(Please write your Exam. Roll No.) Exam. Roll No. .....

END TERM EXAMINATION

FIRST SEMESTER [BBA/BBA(TTM)], DECEMBER - 2010

Paper Code : BBA/BBA(TTM) - 105 *Subject : Business Mathematics*

Paper ID : 17105/50105

Time : 3 Hours *Maximum Marks : 75*

Note : Attempt altogether Five questions. Q. No. 1 is compulsory.

Q. 1. Solve the following/Define :

(a) For 100, 95, 90, 85 ..... find S_{31}

(b) Inventory flow analysis.

(c) Langrangian multipliers.

(d) Consumer and Producer surplus.

(e) Find the number of permuation of word HREETI. **(3×5=15)**

Q. 2. Prove that :

(a) ${}^{n}C_{r} = {}^{n}C_{n-r}$

(b) ${}^{n}P_{r} = Lr \times {}^{n}C_{r}$ **(15)**

Q. 3. **(a)** Find the inverse of

$$A = \begin{bmatrix} 7 & -3 & 2 \\ 0 & 1 & 0 \\ 5 & 1 & 1{\cdot}5 \end{bmatrix}$$

(b) Given the matrix

$$A = \begin{bmatrix} 7 & 5 & 9 \\ 3 & 8 & 4 \\ 6 & 2 & 1 \end{bmatrix}$$

Find the minor a_{32} and a_{22} **(10+5=15)**

Q. 4. Do the following functions have point of inflection?

(i) $f(x) = 0{\cdot}25x^4 - 5x^3 + 37{\cdot}5x^2 - 10x + 50$

P.T.O.

(ii) $f(x) = 0{\cdot}5x^4 - 3x^3 + 30x^2 + 5x + 20$

(iii) $f(x) = 3x^5 - 100x^4 + 1000x^2$ **(5×3=15)**

Q. 5. Given cost function $C = 4x + 450$

revenue function $\pi = 46x - 0{\cdot}1x^2 - 450$

Find :

(a) MR

(b) MC

(c) AC **(5×3=15)**

Q. 6. Find the following :

(i) $\int \frac{2x+7}{(x^2+7x-8)^5}\,dx$

(ii) $\int \frac{6x^2+4x+2}{(x^3+x^2+x+1)^3}\,dx$ **(7·5×2=15)**

Q. 7. If $MC = 20 + \frac{x}{30}$ MR = 35, the fixed cost is 2500.

Determine the maximum profit and profit maximizing level output. **(15)**

Q. 8. Write short notes on any THREE :

(a) Hawkins - Simon condition

(b) Lagrangian multipliers

(c) Variance analysis

(d) Consumer surplus

(e) Series vs Sequence **(5×3=15)**

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