial culture. Explain why?

   g) Is pasteurized milk, sterile milk? Explain.

   h) What is food spoilage?

2. Answer any **three**: 5×3=15

   a) Write down the contribution of the scientist Koch, in the area of microbiology. What is the temperature required for pasteurization? How do you prepare a pure culture of bacteria? 2+1+2

   b) Compare the structure of Gram positive and Gram negative bacteria. Write down the names of one Gram positive and one Gram negative bacteria. 3+2

   c) Classify the bacteria depending on growth temperature and oxygen requirement. 2.5+2.5

   d) Draw a typical bacterial growth curve and label the various phases. How do you calculate the bacterial generation time? 2+3

3. Answer any **two**: 10×2=20

   a) How do you sterilize a heat sensitive nutrient medium? What is HEPA filter? Write down the mode of action of UV light for sterilization. Write down the working principle of an autoclave. What method of sterilization would be appropriate for–

      i) Petridish for laboratory use

      ii) Nutrient agar medium? 2+2+2+2+2

b) What features distinguish a bacteriophage from a bacterium? Describe the sequence of events that occurs in lytic cycle of bacteriophage. 2+8

c) Write down the names of principal microorganisms, which are responsible for production of ethyl alcohol and cheese. Write down the names of microorganisms responsible for spoilage of bread and fish. Describe the antimicrobial activity of the following methods of food preservation- (i) Canning (ii) Refrigeration. What information does the phosphatase test reveal about milk?

2+2+2+2+2

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