

D 92563

(Pages : 4)

Name.....

Reg. No.....

**THIRD SEMESTER B.Com./B.B.A. DEGREE (SUPPLEMENTARY/  
IMPROVEMENT) EXAMINATION, NOVEMBER 2015**

(UG—CCSS)

Common Course

A 13—BASIC NUMERICAL SKILLS

Time : Three Hours

Maximum : 30 Weightage

*Use of Scientific / Basic Calculators and Mathematical / Statistical tables are permitted.*

**Part A**

*This part consist of **three** bunches of questions carrying equal weightage.*

*Each bunch has **four** questions.*

*Answer all **twelve** questions.*

A. Fill in the blanks :

- 1 A quadratic equation has \_\_\_\_\_ number of solution.
- 2 A square matrix with all its elements except leading diagonal are one are called \_\_\_\_\_ matrix.
- 3 In De Morgan's law  $(A \cup B)^c =$  \_\_\_\_\_.
- 4 Pie diagrams are \_\_\_\_\_ dimensional diagrams.

B. Choose the correct answer from the bracket :

- 5 If  $A = \{ 1, 2, 3 \}$ , then how many subsets does the set A have ?  
(a) 3. (b) 6.  
(c) 7. (d) 8.
- 6 The fourth term of the geometric progression whose first term is 2 and common ratio 3 is \_\_\_\_\_.  
(a) 6. (b) 18.  
(c) 54. ✓ (d) 162.
- 7 Ogives for more than type and less than type distribution intersect at :  
(a) Mean. (b) Median.  
(c) Mode. (d) Origin.
- 8 Class intervals of the type 30-39,40-49,50-59 represents :  
(a) Inclusive type. (b) Exclusive type.  
(c) Open-end type. (d) None.

**Turn over**

C. Answer in *one word* :

- 9 If  $A = \{ a, e, i, o, u \}$  and  $B = \{ a, b, c, d, e, f \}$ . Then  $A-B =$
- 10 The value of the determinant  $\begin{vmatrix} 2 & -4 \\ 1 & 8 \end{vmatrix}$  is \_\_\_\_\_.
- 11 You have \$1,000 and want it to grow to \$2,000 in 4 years, what compound interest rate do you need ?
- 12 What is an index number ?

( $12 \times \frac{1}{4} = 3$  weightage)

### Part B

Answer all **nine** questions.

Each question carries a weightage of 1.

- 13 If  $A = \begin{bmatrix} 2 & 1 \\ -5 & 3 \end{bmatrix}$  and  $B = \begin{bmatrix} -2 & 4 \\ 3 & -2 \end{bmatrix}$ , then what is  $3A + B^T$  ?
- 14 Compute quartiles for the data given below :  
25, 18, 30, 8, 15, 5, 10, 35, 40, 45.
- 15 Solve  $x^2 - 4x - 8 = 0$ .
- 16 The third term of an arithmetic progression is 43 and common difference is 12. Then find its first term.
- 17 What are the points that are to be considered in the use of secondary data ?
- 18 In a survey, it was found that 24 families bought milk (in litres) in the following quantities in a particular month. Construct a continuous frequency distribution making classes of 5—9, 10—14 and so on.

19	16	22	9	22	12	39	19
10	7	18	28	24	20	14	23
14	23	6	24	16	18	7	17

- 19 If the arithmetic mean of two observations is 25 and their harmonic mean is 9, find their geometric mean.
- 20 Discuss the importance of statistics in business and commerce.
- 21 Give the names of different methods of measuring trend.

( $9 \times 1 = 9$  weightage)

## Part C

*Short essay or paragraph.*

*Answer any five questions from seven.  
Each question carries a weightage of 2.*

- 22 Find the values of  $x, y, z$  and  $a$  which satisfy the matrix equation

$$\begin{bmatrix} x+3 & 2y \\ z-1 & 4a-6 \end{bmatrix} = \begin{bmatrix} 0 & -7 \\ 3 & 2a \end{bmatrix}$$

- 23 If 6 arithmetic means are inserted between 1 and  $9/2$ , find the 4<sup>th</sup> arithmetic mean.  
 24 Define median. Discuss its advantages and disadvantages as an average.  
 25 A certain store's profits were Rs. 50,000 ; Rs. 1,00,000 and Rs. 8,00,000 in 2002, 2003 and 2005 respectively. Determine the average rate of growth of the store's profit.  
 26 Draw a frequency polygon for the following data :

Monthly Wages (in Rs.)	No. of family
0—1000	21
1000—2000	35
2000—3000	56
3000—4000	74
4000—5000	63
5000—6000	40
6000—7000	29
7000—8000	14

- 27 What purpose does cost of living index number serve ? Explain.  
 28 Find three yearly moving average from the following time series data :
- |          |      |      |      |      |      |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|------|------|------|------|------|
| Year ..  | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Value .. | 20   | 22   | 23   | 21   | 19   | 20   | 23   | 24   | 25   | 28   | 22   |
- (5 × 2 = 10 weightage)

## Part D

*Essay questions.*

*Answer any two questions from three.  
Each question carries a weightage of 4.*

- 29 What is a time series ? What are the objectives of time series analysis ? Also explain the various components of a time series.

Turn over

- 30 Share price of two companies A Ltd. and B Ltd. were recorded as follows :

A Ltd.	12	13	15	14	14	14	13	17
B Ltd.	113	114	113	115	117	114	112	114

Which company's share price is more variable ?

- 31 An enquiry into the budgets of the middle class families in a certain city in India are as follows :

Item	Food	Fuel	Garments	Rent	Miscellaneous
Expenditure	35%	15%	20%	10%	20%
Price in 2004	140	60	110	60	90
Price in 2010	170	90	130	80	110

What change in the cost of living of 2010 has taken place as compared to 2004 ?

(2 × 4 = 8 weightage)