

UTTARAKHAND OPEN UNIVERSITY, HALDWANI (NAINITAL)



उत्तराखंड मुक्त विश्वविद्यालय हल्द्वानी (नैनीताल)

Programme Name- BBA-First Semester

Programme Code- BBA-17

Course Name- Business Mathematics

Course Code- BBA-102 Maximum Marks-20

Session - 2017-18, Summer Last Date of Submission: 31st October 2017

Session - 2017-18, Winter Last Date of Submission: 30th April 2018

Section-A

Section 'A' contains 08 short answer type questions of 2.5 marks each. Learners are required to answer 4 questions only. Answers of short answer-type questions must be restricted to 250 words approximately.

Discuss the following (1-8) –

1. Explain the importance of Venn diagrams.
2. If $A=\{1,4\}$, $B=\{4,5\}$, $C=\{5,7\}$
Find (i) $(A \times B) \cup (A \times C)$ (ii) $(A \times B) \cap (A \times C)$
3. If $a^2+b^2=7ab$, then prove that $\log\left(\frac{a+b}{3}\right) = \frac{1}{2}(\log a + \log b)$
4. Write a note on application of differentiation in business?
5. What is meant by permutation?
6. If the first term of Arithmetic Progression is 18 and last term is 100. Find the sum of 20 terms?
7. Find the inverse of the matrix $\begin{pmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{pmatrix}$
8. Evaluate $\int \frac{x+5}{(x+1)(x+2)^2} dx$

Section-B

Section 'B' contains 04 long answer-type questions of 05 marks each. Learners are required to answer 02 questions only.

1. a) What are sets?

b) If $A = \{a, b, c\}$ and $B = \{c, d, e\}$, then calculate $A \cup B$ and $B \cup A$. Are they equal? Also answer the same using Venn diagram.

2. What do you mean by Matrices? Also, explain the various types of matrices. Find matrices A and B such that A and B are both non-zero matrices but the product AB is a zero matrix.

3. a. Explain the various properties of logarithms.

b. Solve the following-

$$\frac{(7.6)^{\frac{2}{3}}(0.0)^{1/2}}{(0.2)(0.9)^1}$$

It is given that $\log 762 = 2.8820$, $\log 236 = 2.3729$, $\log 953 = 2.9791$, $\log 347 = 2.5403$

4. If $\sqrt{1-x^2} + \sqrt{1-y^2} = a(x-y)$, then prove that –

$$\frac{d}{d} = \frac{\sqrt{1-y^2}}{\sqrt{1-x^2}}$$