

SARDAR PATEL UNIVERSITY
B.B.A (FT) (I SEM.) EXAMINATION
2012
Saturday, 29th December
10.30 am to 12.30 pm
UM01CBBF04 : BUSINESS MATHEMATICS

Total Marks: 60

Note: Figures to the right indicate marks.

Q.1

- (A) Explain the following terms with examples. [04]
 (i) Empty set (ii) Finite set
- (B) If $A = \{2, 4\}$ and $B = \{2, 4, 6\}$ then find [05]
 (i) $A \times B$ (ii) $A \times A$ (iii) $B \times B$ (iv) $A \cup B$ (v) $A \cap B$
- (C) If $A = \{2, 3, 4, 9\}$, $B = \{2, 3, 5, 6\}$ and $C = \{2, 3, 7\}$ then show that, [06]
 (i) $A - (B \cup C) = (A - B) \cap (A - C)$
 (ii) $A \cap (B - C) = (A \cap B) - (A \cap C)$

OR

Q.1

- (A) Using Venn diagram show that $(A \cap B)' = A' \cup B'$. [04]
- (B) If $A =$ set of letters of the word "HUMAN" [05]
 $B =$ set of letters of the word "WOMAN"
 $C =$ set of letters of the word "MAN"
 then find (i) $C \times (A - B)$ and (ii) $C \times C$
- (C) There are 60 students in a class of a college. 15 students do not [06]
 have interest in games and they do not take part in the games. 32
 students of the class play football and 18 students play hockey.
 (i) How many students play both games?
 (ii) How many students play only football?

Q.2

- (A) Show that $(-1, -1), (1, 5), (2, 8)$ are collinear points. [04]
- (B) If the area of the triangle with vertices $A(2, 3), B(-4, 1)$ and $C(1, y)$ is [05]
 2 then find the value of "y".
- (C) Obtain the equation of a line passing through the points $(-1, 2)$ and [06]
 $(5, -3)$. Find its slope and intercepts on the axes.

OR

Q.2

- (A) Derive the equation of line with slope m and passing through the [04]
 points (x_1, y_1) .
- (B) Find the equation of a line having slope $\frac{2}{3}$ and intercept on Y-axis as 3. [05]
- (C) Find the ratio in which the point $(6, 17)$ divides the line joining the [06]
 points $(1, -3)$ and $(3, 5)$.

Q.3

- (A) Explain the following terms. [04]
(i) Principal (ii) Amount
(ii) Simple interest (iv) Compound interest
- (B) Rs.4000 is invested at annual rate of interest of 12%. What will be the amount after 3 years if the compounding is done half yearly? [05]
- (C) A certain sum at a given rate of simple interest per annum becomes Rs.2640 in two years and Rs.3000 in five years. Find the principal and the rate of interest. [06]

OR

Q.3

- (A) Calculate the amount of Rs.1000 at 4% per annum compound interest of 3 years. [04]
- (B) At what rate of simple interest will Rs.800 amount to Rs.836 in 9 months? [05]
- (C) Find the difference of simple interest and compound interest of Rs.1500 for 3 years at the interest of 6% per annum when the interest is compounded annually. [06]

Q.4

- (A) Explain ratio and proportion. Write difference between ration and proportion. [05]
- (B) 28 carpenters make 96 chairs in a certain period. How many carpenters will make 72 chairs in the same period. [05]
- (C) An employer reduces the number of employees in the ratio of 9:8 and increases their wages in the ratio 14:15. Find in what ratio the wage bill increases or decreases. Also find the difference in the amounts of the bill if it were previously Rs.1890. [05]

OR

Q.4

- (A) In 500 liter mixture of milk and water, milk is 450 liters. Find the percentage of water in the mixture. [05]
- (B) 75 men can finish a piece of work in 48 days. How many more men should be engage to complete the work in 30 days. [05]
- (C) If 32 is added to the 80% of a number, the result is the number itself. Find the number. [05]

