



R20 Regulation **Subject code: 3B3GB**
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
 (Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Supplementary Examinations, February 2024
STATISTICAL METHODS
 (Common to CSE(AI&ML) and CSE(DS))

Maximum Marks: 70

Date: 19.02.2024 Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

STATISTICAL TABLES ARE ALLOWED FOR THIS SUBJECT

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		CO	Bloom Tx
1	Write any two merits and demerits of Mean.	CO1	L1
2	Define Classification.	CO1	L1
3	Define Skewness and Kurtosis.	CO2	L1
4	Find Range to 23,6,45,78,12,89,1,5.	CO2	L3
5	Define Population and sample.	CO3	L1
6	A random sample of size 100 has a standard deviation of 5. What can you say about the maximum error with 95% confidence?	CO3	L1
7	Define the Null Hypothesis and Alternative Hypothesis.	CO4	L1
8	Explain types of errors.	CO4	L2
9	Write the types of correlation.	CO5	L1
10	Write any two properties of regression coefficients.	CO5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)

11	Explain the Functions of Statistics.							10M	CO1	L2	
	OR										
12	Find the median to the following table data							10M	CO1	L3	
	Classes	0-10	10-20	20-30	30-40	40-50	50-60				60-70
	frequency	23	6	45	67	4	9				15
13	Explain Skewness and methods for measuring Skewness.							10M	CO2	L2	
	OR										
14	Calculate Quartile Deviation and its co-efficient to the following data.							10M	CO2	L3	
	Classes	0-15	15-30	30-45	45-60	60-75	75-90				90-105
	Frequency	6	15	16	3	11	13				10

15	A population consists of five numbers 3, 4, 7, 9, and 12. Consider all possible samples of size two, which can be drawn with replacement from this population. Find: i. The mean of the population. ii. The standard deviation of the population; iii. The mean of the sampling distribution of means; The standard deviation of the sampling distribution of means	10M	CO3	L3																										
OR																														
16	(a)The mean and the standard deviation of a population are 11,795 and 14054 respectively. If the size of the sample is 50, find a 95% confidence interval for the mean. (b)Explain types of Estimation.	5M 5M	CO3	L3																										
17	(a)In two large populations, there are 30% and 25% respectively of fair-haired people. Is this difference likely to be hidden in samples of 1200 and 900 respectively from the two populations? (b) In a random sample of 60 workers, the average time taken by them to get to work is 33.8 minutes with a standard deviation of 6.1 minutes. Can we reject the null hypothesis $\mu = 32.6$ minutes in favor of an alternative null hypothesis $\mu > 32.6$ at 1% level of significance?	5M 5M	CO4	L3																										
OR																														
18	(a)Two horses A and B were tested according to the time (in seconds) to run a particular track with the following results. <table border="1"><tr><td>Horse A</td><td>28</td><td>30</td><td>32</td><td>33</td><td>33</td><td>29</td><td>34</td></tr><tr><td>Horse B</td><td>29</td><td>30</td><td>30</td><td>24</td><td>27</td><td>29</td><td></td></tr></table> Test whether the two hours have the same running capacity. (b) A random sample of 500 Apples taken from a large consignment of 60 was found to be bad, obtaining the 98% confidence limit for the percentage number of bad apples in the consignment.	Horse A	28	30	32	33	33	29	34	Horse B	29	30	30	24	27	29		5M 5M	CO4	L3										
Horse A	28	30	32	33	33	29	34																							
Horse B	29	30	30	24	27	29																								
19	Find Spearman's Rank coefficient of correlation from the following data. <table border="1"><tr><td>X</td><td>78</td><td>77</td><td>85</td><td>88</td><td>87</td><td>82</td><td>81</td><td>77</td><td>76</td><td>83</td><td>97</td><td>93</td></tr><tr><td>Y</td><td>84</td><td>82</td><td>82</td><td>85</td><td>89</td><td>90</td><td>88</td><td>92</td><td>83</td><td>89</td><td>98</td><td>99</td></tr></table>	X	78	77	85	88	87	82	81	77	76	83	97	93	Y	84	82	82	85	89	90	88	92	83	89	98	99	10M	CO5	L3
X	78	77	85	88	87	82	81	77	76	83	97	93																		
Y	84	82	82	85	89	90	88	92	83	89	98	99																		
OR																														
20	Four processes A, B, C, and D are tested to see whether their outputs are equivalent. The following observations of output are made. A 6 5 5 B 7 5 4 C 3 3 3 D 8 7 4 Carry out the analysis of variance and state your conclusions.	10M	CO5	L4																										