PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch - BIOTECHNOLOGY

RESEARCH, IPR AND ETHICS IN BIOTECHNOLOGY

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	Good research is always_____. a)slow b)fast c) narrow d) systematic	K1	CO1
	2	To trace out the causes of a problem and possible solutions to a problem is____. a)field study b) action study c) diagnostic study d)pilot study	K1	CO1
2	3	Blue print of Research work is known as_____. a) sampling design b) research hypothesis c) research design d) research approach	K2	CO2
	4	Which one of the following is not a non-probability sampling? a) Judgmental sampling b) Convenience sampling c) Extensive sampling d) Cluster sampling	K2	CO2
3	5	Which of the following is not a type of histogram? a)Pie chart b) Truncated c) Comb d)Isolated peak	K1	CO1
	6	In python language, a block code is defined by_____. a)Brackets b)Indentation c)Key d) Eval	K1	CO1
4	7	Which is a negative aspect of the trademark? a)Consumers are able to identify product quickly b)Monopoly power c) Brand extension d)Distinguishes duplicates	K2	CO2
	8	Which section provides that only one application can be made for invention? a)section -7(1) b)section -9 c)section -8 d) section -6	K2	CO2
5	9	Which of the following is a component of the 3Rs principle in animal research? a)Reassurance b)Reserve c)Replace d)Reject	K1	CO1
	10	Identify the unethical practice of a researcher from the following. a)avoiding plagiarism b)avoiding manipulation c)avoiding reliable information d)avoiding duplication	K1	CO1

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.	Explain any five types of research with suitable example.	K4	CO1
		(OR)		
	11.b.	Categorize the different criteria of good research.		
2	12.a.	Evaluate the need for research design.	K4	CO2
		(OR)		
	12.b.	Determine the characteristics of good sample.		
3	13.a.	Why data normalization is important in research data preparation?	K2	CO3
		(OR)		
	13.b.	Discuss the advantages and disadvantages of R programming.		
4	14.a.	Write short note on patenting formalities in research.	K3	CO4
		(OR)		
	14.b.	Examine the importance of patent database.		
5	15.a.	Explain the biosafety levels for research on Microorganism.	K4	CO5
		(OR)		
	15.b.	Illustrate the role of research ethics committees.		

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	Analyze the various methods of primary data collection with its advantage and disadvantage.	K4	CO1
2	17	Discuss the different methods of random sampling and practical consideration in sampling.	K4	CO2
3	18	Explain the causes, types and handling techniques of missing data.	K5	CO3
4	19	Explain the various types of patent applications, guidelines and fee structures.	K6	CO4
5	20	Illustrate the principle, component and containment measures of biosafety guidelines.	K5	CO5

Z-Z-Z   END