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SARDAR PATEL UNIVERSITY

B.Com. (II Semester) (NC-2010 Batch) Examination

2017

Tuesday, 21ST March

2.00 p.m. to 4.00 p.m.

UB02CCOM05/13 : Business Mathematics-II

Note : Figures to the right indicate marks.

Total Marks: 60

Q.1

[a] Find $\frac{dy}{dx}$ if $y=\frac{1+t}{1-t}$, $x=t^2+1$ [05]

[b] At which point the function $f(x)=x^3-3x+4$ is [05]
(1) maximum ? (2) minimum ?

[c] Write the rules of differentiation. [05]

OR

Q.1

[a] Find $\frac{dy}{dx}$ if $y=\left(\frac{2x+3}{4x+5}\right)^6$ [05]

[b] Find, the point at which the function $f(x)=x^3-x^2-x+2$ is [05]
(1) minimum ? (2) maximum ?

[c] Obtain $\frac{d^2y}{dx^2}$ if $y=\frac{1}{x+2}$ [05]

Q.2

[a] Find n if ${}_nC_4 : {}_nC_3 = 7:4$ [05]

[b] The question paper contains 10 questions divided into two sections of 5 questions each.In how many ways a student can answer 6 questions taking at least 2 questions from each section. [05]

[c] How many words can be formed using all the letters of the word "TEJAL" ? [05]
Out of which in how many words
(i) T is at the start ?
(ii) T is at the end ?

OR

Q.2

[a] Find n if [05]
(1) ${}_nP_4 = 840$
(2) ${}_{19}C_{n+2} = {}_{19}C_{2n-1}$

[b] From 7 boys and 4 girls a committee of six is to be formed, In how many ways this can be done if committee consists of exactly two girls. [05]

[c] How many three digited numbers can be formed using the digits 1, 2, 4, 5, 7 only one time ? How many of them are [05]
(1) Odd numbers ?
(2) Divisible by 5

Q.3

[a] Obtain the equation of a line passing through (x_1, y_1) and (x_2, y_2). [05]

[b] Find the equation of a line with slope $\frac{1}{3}$ and passing through $(4, -2)$. [05]

[c] If distance between $A(-3,-2)$ and $B(P,1)$ is $\sqrt[3]{10}$ then find P. [05]

OR

Q.3

[a] Obtain the equation of a line passing through point (x_1, y_1) and having slope m. [05]

[b] Obtain the equation of a line, slope and both the intercepts of the line passing through the points $A(3,5)$ and $B(7,11)$. [05]

[c] Find the area of quadrilateral formed by the points $A(-1,1), B(0,3), C(3,-1)$ and $D(-1,-1)$. [05]

Q.4

[a] Write the meaning and linear uses of programming [04]

[b] Solve the following linear programming problem by graphical method. [06]

Max $Z = 5x + 2y$

s.t.

$2x + 3y \le 150$

$3x \le 150$

$5y \le 200, \quad x \ge 0, y \ge 0$

[c] Solve the following A. P. [05]

	I	II	III	IV
A	8	26	17	11
B	13	28	14	26
C	38	19	18	15
D	19	26	24	10

OR

Q.4

[a] Explain the following terms : [04]

(1) Objective function

(2) Constraints.

[b] Solve the following LPP by graphical method. [06]

Max $Z = 8x + 6y$

s.t.

$4x + 2y \le 48$

$2x + 4y \le 60$

$x \ge 0, y \ge 0$

[c] Solve the following assignment problem. [05]

	P	Q	R	S
A	12	15	18	8
B	13	10	9	14
C	10	12	15	13
D	7	8	9	14

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