Reg. No.....

FOURTH SEMESTER B.A. DEGREE EXAMINATION, APRIL/MAY 2015

(U.G.–CCSS)

Core Course—Economics

EC 4B 05—QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS-II

(2013 Admissions)

Time : Three Hours Maximum : 30 Weightage

I. Objective type questions, Answer all *twelve* questions :

1 If a, *b, c* are in arithmetic progression then $b - a$ = _____

2 $\log_{10} 1000$ = _____

3 $16^{\frac{3}{4}}$ = _____

4 If A is any set, then A n (I) = _____

5 If $f(x)$ is an even function, then $f(-x)$

6 y = 3x + 5 is a straight line. State True *or* False.

7 If $\frac{x}{3} + \frac{x}{2} = 5$, then x = _____

8 Matrix addition is commutative. State True *or* False.

9 If A is a symmetric matrix then AT = _____

10 If $\begin{vmatrix} 1 & -3 \\ 3 & \end{vmatrix} = 0$, then x = _____

11 f $x^2 - 4$ $x - 2$ is not continuous at x _____

12 $\frac{d^3}{dx} e^{-}$ – _____

(12 x ¼ = 3 weightage

II. Short answer type questions. Answer all *nine* questions

13 Distinguish between finite and infinite sets.

14 Define disjoint sets.

15 If A = {1, 2} and B = {a}, find A x B.

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16 What do you mean by a linear equation Give one example.

17 Define the terms domain and range.

18 Give one example for upper triangular matrix.

19 Find all cofactors of $\begin{vmatrix} 3 & 7 \\ 1 & 2 \end{vmatrix}$

20 Define convexity of a function.

21 If y = x log x, find the value of $\frac{dy}{dx}$.

(9 x 1 = 9 weightage

III. Short essay or paragraph questions. Answer any *five* questions :

22 If A = {0, 1, 2, 5, 7}, B = {1, 2, 3}, C = {5, 7, 8}, find $A \cup B \cup C$ and $A \cap B \cap C$.

23 Solve the equation x (x − 3) = 2 (10 − x).

24 If the third and seventh terms of a geometric progression are 2 and 1/8 respectively find i tenth term.

25 Draw the graph of $y = x^2$.

26 If A = $\begin{bmatrix} 1 & 0 \\ 2 & 3 \end{bmatrix}$, find the value of A^2.

27 Find the inverse of the matrix $\begin{vmatrix} 1 & 2 & 3 \\ 1 & 3 & 3 \\ 2 & 4 & 3 \end{vmatrix}$

28 Solve the equation x − 2y = 16 and 3x + y = —1 by using Cramer's rule.

(5 x 2 = 10 weig

IV. Essay questions. Answer any *two* questions :

29 If $\begin{vmatrix} x^3+1 & x^2 & x \\ y^3+1 & y^2 & y \\ z^3+1 & z^2 & z \end{vmatrix} = 0$ with $x \neq y \neq z$, then show that $xyz = 1$.

30 If $z = \log \sqrt{x^2 + y^2}$, prove that $\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial y^2} = 0$.

31 If $x^y = y^x$ show that $\frac{dy}{dx} = \frac{y\,(y - x \log y)}{x\,(x - y \log x)}$

(2 x 4 = 8 weightage