

[26] Seat No —

No. of printed pages: 02

SARDAR PATEL UNIVERSITY
B.B.A. (General) SEMESTER – II EXAMINATION
Thursday, 20 - Oct - 2016
2:00 PM to 4:00 PM
BUSINESS MATHEMATICS-II (UM02CBBA06)

Total Marks: - 60

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

Q.1

- (a) How many words can be formed out of the letters of the word "DAUGHTER"? In how many of them the vowels always occur together? (05)
- (b) In how many ways a committee of 4 can be formed from 5 boys and 3 girls in which there are at most 2 girls? (05)
- (c) Do as directed: (05)
1. Find n , if ${}_nC_{10} = {}_nC_5$
 2. Evaluate: ${}_9P_3 + {}_7C_3 + 0! + 1$

Q.1

OR

- (a) How many different words can be formed using the following words without repetition? (05)
- (1) ATLANTA (2) COMMERCE (3) MISSISSIPPI
- (b) In how many ways four cards of (i) different suits (ii) same suit can be selected from 52 playing cards? (05)
- (c) Find n : $4 \cdot {}_nP_3 = 5 \cdot {}_{(n-1)}P_3$ (05)

Q.2

- (a) Find $\frac{dy}{dx}$: (09)
1. $y = 6x^7 - 4x^5 + 8x^3 - 9x + 5$
 2. $y = (2x^2 + 4x + 5)^8$
 3. $y = \frac{\log x}{x}$
- (b) Find $\frac{d^2y}{dx^2}$, if $y = 3x^4 + 5x^3 - 2x^2 + 7x + 9$. (03)
- (c) If the supply function is $x = 5 + 2p^2$, find elasticity of supply. Also find the elasticity of supply when $p = 2$. (03)

Q.2

OR

- (a) Find $\frac{dy}{dx}$: (06)
1. $y = \frac{x^5}{5} - \frac{x^4}{4} + \frac{x^3}{3} - \frac{x^2}{2} + 1$
 2. $y = 5^x \cdot e^x$
- (b) Find the maximum and minimum value of the function $f(x) = x^3 + x^2 - x + 1$. (06)
- (c) Write rules of differentiation. (03)

Q.3

- (a) Explain the terms: Annuity and Sinking fund. (05)
- (b) Mr. Patel has obtained a loan to buy a Car. This loan is to be repaid in 10 installments of Rs. 1, 75,000 each at the end of every year. If the rate of compound interest is 12%, find the amount of the loan. (05)
- (c) What is the aggregate amount for Rs. 9000 at 9% rate of compound interest for 5 years if the interest is compounded (1) Annually? (2) Quarterly? (05)

Q.3

OR

- (a) The population of a city at present is 76162 which was 65673 before 5 years. Find out rate of growth of population. (05)
- (b) A company issued 90,000 debentures each of Rs 100 to be redeemed after 8 years. It was decided to create a sinking fund and invest it at 12% rate of compound interest. Find out the sum to be invested at the end of every year. (05)
- (c) The production of a company at present is 40,000 tons. It aims at 8% growth rate of Production. Find out its production at the end of 9th year? (05)

Q.4

- (a) Write uses of Linear Programming Problems. (05)
- (b) Solve the following LPP by Graphical method: (05)
 $\text{Maximise } Z = 6x + 7y$
 $\text{Sub. to } x + 2y \leq 24, 2x + y \leq 30 \quad \& \quad x, y \geq 0$
- (c) Find an initial basic feasible solution to the following T.P. by N – W Corner method. (05)

	P	Q	R	S	Supply
A	20	30	50	10	2
B	70	30	40	60	6
C	40	9	70	20	7
Demand	3	3	4	5	15

Q.4

OR

- (a) Solve the following minimal assignment problem: (05)

Persons	Job			
	P	Q	R	S
A	15	16	18	8
B	13	10	9	14
C	10	12	15	13
D	9	8	6	14

- (b) Find an initial basic feasible solution to the following T.P. by (10)
 (i) Matrix minima Method.
 (ii) Vogel's Method.

	S ₁	S ₂	S ₃	S ₄	Supply
F ₁	6	4	1	5	14
F ₂	8	9	2	7	16
F ₃	4	3	6	2	10
Demand	8	10	15	7	
