

City College  
Internal Assessment

Sem-3 ; General ; Mathematics

F.M-10 ; Time - 30 mins.

Answer all the questions.

Choose the correct alternative for each question.

$2 \times 5 = 10$

The value of  $\int_0^{\infty} e^{-x} x^{3/2} dx$  is

- a)  $\sqrt{\pi}$     b)  $\frac{3}{4} \sqrt{\pi}$     c)  $\frac{\sqrt{\pi}}{2}$     d) 1.

using beta and gamma function, the value of

$\int_0^1 x(1-x)^{99} dx$ , is

- a)  $\frac{1}{10100}$     b)  $\frac{1}{10200}$     c)  $\frac{1}{10101}$     d)  $\frac{1}{10000}$

The value of the integral  $\int_0^{\pi/4} \tan^4 x dx$  is

- a)  $\frac{\pi}{4} - \frac{1}{3}$     b)  $\frac{2}{3} - \frac{\pi}{4}$     c) 0    d)  $\frac{\pi}{4} - \frac{2}{3}$ .

4. If  $(1, 1, 1) = c_1(1, 2, 3) + c_2(4, 2, 1) + c_3(2, 4, 2)$  then which one of the following is true.

- i)  $c_2 - c_3 = c_1$     ii)  $c_3 = c_1 \times c_2$     iii)  $c_3 = c_1 + c_2$   
iv)  $c_2 = c_1 \times c_3$ .

5. The cost of an initial basic feasible solution by N-W corner method to the following transportation problem is,

|                | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> |    |
|----------------|----------------|----------------|----------------|----------------|----|
| O <sub>1</sub> | 7              | 10             | 14             | 8              | 30 |
| O <sub>2</sub> | 7              | 11             | 12             | 6              | 40 |
| O <sub>3</sub> | 5              | 8              | 15             | 9              | 30 |
|                | 20             | 20             | 25             | 35             |    |

- a) 850    b) 950    c) 750    d) 650.