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Reg. No. :

Code No. : 7473

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M.B.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2011.

First Semester

Business Administration

QUANTITATIVE METHODS

(For those who joined in July 2008 and afterwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

1. Set.
2. Arithmetic series.
3. Differential calculus.
4. Average cost.
5. Secondary data.
6. Classification.
7. Independent and dependent events.

8. Normal distribution.
9. Index number.
10. Circular (or) cyclical test.

PART B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

11. (a) Differentiate relation and function.

Or

- (b) If A and B are any two sets, then $A \cup B = (A - B) \cup B$.

12. (a) Determine dy/dx for the following function,

(i) $Y = \log \sin x$

(ii) $y = \sqrt{(1+x)(1-x)}$

Or

- (b) A hemisphere is constructed on a circular base. If the radius of the base is increasing at the rate of 0.5 cm/sec, find the rate at which the volume of the hemisphere is increasing when radius is 10 cm.

13. (a) Calculate Karl Pearson coefficient of skewness from the following data.

	Mark	No. of students :
Above	0	150
	10	140
	20	100
	30	80
	40	80
	50	70
	60	30
	70	14
	80	0

Or

- (b) What are the objectives of average?
14. (a) What is the probability that a person would have been on a Sunday?

Or

- (b) A speaker tells the truth in 60% and B in 75% of the cases. In what percentage of the cases, they are likely to contradict each other in stating the same effect?

15. (a) What are all the factors and issues to be taken into consideration for construction of index number?

Or

- (b) Find Laspeyres' index number from the following data.

Commodity	P ₀	Q ₀	P ₁	Q ₁
A	3	6	5	6
B	4	7	5	8
C	5	4	8	4
D	6	5	9	5

PART C — (5 × 8 = 40 marks)

Answer ALL the questions, choosing either (a) or (b).

16. (a) Explain different types of sets with examples.

Or

- (b) What do you mean by the domain and range of a relation? Give examples.

17. (a) Show that $x^5 - 5x^4 + 5x^3 - 1$ has a maximum when $x = 1$ and minimum when $x = 3$ and neither when $x = 0$.

Or

- (b) The cost of fuel for running a train is proportional to the cube of the speed generated in kms per hour. When the speed is 12 kms per hour the cost of fuel is Rs.64 per hour. If other charges are fixed, namely Rs.2000 per hour, find the most economical speed of the train in running a distance of 100 km.

18. (a) Compute the coefficient of skewness and kurtosis based on moments for the following distribution :

X : 4.5 14.5 24.5 34.5 44.5 54.5 64.5 74.5 84.5 94.5
F : 1 5 12 22 17 9 4 3 1 1

Or

- (b) Explain the different types of averages.
19. (a) What are the parameter of the normal distribution? what information is provided these parameters?

Or

- (b) What is Poisson distribution? Point out it, role in business decision making, under what condition will it tend to normal distribution?

20. (a) Calculate the seasonal indice from the following ratio to moving average value expressed in percentages?

Year	Summer	Monsoon	Winter
2003	-	101.75	110.14
2004	96.18	92.30	116.08
2005	92.46	95.30	-

Or

- (b) What are the advantage and disadvantage of trend analyze? When would you use their method of forecasting?