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BBA/M-22 **24505**

BUSINESS MATHEMATICS-II

Paper–BBA-112

Time Allowed : 3 Hours] [Maximum Marks : 80

Note : Attempt **five** questions in all. Question No. **8** is compulsory.

1. (a) Find the co-ordinates of the incenter of a triangle whose vertices are (–3, –1), (–1, 3) and (6, 2). 8

   (b) Find the equation of the line such that it is perpendicular to $4x - 3y + 7 = 0$ and passes through (4, 5). 8

2. (a) Solve the equation :

   $1 + 6 + 11 + 16 + \ldots\ldots + x = 148.$ 8

   (b) If A and G. be A.M and G.M on between two positive numbers then prove that A > G. 8

3. (a) Evaluate : $\int \frac{e^x}{1+e^x} dx.$ 8

   (b) Evaluate : $\int \frac{2x}{x^4 + 7x^2 + 12} dx.$ 8

4. (a) Evaluate : $\int \frac{x^2}{\sqrt{x^6 + 4}} dx.$ 8

(b) Evaluate : $\int_0^1 xe^{2x}\,dx$. 8

5. (a) The demand function for a commodity is $p = e^{-x}$. Find the consumer's surplus when $p = 0.5$. 8

(b) Evaluate : $\left[\frac{(45.4)^2}{(3.2)^2 \times (6.5)^3}\right]^{1/3}$. 8

6. (a) Find the compound interest on the sum of Rs. 7,865 for 8 years at 3½% p.a. 8

(b) Find n such that $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ may be the G.M between a and b. 8

7. (a) Sum the series : 8

$7 + 7.7 + 7.77 + 7.777 + \ldots\ldots\ldots$ upto n terms.

(b) Find the acute angle between the lines $x + y + 1 = 0$ and $\sqrt{3}x + y - 3 = 0$. 8

(Compulsory Question)

8. (a) Find the value of k for which the points (k, –1), (2, 1) and (4, 5) are collinear? 3

(b) Evaluate : $\int\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 dx$. 3

(c) Find the sum of 17 terms of the sequence 5, 9, 13, 17, ... 3

(d) Solve for x, $\log_{27} x = \frac{4}{3}$. 3

(e) If slope of line joining (–8, 11) and (2, y) is $\frac{-4}{3}$. Find y. 3

(f) Define A.P. 1