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Code No. : 10329 E Sub. Code : EMEC 22/  
FCEC 22

B.A. (CBCS) DEGREE EXAMINATION,  
APRIL 2025.

Second Semester

Economics — Core

STATISTICS FOR ECONOMICS – II

(For those who joined in July 2023 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Index numbers can only be used to measure changes in \_\_\_\_\_.  
(a) prices and quantities  
(b) prices and productions  
(c) prices and sales  
(d) quantities and productions

2. Index numbers are \_\_\_\_\_ averages.  
(a) quantity (b) specialised  
(c) general (d) quality
3. A long run tendency of a time series to increase or decrease over a period of time is known as \_\_\_\_\_.  
(a) Secular trend (b) Seasonal Trend  
(c) Cyclical Trend (d) Irregular Trend
4. The period of oscillation for the periodic movements in a time series is greater than one year is called as \_\_\_\_\_.  
(a) Irregular Variation  
(b) Seasonal Variation  
(c) Secular Trend  
(d) Cyclical variation
5. The probability of getting an even number when one dice is thrown is \_\_\_\_\_.  
(a) 0 (b) 1/3  
(c) 1/2 (d) 2/3
6. A bag contains 5 green and 10 white balls. If one ball is drawn from it, what is the chance that the ball is green?  
(a) 1/2 (b) 1/15  
(c) 2/3 (d) 1/3

7. Large sample theory is applicable when \_\_\_\_\_.

- (a)  $N \geq 30$                       (b)  $N \leq 30$   
(c)  $N < 30$                       (d)  $N > 30$

8. Standard error of number of successes is given by

- (a)  $pq/n$                       (b)  $\sqrt{npq}$   
(c)  $npq$                       (d)  $\sqrt{pq/n}$

9. The calculated value of chi-square test is \_\_\_\_\_.

- (a) always positive  
(b) always negative  
(c) either positive or negative  
(d) zero

10. For a two tailed test when n is large, the value of Z at 0.05 level of significance is

- (a) 1.645                      (b) 2.58  
(c) 1.96                      (d) 2.26

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PART B — (5 × 5 = 25 marks)

Answer ALL questions by choosing (a) or (b).

Each answer should not exceed 250 words.

11. (a) From the chain based index numbers given below prepare fixed base index numbers.

Year :	2003	2004	2005	2006	2007
Chain based index :	80	110	120	90	140

Or

(b) Find the cost of living index number for the year 2012 on the base of 2011 on the basis from the following data using family budget method.

Commodity	Price in Rs.		Quantity on Quintals in 2011
	2011	2012	
Rice	7	7.5	6
Wheat	6	6.75	3.5
Flour	5	5	0.5
Oil	30	32	3
Sugar	8	8.5	1

12. (a) List out the factors involved in Cyclical variation.

Or

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[P.T.O.]

- (b) Calculate three yearly moving average of the following data.

Year : 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

Students : 15 18 17 20 23 25 29 33 36 40

13. (a) What is the probability that a leap year consist of 53 Sundays?

Or

- (b) If the mean of a poisson distribution is 4, find Standard Deviation  $\beta_1, \theta_2, \mu_3$ .

14. (a) Differentiate random and non random sampling methods.

Or

- (b) A coin is tossed 144 times and a person gets 80 heads. Can we say that the coin is unbiased one?

15. (a) A random sample ten boys has mean IQ 97.2 and that of Standard Deviation is 13.54. Do these data support the assumption of the population mean IQ of 100.

Or

- (b) Test the equality of standard deviations for the data given below at 5% level of significance,  $n_1 = 10, n_2 = 14, s_1 = 1.5, s_2 = 1.2$ .

PART C — (5 × 8 = 40 marks)

Answer ALL questions by choosing (a) or (b).

Each answer should not exceed 600 words.

16. (a) Construct a Fisher's price index from the following data.

	2002		2003	
	p0	q0	p1	q1
A	10	40	12	45
B	11	50	11	52
C	14	30	17	30
D	8	28	10	29
E	12	15	13	20

Or

- (b) From the following data, Calculate Laspeyre's and Paasche's price index numbers.

Commodity	2006		2007	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

17. (a) Calculate the trend values by the method of least squares from the data given below and estimate the sales for the year 2020.

Year :	2013	2014	2015	2016	2017
Sales (in lakhs. Rs)	70	74	80	86	90

Or

- (b) Fit a trend line by the method of least squares from the data given below.

Year :	2002	2003	2004	2005	2006	2007
Production (in tonnes) :	24	25	29	26	22	24

18. (a) There are three groups of children, each contain 3 girls and 1 boy, 2 girls and 2 boys. and 1 girl and 3 boys respectively, one child is selected at random from each group. Find the chance that the three selected comprise 1 girl and 2 boys.

Or

- (b) The life time of the certain kind of battery has a mean of 300 hours and standard deviation of 35 hours. Assuming that the distribution of life times, which are measured to the nearest hour, is normal, find the percentage of the batteries which have life time of more than 370 hours.

19. (a) Write down the merits and limitations of sampling.

Or

- (b) The mean yields of rice from two places in a district were 210 kg and 220 kg per acre from 100 acres and 150 acres respectively. Can it be regarded that the samples were drawn from the same district which has the Standard Deviation of 11 kg per acre.

20. (a) Two random samples drawn from two normal populations are given below. Test whether the two populations have the same variance.

Sample I : 20 16 26 27 23 22 18 24 25 19 - -

Sample II : 17 23 32 25 22 24 28 6 31 33 20 27

Or

- (b) Out of sample of 120 persons in a village, 76 were given a new drug for preventing influenza and out of them 24 persons were attacked by influenza. Out of those who were not given the new drug, 12 persons were not affected by influenza. Prepare  $2 \times 2$  contingency table showing the actual and expected frequencies. Also use chi square test for finding out whether the new drug is effective or not.