

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**MSc DEGREE EXAMINATION DECEMBER 2024
(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	Which of the following is/are the type of research , on objective point of view? A). Basic B). Applied research C). Explanatory research D). Qualitative research	K1	CO1
	2	Which of the following statement is not correct about a questionnaire? A). A technique for collecting data B). Large amounts of information can be collected C). Its quick and easy to collect results D). An expensive method to collect data	K2	CO1
2	3	Which of the following sampling method required complete information about the entire individual of population? A). Systemic random sampling B). Stratified random sampling C). Simple random sampling D). Convenience sampling	K1	CO2
	4	What is the purpose of a pilot study? A). To test the feasibility of the research design B). To test the reliability and validity of the measures C). To determine the appropriate sample size D). To collect preliminary data	K2	CO2
3	5	To test null hypothesis, a researcher uses _____. A). t test B). ANOVA C). χ^2 D). factorial analysis	K1	CO3
	6	The measure of central tendency indicates _____. A). Measure of asymmetry B). Measure of average C). Measure of variables D). None of the above	K2	CO3
4	7	Which of following would not gain copyright protection? A). A DVD B). An unrecorded speech C). Written lyrics of a song D). A hand knitted jumper	K1	CO4
	8	Any technical solution of a problem in any field of human activity which is new, involves an inventive step, and is industrially applicable is _____. A). Patentable Invention B). Patent Purpose C). Patentability D). All of the above	K2	CO4
5	9	Biosafety aspects are _____. A). Assessment of risk while working with pathogenic agent B). Killing the disease-causing microorganism C). Genetically engineering pathogens to reduce their virulence D). None of the above	K1	CO5

Cont...

5	10	Which of the following terms is not a part of the three R's of animal ethics? A). Replacement B). Rejuvenation C). Reduction D). Refinement	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.	Briefly explain the criteria behind the good research.	K3	CO1
	(OR)			
	11.b.	Figure out the problems encountered by the researchers in brief.		
2	12.a.	Examine the types of Research Design.	K3	CO2
	(OR)			
	12.b.	Sketch out a brief report on sampling errors.		
3	13.a.	Explain chi square test with suitable example.	K4	CO3
	(OR)			
	13.b.	Outline the steps of conducting correlation analysis.		
4	14.a.	Classify the different types of IPR in brief.	K4	CO4
	(OR)			
	14.b.	Analyze the different types of patent applications and their advantages.		
5	15.a.	Enlist the types of biosafety levels in brief.	K5	CO5
	(OR)			
	15.b.	Write short note on Helsinki declaration.		

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	Explain the methods of data collection in detail.	K4	CO1
2	17	Demonstrate the methods of sampling and add a note on merits and demerits of each method.	K4	CO2
3	18	Explore Univariate analysis in detail.	K4	CO3
4	19	Infer the importance of geographical indicators with suitable examples.	K5	CO4
5	20	Justify the importance of ethical practices in animal studies.	K5	CO5

Z-Z-Z

END