

# **DDCE, Utkal University**

## **Model questions for 1<sup>st</sup> semester 2009 batch**

### **QMM**

#### **Long Questions**

#### **UNIT-2**

1. Write a Critical note on the limitations and distracts of statistics. Discuss the important causes of distract and how statistic could be mode more reliable.
2. Write a note on the important of statistics to a businessman, an economist, a social worker and the government.
3. Are statistical methods likely to be of any use to business firm ? Illustrate your answer with some typical business problems and the statistical techniques to be used there.
4. What are the ... methods of collecting .... Data ?
5. Difference between Primary and Secondary data . State these factors, which should be kept in mind while using secondary data for the investigation.
6. What do you mean by classification ? Explain what are its objective. Discuss different methods of classification.
7. What is questionnaire ? Discuss the essential of a good questionnaire ?
8. What are the .... Methods need for collection of secondary data ? Mention its merits and demerits.
9. What are the characteristics of good questionnaire ? Prepare a questionnaire on "Economic states of Slum People, of Bhubaneswar city " .

10. What do you mean by classification ? Mention its objectives and requirements.
11. What are different methods of classification ? What is its importance ?.
12. Explain tabulation of statistical data. Describe the rules that serve as a guide in tabulating the statistical data.
13. What do you mean by tabulation? What are the essentials of good tabulation ? Also mention its limitation.
14. What is mean by measures of central tendency ? What are the functions of an average.
15. Find mean , median and mode of the following :

X	0-10	10-20	20-30	30-40	40-50	50-60
Y	4	7	12	8	6	2

### UNIT-III

1. Define probability. Discuss its importance in business managements.
2. What is the importance of the Bayes rate in decision making .....
3. State the Addition and multiplication theory of probability with giving suitable examples.
4. Define correlation and explain what are the different methods of finding correlation.
5. What are the special prop .....
6. Explain the concept of regression and points out its usefulness in dealing with business problems.

7. Distinguish between correlation and Regression analysis and points out their role in business and economics.
8. Explain what are different probability distributions ?
9. From the following distribution find the correlation between age and playing habits of students and regular players.

Age	:	15-16	16-17	17-18	18-19	19-20	20-21
No. of students	:	200	270	340	360	400	300
Regular Players	:	150	162	170	180	180	90

10. Calculate correlation coefficient between death and birth rate for the following data

Birth rate	:	24	26	32	33	35	30
Death rate	:	15	20	22	24	27	24

11. Compute Rank correlation from the following data.

X	:	415	434	420	430	424	428
Y	:	330	332	328	331	327	325

12. Ten competitors in a beauty contest are ranked by three judges A, B, C in the following order.

Judge – A	:	1	6	5	10	3	2	49	78
Judge – B	:	3	5	8	4	7	10	21	69
Judge – C	:	6	4	9	8	1	23	10	57

Use the rank correlation coefficient to determine which pair of judges has the nearest approach to common tastes in beauty :

13. Eight students have obtained the following marks in Accountancy and Economics calculate the Rank correlation coefficient.

Accountancy X	:	25	30	38	22	50	70	30	90
Economics Y	:	50	40	60	40	30	20	40	70

14. A computer while calculating the correlation co.... between the variable Z and Y obtained the following values

$$N = 30, \quad E_x = 120 \quad E_x^2 = 600 \quad E_y = 90 \quad E_y^2 = 250 \quad E_{Zy} = 356$$

It was however later on discovered at the time of checking it had copied down two pairs of observations as (6,8), (10,5) while actual values (6,10), (8,6) obtained the current value of correlation coefficient between X and Y.

15. The coefficient of rank correlation of the marks obtained by 10 students in managerial Economics and QMM was found to be 0.5. It was later discovered ... the difference in ranks in two subjects obtained by one of the student was wrongly taken as 3 instead of it find the current coefficient of rank correlation.

#### UNIT-IV

1. What is a time series ? What are its main components ? Give illustration for each of them
2. How a time series can be analysed ?  
How time series techniques can be used in forecasting ?
3. Explain the concept of moving average .How do they help measure secular trend in time series.
4. What are the various methods to compute .... Variation ?

5. Explain meaning of time series analysis. Mention the important components into which a time series may be analysed. Discuss the importance of such analysis in business.

6. Fit a linear trend to the following data using least square method. Estimate the production for the year 2008.

Year	:	2003	2004	2005	2006	2007
Production	:	18	21	23	27	16

(000 units)

7. Below are given the figures of production (in thousand tons) of a sugar factory.

Year	:	2001	2002	2003	2004	2005	2006	2007
Production	:	72	88	94	85	91	98	90

(i) Fit a straight line trend ... least square method.

(ii) What is the monthly increase in production ?

8. Calculate the ... trend values by the method of least square for the following data for the last 5 years given below :

Year	I quarter	II quarter	III quarter	IV quarter
2003	60	80	72	68
2004	68	104	100	88
2005	80	116	108	96
2006	108	152	136	124
2007	160	184	172	164

9. Fit an equation of the form  $Y = a + bx + cx^2$  to the data given below.

X	:	1	2	3	4	5
Y	:	25	28	33	39	46

Also estimate  $X = 6$ .

10. Discuss briefly the importance of time series analysis in business and economics. What are the component of time series ? Give an example of each component.

11. The following are the annual profit in thousands of rupees in an industrial area.

Year	:	2000	2001	2002	2003	2004	2005	2006
Profit (000Rs.):		65	77	80	70	89	95	102

Use method of least .... to estimate in profit in 2007 and 2008.

12. Calculate (i) three yearly (ii) five yearly moving average for the following data and comment on the result.

Year	:	1999	2000	2001	2002	2003	2004	2005	2006	2007
Y	:	242	250	252	249	253	255	251	257	265

13. Compute seasonal Index for the following data assuming that there is no need to be adjust the data for the trend :

Quarter	2002	2003	2004	2005	2006	2007
1	3.5	3.5	3.5	4.0	4.1	4.2
2	3.9	4.1	3.9	4.6	4.4	4.6
3	3.4	3.7	3.7	3.8	4.2	4.3
4	3.6	4.8	4.0	4.5	4.5	4.7

14. Using Ratio to trend method determine the quarterly seasonal Indices for the following data :

Production of Coal (in tons)

Year	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4 <sup>th</sup> Q
1	68	60	61	63
2	70	58	56	60
3	68	63	68	67
4	65	56	56	62
5	60	55	55	58

15. Calculate seasonal Indices by the “ratio to moving average” from the following data.

Year	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4 <sup>th</sup> Q
2005	68	62	61	63
2006	65	58	66	61
2007	68	63	63	67

Short Question (5 marks)

UNIT-II

1. What is the importance of statistics to businessman ?
2. Distinguish between Primary and Secondary data.
3. What are the merits and demerits of Secondary Data.
4. What is Direct Personal Investigation ? When is it used ?
5. What do you mean by Indirect Personal Investigation ? When is it used ?
6. Distinguish between questionnaire and Schedule.
7. Write are Points to be kept in mind while drafting a questionnaire ?
8. What are the main parts of a table ?
9. What are the basic objectives of classification ?
10. What are the chief function of tabulation ?
11. Distinguish between classification and tabulation.
12. The mean and S.D of 100 observation 50 and 10 respectively. Later on it was found that one item 50 was misread as 15. Find corrected mean and S.D.

13. Locate the missing frequency.

Given  $X = 33$

X	:	5	15	25	35	45	55
Y	:	5	10	25	30	-	10

14. The number 3.2, 5.8, 7.9 and 4.5 have

Frequencies  $x$ ,  $(x+2)$ ,  $(x-3)$  and  $(x+6)$

Respectively If mean is 4.867

Find the value of  $x$ .

15. The mean salary of employees of a company was Rs.20,000. The mean yearly salary of male and female employees were Rs.20,800 and Rs.160,800 respectively. Find out the percentages of males and females employed by the company.

### UNIT-III

1. A shooter is known to hit the target in 4 out of 5 shots, where as another shooter is known to hit the target in 3 out of 4 shots. Find the probably If the target being hit all when both of them try.
2. A bag contains 25 balls numbered 1 to 25. One ball is drawn at random. What is the probability that the number of the drawn ball will be multiple of 3 or 5.
3. Probability that a man will alive 25 years hence is 0.3 and the probability that his wife will be alive 25 years hence 0.4. Find the prob. That 25 years hence.
  - (i) Both will be alive
  - (ii) Only the man will be alive
  - (iii) None will be alive
  - (iv) Only the women will be alive
4. The Probability that a contractor will get a ..... is  $\frac{2}{3}$  and the probability that he will not get an electric contract is  $\frac{5}{9}$ . If the probability getting at least one contract is  $\frac{4}{5}$ . What is the Prob. that he will get both the contract.

5. Define the concept of conditional probability and independent event.
6. The following table gives the details of the consumer ..... for new product to be introduced in the market .

		No. of consumers		
		Like	Dislike	Neutral
Male	:	500	250	125
Female:		200	350	75

What is the probability that consumer selected at random from the group will be

- (a) A male who dislike the product.
- (b) One who like the product, given that the person is a fe.....

7. A bag contains four balls. Two balls are drawn at random and are found to be white. What is the Prob. That all the balls are white.
8. Given the following inter.....  $xy=0.8$ ,  $\Sigma xy = 60$ ,  $\Sigma y=2.5$   
 $\Sigma x^2=90$ , where x and y are deviations from the respective means. Find the number of items(n).
9. What are the assumptions of correlation Coeff....
10. What do you mean by probable error? What are the uses of Probable Error ?
11. Explain the difference between Karl Peasons Correlation and rank correlation.
12. What are advantages of spearma.... Yank correlation and Karl Pressurs condit...  
Coeffre....
13. Explain rank correlation ? When is it preferred to Korl's Pearson coetticients of correlations.
14. The coeth.... Of rank correlation between two variables is  $7/11$ . The sum of squares of difference in rank is 60. Find out what is the number of Variables.
15. Explain the concept of regression to analysis. What are its utility in Business

## Short Questions

### UNIT – IV

1. What are the objectives of Time Series analysis ?
2. What are the uses of secular trend ?
3. What are the uses of seasonal vari..... ?
4. What are the uses of Cyclical vaiati.....
5. Distinguish between cyclical and seasonal variation.
6. Discuss the relative merits and demerits of free hand curve method for studying trend.
7. Explain the principles of least square. How is it used in trend fitting . What are the merits and demerits ?
8. What are the advantages and disadvantages of moving average method of trend fitting ?
9. Why are moving average calculated in analyzing a time series.
10. What do you mean seasonal Indices ? What methods are used to determine them ?
11. The quarterly seasonal Indices of freight movements on a railway line are given below.

Quarter :	I	II	III	IV
IS :	70	110	100	120

If the total freight for the first ... of 2008 is 4,50,000 tonnes. Calculate the traffic to be expected in remaining .... (assume that there is no trend).

12. ....nalise the following data with the help of the seasonal data given below :

Month	:	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>
Cash below (000 Rs.)	:	360	400	550	360	350	550
S.I.	:	120	80	110	90	70	100

13. The seasonal Indices of the sale of germents of a particular type in a certain shop are given below :

Quarter	:	I	II	III	IV
S.I.	:	97	85	83	135

It the total sales in the 1<sup>st</sup> Quarter of a year be worth Rs.15,000 and sales are expected to rise by 4% in each quarter, determine how much worth of germents of this type be kept in stock by the slop owner to meet the .... For each of three quarters of the year.

14. The sale of a company rose from Rs.60,000 in the month of August to Rs.69,000 in month of September. The seasonal Indices for these two months are 105 and 140 respectively. The owner of the company was not at all satisfied with the rise of sales in the north of September by Rs.9,000. He expected much more because of the seasonal Indices for that month . What was his estimate of sales for the month of the September.

15. On the basis of quarterly sales( In Rs.Lakh) of a certain commodity for year 2003 -2008 the following calculations were mode :

$Y = 25 + 0.6 t$ , with the origin at 1<sup>st</sup> Quarter of 2003.

Quarter	:	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
S I	:	90	95	110	105

Estimate the quarterly sales for the year 2005.

16. What do you mean by Delphi technique ? What are its advantages and disadvantages ?

17. What do you mean by jury of opinion techniques ? What are its merits and demerits ?

18. What do you understand by “Depersonalization data” ? Explain by means of example.

19. Explain exponential smoothing technique. How to find out forecast errors ... giving suitable examples ?

20. Find NAD, MSE ( $L=0.6$ ) from the following data

$L=0.5$

Year :	1	2	3	4	5	6	7	8	9
Sales :	25	22	23	19	27	27	29	30	35

(000)

Choose which smoothing constant is best and why.

\*\*\*\*\*