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(201217) Roll No. .....

B.B.A.-I Sem.

18037

B. B. A. Examination, Dec. 2017

BUSINESS MATHEMATICS

(BBA-102)

(New)

Time : Three Hours] *[Maximum Marks : 75*

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required. 3×5=15

1. Explain square matrix.

2. What is diagonal matrix ?

3. Explain inverse of matrix.

4. Find the simple interest on Rs. 8,000 for 6 years at an annual rate of 5%.

5. Find the value of ${}^{50}C_{47}$.

Section-B

(Short Answer Questions)

Attempt any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required. 7½×2=15

6. Find the rank of matrix :

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 1 & 2 \\ 2 & 3 & 1 \end{bmatrix}$$

7. A cricket club has 18 members among whom are 1 wicket-keeper, 5 are bowlers and rest are batsman. In how many ways can a team of 14 players be selected out of them so that it may have 1 wicket-keeper and at least three bowlers ?

8. Integrate :

$$\int \left[\frac{1}{\log x} - \frac{1}{(\log x)^2} \right] dx.$$

Section-C

(Detailed Answer Questions)

Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. 15×3=45

9. If $y=x^3-x^2-16x+16$, then find the maxima and minima of the function y.

10. If $A=\begin{bmatrix}1 & 2\\ 3 & 4\end{bmatrix}$, $B=\begin{bmatrix}3 & 1\\ 4 & 5\end{bmatrix}$ and $C=\begin{bmatrix}1 & 1\\ 2 & 2\end{bmatrix}$, prove that $A(B+C)=AB+AC$.

11. (a) If $A=\{1,2,3,4\}$, $B=\{2,3,4,5\}$ and $C=\{3,4,5,6\}$, then prove that :

$$A\cap(B\cap C)=(A\cap B)\cap C$$

and $A\cup(B\cup C)=(A\cup B)\cup C$.

(b) If $y=\dfrac{x-4}{2\sqrt{x}}$, then find $\dfrac{dy}{dx}$ at $x=4$.

12. (a) A person decides to save Rs. 400 in January, Rs. 800 in February, Rs. 1,600 in March, Rs.3,200 in April up to the end of the year. What will be his total savings during whole year ?

(b) If 7th term of a H.P. is 1/10 and 12th term is 1/25, find the 20th term.

13. (a) 85 kg. of a mixture contains milk and water in the ratio of 27:7. How much more water is to be added to get a new mixture containing milk and water in the ratio of 3:1 ?

(b) At what rate percent per annum will be Rs. 1,200 amount to Rs. 1,350 in 3 years, interest being calculated yearly ?

(c) The population of a town is 1,80,000. If it increases @ 6% per annum, what will be its population after two years ?