Reg. No. : | | | | | | | | | | |

Question Paper Code: 92008

B.E./B.Tech. DEGREE EXAMINATION, AUGUST 2021

Second Semester

19UMA209- Statistical Methods

Computer Science and Business System

(Regulation 2019)

Duration: 1.45 hrs | Maximum: 50 Marks

PART A (Answer Any Ten) | 10*2 = 20 Marks

1.	What do you understand by Design of Experiments?	CO6 – U
2.	Explain: replication.	CO6 – U
3.	Write down the ANOVA table for one way classification.	CO6 – U
4.	Define: experimental error.	CO6 – U
5.	What is an estimator?	CO2 – AP
6.	Explain: Fisher – Neyman Criterion.	CO6 – U
7.	Find the standard error of the proportion p = 0.6 and n = 20.	CO3 –AP
8.	Using sign test to derive mean and variance for n > 30.	CO6 – U
9	Derive coefficient of rank correlation.	CO6 – U
10	Define: secular trend.	CO6 – U
11	Explain: cyclic variations.	CO6 – U
12	Discuss about irregular variation.	CO6 – U
13	Explain what is R?	CO6 – U
14	Explain general format of Matrices in R?	CO6 – U
15	Mention how you can produce co-relations and covariances?	CO6 – U

PART B (Answer Any Three) 3*10 = 30 Marks

16. A set of data involving 4 tropical food stuffs A, B, C, D tried on 20 chicks is given below. All the 20 chicks are treated alike in all respects except the feeding treatments and each feeding treatment is given to 5 chicks. Analyze the following data: CO1App (10)

A	55	49	42	21	52
B	61	112	30	89	63
C	42	97	81	95	92
D	169	137	169	85	154

17 A sample of size n is drawn from each of the four normal populations which have the same variance σ^2. The means of the four populations are CO2-App (10)

$a + b + c$, $a + b - c$, $a - b + c$ and $a - b - c$. What are the MLE's for a, b, c and σ^2.

18 The following data are small random samples of results in 8 – cities. CO3- App (10)

City I	15	18	17	14	18	10	12	16
City II	10	9	8	11	7	13	--	--
City III	21	20	22	14	23	16	24	--

Conduct the H – test to determine whether evidence exists that there are differences in these cities.

19 Calculate the seasonal indices by ratio to moving average method for the following: CO4- App (10)

Year	I	II	III	IV
1	68	62	61	63
2	65	58	56	61
3	68	63	63	67
4	70	59	56	62
5	60	55	51	58

20 CO5- App (10)

Write a R program to get the structure of a given data frame.