Life Sciences – Major Programmes
Blue Print for Question Papers from II Semester onwards

Unit Number	Section-A (Essay/ Split Essay) In either or pattern	Section-B (MCQ/ True or False/ Fill in the blank) – No choice	Weightage of marks
Unit-1	8 Marks / 2×4 Marks	1 mark (2 Questions)	10 Marks
Unit-2	8 Marks / 2×4 Marks	1 mark (2 Questions)	10 Marks
Unit-3	8 Marks / 2×4 Marks	1 mark (2 Questions)	10 Marks
Unit-4	8 Marks / 2×4 Marks	1 mark (2 Questions)	10 Marks
Unit-5	8 Marks / 2×4 Marks	1 mark (2 Questions)	10 Marks

SECTION-A **10 M 5 × 8 = 40 Marks**

Answer all the following questions.

Draw labelled diagrams wherever necessary.

1. (a) – (i) and (ii) Or (b) - (i) and (ii)
2. (a) or (b) – If an essay
3. (a) or (b) – If an essay
4. (a) – (i) and (ii) or (b) - (i) and (ii) – if split essay
5. (a) or (b) – If an essay

SECTION-B **10X1=10 Marks**

Answer all the following questions.

6. From Unit-1
7. From Unit-1
8. From Unit-2
9. From Unit-2
10. From Unit-3
11. From Unit-3
12. From Unit-4
13. From Unit-4
14. From Unit-5
15. From Unit-5

Section-A
(Essay Type-8 marks Questions)

Unit	Questions	Marks
Unit-1	Give a brief account on biological systems of classification and branches of taxonomy	8
	Explain the Ultrastructure of Bacterial Flagella and it functions	8
	Explain the Ultrastructure of bacterial cell wall	8
Unit-2	Write a brief note on Photosynthetic bacteria i. Purple bacteria ii. Green bacteria	4+4=8
	Write a brief note on i. Mycoplasma ii. Rickettsia	4+4=8
	Write a note on i. Methanogenic bacteria ii. Halophilic bacteria	4+4=8
Unit-3	Give a brief account on general characters of Viruses	8
	Write out line classification of Viruses according to Baltimore System	8
	Explain any two methods of cultivation of viruses	8
Unit-4	Explain the mode of replication in i. TMV ii. HIV	4+4=8
	Explain the mode of replication in bacteriophage T4 and Lambda.	4+4=8
	Explain the mode of replication in i. Adeno virus ii. Influenza viruses	4+4=8
Unit-5	Short notes on i. Viroids ii. Prions	4+4=8
	Explain the concept of i. Protooncogenes ii. Oncogenes	4+4=8
	Write about the role and applications of viruses in Biotechnology	8

SECTION-B (One-mark questions)

Unit-1:

1. Who proposed a natural system of classification of angiosperms?
   a. George Bentham and Hooker
2. Natural system of classification of angiosperms was published in ----------in 3 volumes.
   A. 'Genera Plantarum'
3. Engler and Prantl proposed the ---------- classification
   a. Phylogenetic
4. What is chemotaxonomy?
   It is a classification method based on amino acids, proteins, DNA sequences, alkaloids, crystals, betacyanins, and other chemical elements of organisms.
5. Define Numerical taxonomy?
   It uses statistical methods to assess resemblances and differences, as well as primitiveness and advancement, based on a huge number of features gathered from several areas of biology.
6. The extrachromosomal DNA present in Bacterial cell is called----

   Plasmid

7. Prokaryotic ribosome is -------type

   70S type with two sub units-30S and 50S

8. In prokaryotes, the hair-like outgrowths which attach to the surface of other bacterial cells are

   Pili

9. Single circular closed genome of bacteria is known as ----

   a. Nucleoid

10. In prokaryotes, the hair-like outgrowths which attach to the surface of other bacterial cells are

    a. Cell wall

    b. **Capsule**

    c. Cytoplasmic membrane

Unit-II

1. Example of purple bacteria

   Ex:Rhodospirillum, Rhodopseudomonas, Rhodobacter, Rhodomicrobium.

2. Givw an example of Oxygenic photosynthetic bacteria

Cylindrospermum, Anabaena, Nodularia, Calothrix, Nostoc.

3. Example of cell wall less bacteria

   Mycoplasma

4. Q-fever is caused by-------

   Coxiella burnetiid

5. Obligate parasite of higher animals and not transmitted by arthropods is a ----------bacteria.

   Chlamydia

6. Microbes capable of producing methane are called ----------

   Methanogens.

7. Example of Extreme halophilic Bacteria----

   Halococcus salifodina and Halobacterium salinarum

8. Gliding and fruiting body forming bacteria which forms biofilms are----------

   Myxobacteria

9. Give example of spore forming bacteria----

   Clostridium and Bacillus

10. biological process which converts sugars such as glucose, fructose, and sucrose into cellular energy, producing ethanol and carbon dioxide as by-products is called as

    Ethanol fermentation

Unit-III

1. TMV was first observed by ----

   Dimitri Ivanowski (1892)

2. ----------and ----------individually observed bacteriophages which were infecting agents of bacteria.

Frederick Twort & Felix D' herily.

3. Virus Capsid is made up of identical protein subunits called -----

   Capsomeres

4. Expand ICTV

   International Committee on Taxonomy of Viruses

5. Example for enveloped viruses

   Influenzae, HIV, HBV

6. ---------- is a classification system that places viruses into one of seven groups depending on a combination of their nucleic acid and strandedness

   Baltimore classification

7. ----------first used the embryonated hen's egg for the cultivation of virus.

   Goodpasture and Burnet in 1931

8. Define primary cell cultures

   These are normal cells obtained from fresh organs of animals or human being and cultured.

9. Examples of continuous cell lines

   HeLa, Hep 2 and KB cells

10. Example of Diploid cell culture

    Human embryonic lung cell strain WI-38

Unit-IV

1. Most DNA viruses assemble in the ---------; whereas most RNA viruses develop solely in -------
   Nucleus, Cytoplasm.
2. Positive stranded RNA viruses are characterised by--------?
   heir genome RNA can be translated directly as mRNA
3. What is the correct sequence of events in replication by bacterial phage?
   adsorption, pinning, sheath contraction, DNA injection
4. Which virus has complex symmetry?
   T4 phage
5. Lysogenic cycle is seen in-------
   Lambda phase

6. The genome of HIV is------
   Positive sence RNA
7. HIV attaches the T-Cell at ---------site
   CD-4 receptor site
8. Example for an RNA virus which multiply in the Nucleous
   Influenzae
9. The two antigens present on the envelope of influenzae are
   Haemagglutinin and Neuraminidase
10. Polio virus belongs to the family --------
    Picornaviridae

Unit-V

1. The infective particle with short strands of circular, and single-stranded RNA without the protein coats is called as-----
   Viroid
2. Define Prions?
   Prions are infectious protein particles responsible for a group of transmissible and/or inherited neurodegenerative diseases.
3. Give example of prion diseases?
   Creutzfeldt-Jakob disease and kuru
4. What is meant by Oncogenes?
   Oncogenes are mutated forms of normal genes (called proto-oncogenes) that promote cell growth. Once mutated, oncogenes trigger "gain-of-function" activities, which may promote cancer development.
5. Define Proto oncogenes?
   Proto-oncogenes are normal cellular genes that help cells grow, divide, and stay alive. Every person has them. The gene can start to "turn on" in an uncontrolled manner, at which point it is called an oncogene.
6. Give examples of carcinogenic Viruses
   human papillomavirus (HPV), hepatitis B virus (HBV), and Epstein-Barr virus (EBV)
7. Give examples of viral vectors to deliver therapeutic genes into target cells----
   Adenovirus, Retroviruses
8. Give an example of attenuated viral vaccines
   Oral polio vaccine, Measles vaccine
9. Example of satellite viruses?
   Hepatitis D
10. What is Virosoid?
    Circular single-stranded RNAs dependent on plant viruses for replication and encapsulation. The genome of virusoids consist of several hundred nucleotides and only encodes structural proteins.