



M 5176

Reg. No. :

Name :

III Semester B.A./B.Sc./B.Com./B.B.A./B.B.A.T.T.M./B.B.M./B.C.A./B.S.W./
B.A. Afsal-UI-Ulama Degree (CCSS – Regular/Supple./Improvement)
Examination, November 2013
(2012 Admn.)

General course for B.COM./B.B.A./B.B.A.T.T.M.
3A12 COM/BBA/BBA(T) : NUMERICAL SKILLS

Time : 3 Hours

Max. Weightage : 30

SECTION – A

This Part consist of **two** bunches of questions, carrying **equal** weightage of **one**.
Each bunch consist of **four** objective questions. Answer **all** questions.

I. 1) The solution of the equation $4 = \frac{2}{3} X$ is _____
[a] 6 b) 12 c) 8 d) 16]

2) If $\sqrt{2^{x+3}} = 16$, then x is _____
[a] 5 b) 4 c) 8 d) 6]

3) _____ satisfies the equation $x + y + 1 = 0$.
[a] $(x = 0, y = 0)$ b) $(x = 1, y = -2)$
c) $(x = 0, y = 1)$ d) $(x = -2, y = 2)$

4) The value of the determinant $\begin{vmatrix} a & h \\ c & d \end{vmatrix}$ is _____
[a] $ad - bc$ b) $ab - cd$ c) $bd - ac$ d) $bc - ad$] (W = 1)

II. 5) Set of positive integers is _____
[a] infinite b) finite c) either d) neither]

6) If $A \cap B$ is A then _____
[a] $A \subset B$ b) $B \subset A$ c) $A = \phi$ d) $B = \phi$]

P.T.O.



7) If $A = \{1, 2, 3\}$ and B is $\{1, 2, 3\}$, then $A \cup B$ is _____

[a) $\{1, 2, 3\}$

b) $\{1, 2, 3, 1, 2, 3\}$

c) 0

d) ϕ

8) _____ is one of the solutions to the equation $3x^2 - 4x + 1 = 0$.

[a) $X = -1$

b) $X = 1$

c) $X = 2$

d) $X = 0$

(W=1)

SECTION - B

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

9. Calculate the compound interest accrued on Rs. 6,000 in 3 years, compounded yearly, if the rates for the successive years are 5%, 8% and 10% respectively.
10. If $a : b = 5 : 3$, find $\frac{5a - 3b}{5a + 3b}$.
11. Two numbers are in the ratio of 2 : 3. If 5 is added to each number, the ratio becomes 5 : 7. Find the numbers.
12. In mixing tea one kg in every 100 kg is wasted. In what proportion must a dealer mix teas which cost him Rs. 50 and Rs. 40 per kg. respectively so as to gain 25% on cost, by selling the mixture at Rs. 54.30 ps.
13. Find the number of years an amount of Rs. 8,000 will take to become Rs. 12,000, at 6% p.a. simple interest.
14. A machine costs Rs. 10,000. Calculate its scrap value at the end of 10 years, depreciation on the reducing instalment system being charged at 10% p.a.
15. The initial investment in a project is Rs. 1,00,000. At the end of first year Rs. 50,000 and at the end of second year again Rs. 50,000 are invested for the growth of the project. If the rate of return is expected to be 15% what is the total present value of investment in the project ?
16. Using the following sets, verify that $A \cup (B \cap C) = (A \cup B) \cap C$.
 $A = \{1, 2, 3\}$, $B = \{2, 4, 6\}$, $C = \{3, 4, 5\}$.
17. Represent the following using Venn diagram :
 $A \cup (B \cap C)$.
18. Solve $x^2 - 6x + 8 = 0$.

(Wt. = 8×1=8)



SECTION – C

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

19. If $x = 2 - \sqrt{3}$, show that $x^2 - 4x + 1 = 0$.

20. Solve $9x + 3y - 4z = 35$
 $x + y - z = 4$
 $2x - 5y - 4z + 48 = 0$.

21. Solve $2x^2 + 8x + 8 = 0$.

22. Show that $\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$.

23. If $A = [8 - 3]$ and $B = [4 - 5]$ find
i) $A + B$ ii) $B - A$.

24. $A = \begin{bmatrix} 2 & 2 & 2 \\ 1 & 1 & -3 \\ 1 & 0 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 3 & 3 & 3 \\ 3 & 0 & 5 \\ 6 & 9 & -1 \end{bmatrix}$, $C = \begin{bmatrix} 4 & 4 & 4 \\ 5 & -1 & 0 \\ 2 & 3 & 1 \end{bmatrix}$, Find $A + B - C$.

25. If $A = \begin{bmatrix} 1 & 1 & 1 \\ 2 & 0 & 3 \\ 3 & -1 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 \\ 0 & 2 \\ -1 & 4 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & 2 & 3 & -4 \\ 2 & 0 & -2 & 1 \end{bmatrix}$.

find $A(BC)$, $(AB)C$ and show that $A(BC) = (AB)C$.

26. Show that

1) $\begin{vmatrix} 5 & 7 & 2 \\ 2 & 3 & 1 \\ 4 & 6 & 2 \end{vmatrix} = 0$

2) $\begin{vmatrix} 3 & 4 & 2 \\ 0 & 1 & -3 \\ 2 & -2 & 8 \end{vmatrix} < 0$

3) $\begin{vmatrix} 3 & 8 & 2 \\ 2 & 1 & 0 \\ 1 & 3 & 2 \end{vmatrix} > 0$

(Wt. $6 \times 2 = 12$)



SECTION - D

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

27. Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 3 & 6 & 9 \\ 2 & 4 & 6 \end{bmatrix}$.

28. Find the rank of $\begin{bmatrix} 5 & 2 & 1 \\ 0 & 1 & 3 \\ 2 & 1 & 0 \end{bmatrix}$.

29. Simplify $\frac{2}{\sqrt{3}-1} + \frac{1}{\sqrt{5}-2} + \frac{2}{\sqrt{3}-\sqrt{5}}$.

(Wt. 2×4=8)
