22MBU627N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(Sixth Semester)

Branch - **MICROBIOLOGY**

VIROLOGY

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The father of virology is (i) Louis Pasteur (ii) Robert Koch (iii) Dmitri Ivanovsky (iv) Joseph Lister	K1	CO1
	2	Helical symmetry is commonly seen in (i) Adenovirus (ii) Bacteriophage (iii) Tobacco mosaic virus (iv) Poxvirus	K2	CO1
2	3	The allantoic cavity is used for virus cultivation in (i) Tissue culture (ii) Cell line (iii) Embryonated egg (iv) Fermentor	K1	CO2
	4	Separation of viral particles based on buoyant density is known as (i) Differential centrifugation (ii) Density gradient centrifugation (iii) Ultrafiltration (iv) Sedimentation	K2	CO2
3	5	The one-step growth curve experiment was performed by (i) Alfred Hersheyand Martha Chase (ii) Louis Pasteur (iii) Robert Koch (iv) Alexander Fleming	K1	CO3
	6	The number of phages released per infected cell is termed (i) Burst size (ii) Plaque size (iii) Latent period (iv) Multiplicity	K2	CO3
4	7	An exception among DNA viruses that replicates in the cytoplasm is (i) Adenovirus (ii) Herpesvirus (iii) Papillomavirus (iv) Poxvirus	K1	CO4
	8	RNA-dependent RNA polymerase is required for replication of (i) DNA viruses (ii) RNA viruses (iii) Retroviruses only (iv) Bacteriophages	K2	CO4
5	9	Aphids transmit plant viruses in a _____ manner (i) Mechanical (ii) Vertical (iii) Horizontal (iv) Vector-borne	K1	CO5
	10	Viruses infecting fungi are called (i) Mycoviruses (ii) Phycoviruses (iii) Arboviruses (iv) Retroviruses	K2	CO5

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SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Define viruses and list their general characteristics.	K1	CO1
		(OR)		
	11.b.	Which structural components differentiate enveloped and non-enveloped viruses? List their features.		
2	12.a.	Explain the principle of Hemagglutination Inhibition Assay (HIA).	K2	CO2
		(OR)		
	12.b.	Summarize the process of viral precipitation using polyethylene glycol (PEG).		
3	13.a.	Categorize the steps involved in the one-step growth curve experiment.	K3	CO3
		(OR)		
	13.b.	Sort the structural components of φX174.		
4	14.a.	Examine capsid assembly and describe how viral genomes are incorporated.	K4	CO4
		(OR)		
	14.b.	Inspect cytocidal effects in host cells and diagnose the stages at which cell damage occurs.		
5	15.a.	Analyse structural and functional differences between viruses, viroids, and prions	K4	CO5
		(OR)		
	15.b.	Decipher how viral movement proteins enable cell-to-cell transport in plants.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Enumerate and explain the different types of capsid symmetry with examples such as Tobacco mosaic virus and Adenovirus.	K1	CO1
2	17	Explain the embryonated egg culture technique and illustrate the different routes of inoculation.	K2	CO2
3	18	Identify and explain the regulatory steps involved in lysogeny of Lambda phage.	K3	CO3
4	19	Examine adsorption, penetration, and uncoating and decipher their role in viral tropism.	K4	CO4
5	20	Interpret the ecological importance of algal viruses in aquatic ecosystems and justify their impact on nutrient cycling.	K5	CO5

Z-Z-Z END