



M 8800

Reg. No. :

Name :

III Semester B.Com./B.B.A./B.B.A. (T) Degree Examination, November 2010
BCOM/BBA/BBA(T) (Common)
3A12 COM/BBA/BBA(T) : Numerical Skills
(Course No. 3)

Time : 3 Hours

Total Weightage : 30

PART – A

This part consist of **two** bunches of questions carrying **equal** Weightage **1**. **Each** bunch consist of **4** objective questions. Answer **all** questions.

I. 1) If $5 + K$, 16 , $3K - 2$ are in continued proportion the value of K is

- a) 0 b) 4
c) 11.8 d) 7.5

2) The value of $32^{-\frac{1}{5}} - 27^{-\frac{1}{3}}$ is

- a) 0 b) -1
c) 3 d) $\frac{1}{6}$

3) If $N = ab$, then $\frac{1}{\log_a N} + \frac{1}{\log_b N} =$

- a) 1 b) not defined
c) b d) a

4) The compound proposition $p \rightarrow q$ is logically equivalent to

- a) $\sim p \wedge q$ b) $p \wedge q$
c) $\sim p \vee q$ d) $\sim p \vee \sim q$

(WGP = $4 \times 1 \times 1 = 4$)

P.T.O.



II. 5) $n(A \cup B) = n(A) + n(B)$ _____

- | | |
|------------------|---------------|
| a) $n(A - B)$ | b) $n(A^c)$ |
| c) $n(A \cap B)$ | d) $n(B - A)$ |
- 6) Three persons go into a railway station where there are 8 seats. The number of ways they can seat themselves is
- | | |
|------------|---------|
| a) $8 C_3$ | b) $3!$ |
| c) $8 P_3$ | d) $8!$ |
- 7) If $(-3, 4)$ is the centroid of a triangle whose vertices are $(6, 2)$, $(x, 3)$, $(0, y)$ then (x, y) is
- | | |
|---------------|--------------|
| a) $(-3, 7)$ | b) $(-1, 9)$ |
| c) $(-9, -1)$ | d) $(1, -9)$ |
- 8) The slope of the line $y = -3x + 6$ is
- | | |
|------|------------------|
| a) 3 | b) $\frac{1}{3}$ |
| c) 6 | d) -3 |

(WGP = $4 \times 1 \times 1 = 4$)

PART - B

Answer **any eight** questions in **one or two** sentences **each**. Each question carries a Weightage of **one**.

- 9) Find the amount and the compound interest on Rs. 5,000 in 3 years at 8% per annum, compounded half yearly.
- 10) Find the ratio $x : y$ from $\frac{3x - 5y}{3x + y} = \frac{1}{9}$.
- 11) Prove that $\sqrt{2}$ is irrational.
- 12) Using truth table, show that $p \leftrightarrow q$ and $(p \rightarrow q) \wedge (q \rightarrow p)$ are logically equivalent.
- 13) In a class of 25 students, 12 students have taken economics, 8 have taken economics but not politics. Find the number of students who have taken economics and politics and those who have taken politics but not economics.
- 14) Solve the quadratic equation $2x^2 - 10x + 5 = 0$.



- 15) Find the number of permutations of the letters in the word ENGINEERING.
- 16) Find the equation of a straight line through (4, - 2) and at a perpendicular distance of 2 units from the oxygen.
- 17) Find the Co-ordinates of the centre and radius of the circle given by $4x^2 + 4y^2 + 16x - 24y + 3 = 0$.

18) Show that $\frac{\log_3^8}{\log_9^{16} \log_4^{10}} = 3 \log_{10}^2$. (WGP = 8×4×1=32)

PART - C

Answer **any six** questions. **Each** question carries a Weightage of **two**.

- 19) What is the present value of Rs. 10,000 due in 2 years at 8% per annum, compound interest according as the interest is paid
a) yearly or b) half yearly
- 20) Solve the equation :
 $9x + 3y - 4z = 35$
 $x + y - z = 4$
 $2x - 5y - 4z = - 48$
- 21) Find the equation of circle which passes through the point (4, 1) and (6, 5) and has its centre on line $4x + y = 16$.
- 22) A machine costs the company Rs. 97,000 and its effective life is estimated to be 12 years. If the scrap realises Rs. 2,000 only, what amount should be retained out of profits at the end of each year to accumulate, at compound interest at 5% per annum.
- 23) For an examination, a candidate has to select 7 subjects from 3 different groups A, B and C. The three groups A, B and C contain 4, 5, 6 subjects respectively. In how many different ways can a candidate make his selection, if he has to select at least 2 subjects from each group.
- 24) Solve: $\frac{9x-2}{3} + \frac{4x^2-7}{4x^2+3} = \frac{6x-1}{2}$.



25) If $\frac{3a-5b}{6b-a} = \frac{4}{3}$. Find the ratio of $a^2 + ab + b^2$ to $a^2 - b^2$.

- 26) Prove that the quadrilateral with vertices $(2, -1)$, $(3, 4)$, $(-2, 3)$ and $(-3, -2)$ is a rhombus. (WGP = $6 \times 4 \times 2 = 48$)

PART - D

Answer any two. Each question carries a Weightage of 4.

- 27) Out of 880 boys in a school, 224 played cricket, 240 played hockey and 336 played basket ball of total 64 played both basket ball and hockey. 24 boys played all the three games. How many boys did not play any game, and how many played only one game?
- 28) Find the ratios in which the axes divide the line joining the points $(2, 5)$ and $(1, 9)$. Also find the co-ordinates of points in which the co-ordinate axes intersect this line.
- 29) a) Find the number of years and the fraction of a year in which a sum of money will triple itself at compound interest at 8 percent per annum.
b) In what time will a sum of Rs. 1,234 amount to Rs. 5,678 at 8% per annum compound interest payable quarterly? (WGP = $2 \times 4 \times 4 = 32$)