

P. P. SAVANI UNIVERSITY

First Semester of B.Sc. Examination

February -2022

SSMB1020 Introduction to Microbiology-II

10.02.2022, Thursday Time: 12:00 p.m. to 02:30 p.m. Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

Section-I (Total Marks - 30)

Q.1 Short Questions

[10]

1.1 Objectives

[05]

1.1a Out of the following, comma shaped bacteria is

- A *Staphylococcus aureus*
- B *Aerococcus*
- C *Neisseria gonorrhoeae*
- D *Vibrio cholerae*

1.1b The bacteria store the nutrients in

- A Cytoplasm
- B Inclusion bodies
- C Cell wall
- D All the above

1.1c Carl Woese classified the living world into

- A Two domain
- B Three domain
- C Four domain
- D Five domain

1.1d Whittaker proposed concept of

- A Domain
- B Kingdom
- C Class
- D Phyla

1.1e 16S RNA is found in

- A Bacteria only
- B Bacteria and Archaeobacteria
- C Bacteria and Eukaryotes
- D Archaeobacteria only

1.1f Photosynthetic eukaryotes are found in

- A Mycota
- B Metaphyta
- C Protista

D Monera

1.1g In *Escherichia coli*, what does Escherichia indicate according to Binomial nomenclature?

- A Genus
- B Species
- C Sub Species
- D Kingdom

1.1h Which of the following have nuclear membrane?

- A Animalia
- B Plantae
- C Fungi
- D All of the above

1.1i _____ is world's largest bacteria.

- A *E. coli*
- B *Thiomargarita namibiensis*
- C *Mycoplasma gallicepticum*
- D *Streptococcus pneumoniae*

1.1j In palisades, cells are arranged in

- A Chain like
- B Fencing like
- C Cluster like
- D Bunch like

1.2 Answer the Following:

[05]

1.2a Define Microbiology

1.2b Bacteria are sensitive to antibiotics (True/False)

1.2c Bacteria have histone proteins (True/False).

1.2d Define Nomenclature.

1.2e Archaeobacteria are non pathogenic (True/False)

Q.2 Short Notes (Attempt any two)

[06]

A Draw different cocci shape bacterial arrangement and mention their name.

B Enlist merits of Whittaker classification.

C Define Nomenclature and explain the basis of classification

Q.3 Explain in detail (Attempt any two)

[14]

A Explain 5 kingdom classification in detail

B Discuss the Carl Woese Classification in detail.

C Explain why bacteria prefer to have small size?

Section-II (Total Marks - 30)

Q.1 Short Questions

[10]

1.1 Objectives

[05]

1.1a Which of the following is involved in conjugation?

- A Fimbriae
- B Pili
- C Capsule
- D Vacuoles

1.1b Glycogen is a polymer of.....

- A Glucose
- B Fructose
- C Maltose
- D Sucrose

1.1c Which of the following is a scanning probe microscope?

- A TEM
- B SEM
- C AFM
- D None

1.1d 100X objective lens is also known as .

- A Low power objective
- B Oil immersion lens
- C High power objective
- D Ocular lens

1.1e Irish diaphragm controls _____ reaching the object.

- A Air
- B Image
- C Light
- D None

1.1f What type of specimen can be seen under Electron Microscope?

- A Dead specimen
- B Dried specimen
- C Both a and b
- D None

1.1g Which of the following dye is used in staining of specimen to observe under Florescence microscope?

- A Fluorochrome
- B Safranin
- C Crystal violet
- D Indian Ink

1.1h Phase-Contrast microscope is used to study

- A Behavior of living cells
- B Observe the nuclear and cytoplasmic changes taking place during mitosis
- C Effect of different chemicals inside the living cells

- D** All the above
- 1.1i** The bacteria have
- A** 70S
 - B** 75S
 - C** 80S
 - D** 85S

- 1.1j** Which of the following organelle is involved in bacterial motility?
- A** Flagella
 - B** Pili
 - C** Capsule
 - D** Vacuole

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks)

[05]

- 1.2a** Full form of SEM and TEM.
- 1.2b** Define Resolving power of Microscope?
- 1.2c** What is chemo taxis?
- 1.2d** Carboxysomes are.....
- 1.2e** Capsule protects bacteria from immune system (True/False)

Q.2 Short Notes (Attempt any two)

[03]

- A** Write few points about simple microscope?
- B** Mention the importance of dark-field microscope?
- C** Draw the ultrastructure of bacterial flagella?

Q.3 Explain in detail (Attempt any two)

[14]

- A** Draw the structure of bacteria and explain its organelles.
- B** Write in detail about bacterial endospore and the process of endospore formation?
- C** Explain various parts of light microscope and their importance?