Register Number:

DATE:

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BENGALURU-27
B.Sc MICROBIOLOGY- I SEMESTER
SEMESTER EXAMINATION- OCTOBER 2019.
MB 118- BASIC MICROBIOLOGY AND MICROBIOLOGICAL TECHNIQUES

Time: 2 ½ hrs **Max Marks: 70**

This question paper has **2** printed pages and **4** parts.

I. Answer any Five of the following questions: 5x3 =15

1. List three factors that affect the efficacy of antimicrobial agents.
2. How would you convince a friend that microorganisms are much more than just agents of disease?
3. Identify the following scientist:
   a. who elucidated the chiral structure of tartaric acid.
   b. who is known as the father of antiseptic surgery.
   c. who used methyl violet dye to identify *Bacillus anthracis*.
4. List the functions of capsule.
5. How can the effectiveness of an autoclave be detected?
6. Is the mad cow disease in accordance with Koch's postulates?
7. State the mode of action of the following:
   a. Halogen
   b. UV rays
   c. Formaldehyde

II. Answer any Five of the following questions: 5x5= 25

8. Explain the sexual reproduction in fungi.
9. How would you sterilize the following components (state the principle in each method used):
   a. Empty glassware.
   b. Nutrient agar and broth.
   c. Liquid media enriched with blood.
   d. Bandages and disposed hospital waste.
   e. Air in a sterile incubation chamber.
10. Explain one horizontal gene transfer technique with an example.
11. Explain the principle of a negative phase contrast microscope.
12. What are the different types of Inclusion bodies list three inclusion bodies of each type?
13. Compare the structural and functional aspects of bacterial and fungal flagella.
14. Diagrammatically illustrate conjugation in paramecium.

III. Answer any Two of the following questions: 2X10 =20

15. Draw and explain the process of sporulation and germination.
16. Explain the differences between a bright field microscope and SEM (use ray diagram also).
17. Explain the structure and lifecycle of T4 phage.

IV. Answer the following: 1X10= 10

18. a. How would you rate the ability of these two disinfectants: formalin, with phenol coefficients of 0.3 (*S. aureus*) and 0.7 (*S. enterica* serovar typhi) and chloramine, with phenol coefficients of 133 and 100 respectively. Give reasons to your answer. **4m**

    b. Explain the detailed protocol involving performing the above test. **6m**