

Register Number:

Date:11-03-2022

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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27** |
| **B.Sc. MICROBIOLOGY – I SEMESTER** |
| **SEMESTER EXAMINATION: OCTOBER 2021**(Examination conducted in March 2022) |
| **MB 121 - Basic Microbiology and Microbiological Techniques** |
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| **Time- 3 hrs** |  | **Max Marks-100** |
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| **This paper contains two printed pages and four parts** |

**I. Answer any Five of the following 5 x 3 = 15**

1. Give three important contributions of Louis Pasteur.
2. State the principle of Dark-field microscopy.
3. Write the functions of bacterial flagella and pili.
4. What are Prions?
5. How do heavy metals kill microorganisms?
6. List three characteristic features of Mycoplasma.
7. Explain the function of mordants in staining. State one example.

**II. Answer any Five of the following 5 x 6 = 30**

1. Elucidate the working of Phase contrast microscopy with help of an appropriate diagram.
2. List the differences between eukaryotic and prokaryotic cells.
3. Draw a neat and labelled diagram of a cyanobacterial cell.
4. Describe the functions of mitochondria and endoplasmic reticulum.
5. Write a note on Paramecium reproduction.
6. Explain any one method of evaluation of an antimicrobial drug.
7. Asexual reproduction in fungi happens with help of spores. Explain.

**III. Answer any Three of the following 3 x 15 = 45**

1. Explain the life cycle of T4 phage in detail. Support your answer with a neat labelled diagram.
2. A. Elaborate on any two theories of origin of life. (10)

B. Explain how theory of spontaneous origin was disproved. (5)

1. Give a detailed explanation of endospore formation with help of a neat and labelled diagram.
2. A. Explain Acid-fast staining. It is used to identify which organism and why? (8)

B. Write a brief note on heat as agent of microbial control. (7)

1. Write notes on- 1. Prions 2. Cell wall staining 3. Different branches of pure microbiology.

**IV. Answer the following 1 x 10 = 10**

1. You work in a virology lab. A suspension of viral sample is brought in for studying to your lab. Biochemical studies are performed on the sample to identify the virus.

i. You find RNA dependent RNA polymerase to be present in this sample. What kind of virus do you think it is? Explain its salient features in brief.(4)

ii. What will you obtain if you filter the suspension with a 0.2µm membrane filter?(2)

iii. What technique must you use to visualize the virus? Briefly discuss.(4)