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[A-1] SEAT No._____ No. of printed pages: 02

SARDAR PATEL UNIVERSITY

B.B.A. (General) (2010 BATCH) SEMESTER – II EXAMINATION

Tuesday, 9th April 2019

10.00 A.M. to 12.00 P.M.

UM02CBBA05/10: BUSINESS MATHEMATICS-II

Total Marks: 60

Note: Log table & Graph Paper will be provided on request.

Q.1

(a) From 7 students and 4 professors a committee of 6 is to be formed. In how many ways this can be done under the constraint that the committee contains at least two professors? 07

(b) Do as directed: 08

1. Evaluate: ${}_{14}C_3 \times {}_9C_3 + \frac{4!}{3}$

2. Find n: ${}_nP_3 = 6 \cdot {}_nC_5$

Q.1 **OR**

(a) Do as directed: 07

1. Evaluate: ${}_{12}C_5 \times {}_5C_2 - \frac{5!}{0!}$

2. Find n : ${}_{11}P_n = 990$

(b) How many different words can be formed using the following words without repetition? 08

(1) MANAGEMANT (2) BHARAT (3) CALENDAR (4) COMPUTER

Q.2

(a) Find the maximum and minimum value of the function: $f(x) = 4x^3 - 12x$ 07

(b) Find $\frac{dy}{dx}$: 08

1. $y = x^2 + e^x + a^x + 5\log x + 9$
2. $y = e^x \log x$

Q.2 **OR**

(a)

1. If the demand function is $x = 35 - 7p$, find elasticity of demand. Also find the elasticity of demand when $p = 3$. 10

2. Find $\frac{d^2y}{dx^2}$: $y = \frac{1}{7}x^7 - \frac{1}{5}x^5 + \frac{1}{2}x^2 + 99$

(b) Write rules of differentiation. 05

Q.3

(a) Explain Annuity and sinking fund. 07

(b) A person has obtained a loan to start a Business. This loan is to be repaid into 10 installments of Rs.175000 each at the end of every year. If the rate of compound interest is 12%, find the amount of the loan. 08

(1) (P.T.O.)

OR

Q.3

(a) What is an aggregate amount for Rs. 82000 at 8% rate of compound interest for 9 years if the interest is compounded 07

(1) Annually?

(2) Semi-annually?

(b) Alembic Ltd. purchased an equipment worth Rs. 5,00,000 on 01/01/2018. Its expected life is 12 years. After that period new equipment will cost 60% more. In order to provide for this, it has been decided to create a sinking fund. Find out the sum to be invested at 14% rate of compound interest at the end of every year 08

Q.4

(a) Solve following LPP by graphical method: 07

Maximize $Z = -x + 3y$

Sub. To $x + y \leq 6,\quad x - y \leq 2 \quad \& \quad x,\quad y \geq 0$

(b) Solve the following minimal assignment problem: 08

Job

Worker	I	II	III	IV
A	41	39	50	66
B	56	41	62	57
C	48	51	47	60
D	40	44	59	54

Q.4

OR

(a) What is Linear Programming? Write assumptions of it. 05

(b) Find an initial basic feasible solution to the following transportation problem by 10

(1) North – West Corner method.

(2) Least cost Method.

	A	B	C	D	Supply
P	9	11	10	8	12
Q	13	7	12	5	10
R	5	6	8	9	13
Demand	6	8	14	7	

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