

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)

December 2016 End Semester Examinations

Master of Business Administration
Second Semester – International Transportation and Logistics Management /
Port and Shipping Management (2015 batch onwards)

Quantitative Technique for Business (PG21T2201/ PG22T2201)

Date : 14.12.2016

Time: 3 Hrs

Maximum Marks: 60

Pass Marks : 30

SECTION-A

(12x 1= 12 Marks)

(Answer All Questions)

Choose the correct answer:

1. Among the following which error is considered to be more dangerous under hypothesis testing?
 - a. Type I
 - b. Type II
 - c. Type I and Type II
 - d. None of the above

2. What is the probability of getting a four, when a die is tossed?
 - a. $\frac{1}{4}$
 - b. $\frac{1}{5}$
 - c. $\frac{1}{6}$
 - d. $\frac{1}{2}$

3. Which of the following is a non-probability sampling?
 - a. Snowball
 - b. Random
 - c. Cluster
 - d. Stratified

4. Data originally collected for an investigation is called.....
 - a. Primary data
 - b. Secondary data
 - c. Tertiary data
 - d. None of the above

5. Probability ranges from to
- a. 0 to 1
 - b. -1 to +1
 - c. $-\infty$ to $+\infty$
 - d. None of the above
6. Chi square value ranges between
- a. Negative one and positive one
 - b. Zero to positive one
 - c. Negative one to zero
 - d. Zero and infinity
7. Variance ratio test is
- a. T test
 - b. F test
 - c. Z test
 - d. None of the above
8. ----- shows the degree of asymmetry of a distribution
- a. Kurtosis
 - b. Skewness
 - c. Binomial distribution
 - d. Polynomial distribution
9. Sampling error decreases with.....
- a. Decrease in sample size
 - b. Increase in sample size
 - c. Process of randomization
 - d. Process of analysis
10. The reciprocal of the arithmetic mean of the reciprocals of a series of observations
- a. Geometric mean
 - b. Harmonic mean
 - c. Median
 - d. Mode

11. The ability by which a measuring device can detect small difference in the quantity being measured by it, is called it's.....

- a. Damping
- b. Accuracy
- c. Sensitivity
- d. None of the above

12. Every LPP is associated with another LPP is called.....

- a. Primal
- b. Nonlinear Programming
- c. Dual
- d. None of the above

SECTION-B

(5x 4= 20 Marks)

(Answer ANY FIVE Questions not exceeding 200 words each. All Questions carry equal marks)

13. Find the dual of the linear programming problem

$$\begin{array}{ll}\text{Minimize } C = 24y_1 + 15y_2 + 32y_3 \\ \text{Subject to} & 4y_1 + y_2 + 8y_3 \geq 56 \\ & 6y_1 + 3y_2 + 2y_3 \geq 49 \\ & y_1, y_2, y_3 \geq 0\end{array}$$

14. In a bolt factory machines A, B and C manufacture respectively 25%, 35% and 40%. Of the total of their output 5, 4 and 2 percent are defective bolts. A bolt is drawn at random from the product and found to be defective. What are the probabilities that it was manufactured by machines A, B and C?

15. Which are the important sources of data collection?

16. A distribution consists of three components with total frequencies of 200, 250 and 300 having means 25, 10 and 15 respectively. Find mean of combined distribution

17. Compute variance from the data given below

Class interval	20-25	25-30	30-35	35-40	40-45	45-50
Frequency	170	110	80	45	40	35

18. A college has invited applications for the post of an assistant professor, the probability that an applicant has research experience is 0.3 and that he has adequate work experience is 0.7 and that he has both research experience and work experience is 0.4. Assuming that 50 persons have applied for this post in the college, find out how many applications would have either research experience or work experience?
19. Give a brief description about different methods of forecasting

SECTION - C

(4 x 7 = 28 Marks)

(Question No.20 is compulsory. Answer any THREE from the remaining questions. Each Analysis/ Answer should not exceed 500 words)

20. Prepare a questionnaire to study the problems faced by the seafarers and explain in detail about the sample selection procedure to be adopted for carrying out this study
21. For a random sample of 10 persons, fed on diet A, the increase in weight in pounds in a certain period were: 10, 6, 16, 17, 13, 12, 8, 14, 15, 9
For another random sample of 12 persons, fed on diet B, the increase in the same period were 7, 13, 22, 15, 12, 14, 18, 8, 21, 23, 10, 17
Test whether the diets A and B differ significantly as regards their effect on increase in weight. (For 20 degrees of freedom value of t at 5 percent level is 2.09)
22. The following data relate to the marks obtained by 10 students of a class in Statistics and Costing

Statistics	30	38	28	27	28	23	30	33	28	35
Costing	29	27	22	29	20	29	18	21	27	22

Compute Spearman's Rank Correlation coefficient?

23. The following table shows the ages (X) and blood pressure (Y) of 8 persons. Estimate the regression equation of Y on X and find the blood pressure of a person having 49 years of age

X	52	63	45	36	72	65	47	25
Y	62	53	51	25	79	43	60	33

24. Explain the various steps of followed by a researcher for testing hypothesis.

25. Perform a two-way ANOVA on the data given below:

Plots of land	Treatments			
	A	B	C	D
I	38	40	41	39
II	45	42	49	36
III	40	38	42	42

{ Table value of F (3, 6) df at 5% is 4.76 and for F (2, 6) df at 5% is 5.14 }
