III Semester B.Com. Examination, Nov./Dec. 2014
(New Syllabus) (2013-14 and Onwards) (F + R)
COMMERCE
3.6 : Quantitative Analysis For Business Decisions – II

Time : 3 Hours

Max. Marks : 100

Instruction : Answers should be written fully in English or Kannada.

SECTION – A

Answer **any ten** sub-questions. **Each** question carries **two** marks.   (10×2=20)

1. a) Distinguish between correlation and regression.

   b) Mention the uses of correlation.

   c) State the assumptions of Karl Pearson's co-efficient of correlation.

   d) Calculate two regression co-efficients when $r = 0.8$, $\sigma_x = 5$ and $\sigma_y = 7$.

   e) What are the uses of analysis of time series ?

   f) Define time series. What are its components ?

   g) Distinguish between interpolation and extrapolation.

   h) Expand $(y - 1)^5$.

   i) What are the conditions on which Binomial expansion method of interpolation is applied ?

   j) If two regression coefficients are 1.2 and 0.8, find correlation through regression co-efficient.

   k) What is Random sampling ?

   l) Define probability.

P.T.O.

SECTION – B

Answer **any four** of the following. **Each** question carries **eight** marks.   (4×8=32)

2. From the following table find correlation co-efficient between age and percentage of players of students.

Age (in years)	16	17	18	19	20
Percentage of players	70	50	40	30	10

3. Interpolate the production for the year 2005.

Year	1980	1985	1990	1995	2000	2005	2010
Production (in '000 tonnes)	20	22	26	30	35	?	43

4. Fit the straight line trend to the following figures by the method of least squares :

Year	2003	2004	2005	2006	2007	2008
Sales (in '000 tonnes)	50	60	65	63	68	70

5. From a pack of playing cards a card is drawn at random. What is the probability that it is :

   a) Red

   b) Queen

   c) Either queen or Ace

   d) A spade or a king.

6. If the population standard deviation is 150. What should be the sample size to estimate population means with allowable error 10 at (a) 90% confidence level (b) 95% confidence level.

   Note : At 90% value of confidence co-efficient is 1.64 and at 95% value of confidence co-efficient is 1.96.

SECTION – C

Answer **any three** of the following. **Each** question carries **sixteen** marks.   **(3×16=48)**

7. From the following table find the number of students who have obtained less than 55 marks using Newton's method :

Marks	30-40	40-50	50-60	60-70	70-80
No. of Students	31	42	51	35	31

8. The number of units of a product exported during 2005-2012 are given below. Compute the trend values by the method of least squares and prove that $\sum (y - y_c) = 0$.

Year	2005	2006	2007	2008	2009	2010	2011	2012
Exports (₹ in lakhs)	24	26	26	32	38	46	42	46

9. Following are the results of B.Com. examination of a college. Calculate the Karl Pearson's co-efficient of correlation between the age and success of candidates.

Age (in years)	14-15	15-16	16-17	17-18	18-19	19-20	20-21
No. of Candidates appeared	300	100	50	150	400	250	150
No. of Candidates passed	180	65	34	90	250	145	81

10. A survey was conducted to study the relationship between sales (X) and advertisement (Y) and the following results were obtained :

	Sales (₹ in crores)	Advertisement (₹ in lakhs)
Mean	115	120
Standard deviation	10	15
Correlation co-efficient	0.75	

a) Calculate the two regression equations.

b) Find the likely sales when advertisement is ₹ 100 lakhs.

c) Find the likely advertisement when sales is ₹ 150 crores.

ಕನ್ನಡ ಆವೃತ್ತಿ

ವಿಭಾಗ– ಎ

ಯಾವುದಾದರೂ ಹತ್ತು ಉಪಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಉಪಪ್ರಶ್ನೆಗೆ ಎರಡು ಅಂಕಗಳು.   (10×2=20)

1. a) ಸಹಸಂಬಂಧ ಮತ್ತು ಸಹಗುಣಕಗಳ ವ್ಯತ್ಯಾಸಗಳನ್ನು ತಿಳಿಸಿ.

   b) ಸಹಸಂಬಂಧದ ಉಪಯೋಗಗಳನ್ನು ತಿಳಿಸಿ.

   c) ಕಾರ್ಲ್ ಪಿಯರ್‌ಸನ್‌ನ ಸಹಸಂಬಂಧದ ಊಹೆಗಳನ್ನು ತಿಳಿಸಿ.

   d) $r = 0.8$, $\sigma_x = 5$ ಮತ್ತು $\sigma_y = 7$ ಆದಾಗ ಇವುಗಳ 2 ಸಹಸಂಬಂಧ ಸಹಗುಣಕಗಳನ್ನು ಕಂಡು ಹಿಡಿಯಿರಿ.

   e) ಸಮಯದ ಸರಣೆಯ ಉಪಯೋಗಗಳು ಯಾವುವು ?

   f) ಸಮಯದ ಸರಣೆಯನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ. ಇದರ ಅಂಶಗಳು ಯಾವುವು ?

   g) ಇಂಟರ್ ಪೋಲೇಶನ್ ಮತ್ತು ಎಕ್ಸ್ಟ್ರಾಪೋಲೇಶನ್ ಇವುಗಳ ವ್ಯತ್ಯಾಸವನ್ನು ತಿಳಿಸಿ.

   h) ಇದನ್ನು ವಿಸ್ತರಿಸಿ : $(y – 1)^5$

   i) ಯಾವ ಸಂದರ್ಭಗಳಲ್ಲಿ ಬೈನಾಮಿಯಲ್ ವಿಸ್ತರಿಕೆಯನ್ನು ಉಪಯೋಗಿಸುತ್ತೀರಿ ?

   j) ಎರಡು ಹಿಂಚಲನೆಯ ಸಹಗುಣಕ 1.2 ಮತ್ತು 0.8 ಆದಾಗ ಇವುಗಳ ಸಹಾಯದಿಂದ ಸಹಸಂಬಂಧಗಳನ್ನು ಕಂಡು ಹಿಡಿಯಿರಿ.

   k) ರ್ಯಾಂಡಮ್ ಮಾದರಿ ಎಂದರೇನು ?

   l) ಸಂಭವನೀಯತೆ ವ್ಯಾಖ್ಯಾನಿಸಿ.