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PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(Fourth Semester)

Branch : **BIOTECHNOLOGY**

BIOSTATISTICS

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	A sample statistic is used to estimate which of the following? a) Population parameter b) Sample mean c) Population statistic d) Sampling error	K1	CO2
	2	In simple random sampling with replacement the same sampling unit may be included in the sample: a) only once b) only twice c) more than once d) cant included	K2	CO2
2	3	Which of the following is a measure of central value a) median b) standard deviation c) mean deviation d) quartile deviation	K1	CO1
	4	If each observation of a set is divided by 10 the standard deviation of the new observations is: a) $(1/10)^{th}$ of SD of original observations b) $(1/100)^{th}$ of SD of original observations c) unaltered d) 10 times SD of original observations	K2	CO1
3	5	Negative correlation of 2 variables represents a) both the variables does not moves b) both the variables moves in constant c) both the variables moving in same direction d) both the variables moving in opposite direction	K1	CO1
	6	If correlation is 0 then the angle between two regression lines of regression is a) coincident b) parallel c) perpendicular to each other d) none of the above	K2	CO1
4	7	A wrong decision about H_0 leads to a) one kind of error b) two kind of errors c) three kinds of error d) four kinds of error	K1	CO3
	8	To test an hypothesis about proportions of items in a class the usual test is a) F-test b) Z-test c) t-test d) Chi square test	K2	CO3
5	9	The ratio of between sample variance within sample variance follows: a) F-distribution b) Chi-sqaure distribution c) t-distribution d) Z-distribution	K1	CO3
	10	Degrees of freedom for chi square in case of dichotomized frequencies are: a) 4 b) 2 c) 1 d) 0	K2	CO3

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.	List the sampling and non-sampling errors.	K2	CO2
		(OR)		
	11.b.	Discuss cluster sampling method with its merits and demerits.		

Cont..

2	12.a.	Explain the Harmonic mean and Geometric mean with its merits & demerits.	K2	CO1
		(OR)		
	12.b.	Compute Arithmetic mean of heights of 10 students in a B.Com. class Height in cms: 160, 157, 162, 155, 158, 159, 161, 154, 152, 156		
3	13.a.	Compute the correlation coefficient between age of cars (X) and maintenance cost (Y) and comment X: 2, 4, 6, 7, 8, 10, 12 Y: 1600, 1500, 1800, 1900, 1700, 2100, 2000	K3	CO1
		(OR)		
	13.b.	List the difference between Correlation and Regression.		
4	14.a.	Discuss z-test in single proportion and difference between two proportions.	K3	CO3
		(OR)		
	14.b.	Brief the following with examples: i) critical region ii) level of significance iii) degrees of freedom		
5	15.a.	Two horses A and B were tested according to the time (in seconds) to run a particular track with the following results. Test whether the two horses have the same running capacity. Horse A: 28, 30, 32, 33, 33, 29, 34 Horse B: 29, 30, 30, 24, 27, 29	K3	CO3
		(OR)		
	15.b.	Discuss the concept of ANOVA and its applications.		

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 types of Probability sampling with examples.	K3	CO2
2	17	Discuss the measures of dispersion with its merits and demerits	K3	CO1
3	18	Obtain the equations of two lines of regression for the following data. Also obtain the estimate of X for Y=70. X: 65, 66, 67, 67, 68, 69, 70, 72 Y: 67, 68, 65, 68, 72, 72, 69, 71	K3	CO1
4	19	Below are given the gain in weights of pigs fed on two diets A and B. Test if the two diets differ significantly as regards their effect on increase in mean weight. Diet A: 25, 32, 30, 34, 24, 14, 32, 24 Diet B: 44, 34, 22, 10, 47, 31, 40, 30 Diet A: 30, 31, 35, 25, -, -, - Diet B: 32, 35, 18, 21, 35, 29, 22	K3	CO3
5	20	Given the following contingency table for hair colour and eye colour. Is there good association between the two? **Hair Colour**: **Fair**, **Brown**, **Black** **Eye Colour**: **Blue** (15, 5, 20); **Grey** (20, 10, 20); **Brown** (25, 15, 20)	K3	CO3

Z-Z-Z END