M 11152

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. Degree (CCSS – Reg./Supple.) Examination, November 2011

GENERAL COURSE

3A 12 COM/BBA/BBA(T) : Numerical Skills

Time: 3 Hours Max. Weightage : 30

PART – 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) Which one of the following is an incommensurable quantity ?

a) $\sqrt{3}:1$ b) 3 : 1

c) 1 : 3 d) – 1 : 3

2) The value of i^{30} is _____

a) 1 b) –1

c) i d) – i

3) Log_2 64 is _____

a) 8 b) 6 c) 3 d) 4

4) Which of the following points are collinear ?

a) (1, 3), (2, 6), (3, 9) b) (1, 3), (2, 6), (3, 10)

c) (1, 3), (2, 6), (3, 11) d) (1, 3), (2, 6), (3, –9)

II. 5) The proposition $P \wedge \lceil P$ is always

a) Tautology

b) Contradiction

c) Logically equivalent to $P \wedge \lceil P$

d) None of these

P.T.O.

6) The mean proportional between 4 and 9 is

a) ± 6 b) ± 8

c) ± 36 d) 36

7) The root of the equation $x^3 - 3x^2 + 3x - 1 = 0$ is

a) 3 b) 2

c) – 1 d) + 1

8) Which one of the following point lies on circle $x^2 + y^2 = 25$?

a) (5, –5) b) (0, 0)

c) (4, 6) d) (– 4, – 6) **(Wt. 2×1=2)**

PART – B

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

9. A bank promises to repay after 7 years double the amount deposited in a certain amount with interest compounded annually. What is the rate of interest allowed ?

10. Find the value of $\frac{3a+5b}{3a+2b}$ if $a:b=3:2$.

11. A man wishes to create an endowement fund to provide an annual price of Rs. 500. If the fund is invested at 10% p.a. compound interest, find the amount of this fund.

12. Divide $\sqrt{98} - \sqrt{50}$ by $\sqrt{12}$.

13. Find the equation of straight line through (2, 5) and making equal intercepts of opposite signs on the axis.

14. Find log 1728 to base $2\sqrt{3}$.

15. Solve $\frac{x}{b}+\frac{b}{x}=\frac{a}{b}+\frac{b}{a}$.

16. Indicate how many four digit numbers greater than 7000 can be formed from the digits 3, 5, 7, 8, 9.

17. If A = {1, 2, 3, 4, 5} B = {5, 4, 2, –1} find (i) $A \cup B$ (ii) $A \cap B$ (iii) A – B (iv) B – A

18. Prove that the lines $3x - 4y + 5 = 0$

$7x - 8y + 5 = 0$

$4x + 5y = 45$ are concurrent. **(Wt. 8×1=8)**

PART – C

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

19. Show that $\frac{\log_3^8}{\log_9^{16} \log_4^{10}} = 3$.

20. In how many ways can 5 Telugu, 3 English and 3 Tamil books be arranged if the books of each different language are kept together.

21. A man borrows Rs. 750 from a money lender and the bill is renewed every half year at a increase of 21%. What time will elapse before it reaches 7,500 (you may use $\log_{10}^{121} = 2.0828$)

22. Find the ratio in which axes divide the line joining points (2, 5) and (1, 9). Also find the co-ordinates of points in which the co-ordinate axes intersect the line.

23. Determine the co-ordinates of vertices of Δ ABC if the middle points of its sides BC, CA, AB have co-ordinates. (3, 2), (–1, –2) and (5, –4) respectively.

24. A man borrows Rs. 20,000 at 4% compound interest and agrees to pay both principal and the interest in ten equal annual instalments of the end of each year, find the amount of these instalments.

25. Find the value of n if four times the number of permutations of n things taken 3 together is equal to 5 times the number of permutations of (n – 1) things taken 3 together.

26. Find the equation of straight line passing through the point (4, 5) and the sum of its intercepts on the axes is 18. **(Wt. 6×2=12)**

PART – D

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

27. Find the co-ordinates of circumcentre of triangle whose co-ordinates are (3, –2), (4, 3) and (–6, 5).

28. A certain sum grows at r% compound interest to twice its original value in m years and to thrice its original value in 'n' years. Show that $n = m\log_2^3$.

29. Find the square root of $5 - \sqrt{10} - \sqrt{15} + \sqrt{6}$. **(Wt. 2×4=8)**