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## C.U.SHAH UNIVERSITY

## Summer Examination-2017

## Subject Name: Business Mathematics

Subject Code: 4MS01BMM1

## Branch: BBA

Time: 10:30 To 13:30
Marks: 70

Instructions:
(1) Use of Programmable calculator \& any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Attempt the following questions:
a) Give the formula for $\mathrm{n}^{\text {th }}$ term in Arithmetic Progression
b) Give the formula for sum of first n terms of a Geometric Progression. 01
c) What is ${ }_{\mathrm{n}} \mathrm{P}_{\mathrm{n}}$ ?

01
d) Find the value of $(31)^{3} \quad 01$
e) Evaluate $(21)^{5} \quad 01$
f) Find the value of $(41)^{5} 01$
g) $F(x)=x^{2}-x$. Find $f(x+1)-f(x)$. 01
h) What is ${ }_{10} \mathrm{P}_{2}$ ? 01
i) Find $\lim \frac{x^{2}+2 x+5}{x^{2}+3 x+1} \quad 01$
$x->1 \frac{1}{x^{2}+3 x+1}$
j) Give the formula for summation of first n terms of Arithmetic Progression. 01
k) $f(x)=2 x^{2}+3 x-1$. Find $f(2) \quad 01$
l) Give the formula for $\lim \frac{\mathrm{x}^{\mathrm{n}}-\mathrm{a}^{\mathrm{n}}}{\mathrm{x}}$ where $\mathrm{n} \varepsilon \mathrm{Q}$ 01 $x->a \quad x-a$
m) Give the range of the function $\mathrm{f}: \mathrm{A}->\mathrm{B} ; \mathrm{A}=\{1,2,3\} ; \mathrm{B}=\{1,2,3,4,5,6,7,8,9\}$, 01
$f(x)=3 x$
n) Find x for $840^{*} \mathrm{x}=8$ !

Attempt any four questions from $\mathbf{Q}-2$ to $\mathbf{Q - 8}$

Q-2 Attempt all questions
a. The demand function of a commodity is $\mathrm{d}=\mathrm{f}(\mathrm{p})=75-3 \mathrm{p}$. Draw the demand curve
and find the demand when price is Rs. 10.
b. If $R_{f}=\{3,8,13,18\}$ of $f(x)=5 x-2$ find its $D_{f}$

## Attempt all questions

a. The fixed cost of a factory manufacturing pressure cookers is Rs. 1,50,000 and the variable cost per cooker is Rs. 200. If the selling price of a cooker is Rs. 350, find the number of cookers to be produced for no profit-no loss.
b. Prove that if unity is added to the sum of $n$ terms of the series $3,5,7,9 \ldots \ldots$ it

## Attempt all questions

a. Find $\lim _{x->-1} \frac{x^{29}+1}{x^{25}+1}$
b. Five numbers whose sum is 50 are in A.P. If the fifth number is three times the second number, find the numbers.

## Attempt all questions

a. It is observed that a quadratic function fits the data points $(1,9)(2,14),(3,23)$.

Find the quadratic function and estimate y when $\mathrm{x}=4$.
b. A man is 50 years old. He has 8 sons born at equal intervals. The sum of the ages of the father and the 8 sons is 186 years. If the youngest son is of 3 years age, find the age of eldest son.

## Attempt all questions

a. In how many ways 4 Red, 2 Blue and 1 Green balls can be selected out of 8 Red, 4 Blue and 3 Green Balls?
b. Find the sum of the following series:

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\begin{equation*}
21^{2}+22^{2}+23^{2}+\ldots \ldots+30^{2} \tag{14}
\end{equation*}
$$

a. Evaluate lim $\underline{x^{4}-16}$
a. Evaluate $\lim _{x->2} \frac{x-16}{x-2}$
b. A man borrows Rs. 9000 from his friend and promises him to repay the same in 30 installments. If each installment is Rs. 20 more than its previous one, find the first and last installments.

## Attempt all questions

a. If $\mathrm{y}=\mathrm{f}(\mathrm{x})=\underline{\mathrm{ax}+\mathrm{b}}$ prove that $\mathrm{x}=\mathrm{f}(\mathrm{y})$
cx-a
b. Obtain the co-efficient of $x$ in the expansion of $(2 x-1 / x)^{5}$


