

[4/A-9] Seat No. _____

No. of printed pages: 2

SARDAR PATEL UNIVERSITY
BBA (IB) (I Semester) Examination
2016
Wednesday, 23rd November
10.00 am - 12.00 pm
UM01CBBB06 / F07 - Business Mathematics

Total Marks: 60

Note: Figures to the right indicate marks.

Q.1

- (a) Explain the following terms with examples. (04)
(i) Equal set (ii) Union of a set
- (b) If $U = \{1, 2, 3, 4, 5, 6\}$, $A = \{2, 3, 6\}$ and $B = \{3, 5, 6\}$ then verify that (05)
(i) $(A \cup B)' = A' \cap B'$ (ii) $(A \cap B)' = A' \cup B'$
- (c) If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{1, 2, 3\}$, $B = \{2, 4, 6\}$, $C = \{0, -1, 4\}$ (06)
verify that;
(i) $A \cap (B - C) = (A \cap B) - (A \cap C)$
(ii) $A' - B' = B - A$

OR

Q.1

- (a) Verify $(A \cap B)' = A' \cup B'$ using Venn diagram. (04)
- (b) If $A = \{x / x^2 - 17x + 60 = 0\}$ (05)
 $B = \{x / x^2 - 7x + 12 = 0\}$
find $A \cup B$ and $A \cap B$.
- (c) If $A = \{5, 6, 7\}$, $B = \{7, 8\}$, $C = \{5, 8\}$ (06)
verify that; (i) $A \times (B - C) = (A \times B) - (A \times C)$
(ii) $A \times (B \cap C) = (A \times B) \cap (A \times C)$

Q.2

- (a) Show that $(-1, -1)$, $(1, 5)$ & $(2, 8)$ are collinear points. (04)
- (b) Prove that $(2, 3)$, $(7, 4)$, $(8, 7)$ and $(3, 6)$ are the vertices of a parallelogram. (05)
- (c) Find the equation of a line joining $(1, -3)$ and the point of intersection of the (06)
lines $x + y + 1 = 0$ and $3x + y - 5 = 0$

OR

Q.2

- (a) Derive the equation of a line with slope m and making intercept 'c' on Y axis. (04)
- (b) Find the equation of a line parallel to $x - 2y + 3 = 0$ and passing from $(2, -3)$ (05)
- (c) Find the equation of a line passing through the point of intersection of the (06)
lines $2x + 7y - 9 = 0$ and $3x + 2y - 5 = 0$ and perpendicular to $5x + 2y + 11 = 0$.

Q.3

- (a) Explain the following terms: (04)
(i) Simple Interest (ii) Compound Interest

- (b) The production of a company is 150000 tons. If the company aims to achieve 6% rate of growth every year, what will be the production at the end of 7th year ? (05)
- (c) Find the compound interest of Rs. 20000 at 10% for 3 years if interest is calculated every six months. (06)

OR

Q.3

- (a) What amount should Mr. X invest at 10% compound rate of interest in order to received Rs. 100000 after 10 years for his daughter's marriage. (04)
- (b) Aruna deposits with Shroff Rs. 19000 for 3 years at compound rate of interest, 12% for the first year, 13% for the second year and 14% for the third year, find the aggregate amount she will receive after 3 years. Also find the compound interest. (05)
- (c) Ketan borrow Rs. 1600 at the simple rate of interest at 15% and deposited for 5 years at a compound rate of interest at 12%. Find out his profit or loss at the end of five years. (06)

Q.4

- (a) Explain the following terms with example. (04)
(i) Ratio (ii) Proportion
- (b) The ratio of the prices of two houses was 16:23. Two years later when the price of the first has increased by 10% and that of the second by Rs. 477, the ratio of the prices becomes 11:20. Find the original prices of the two houses. (05)
- (c) If Dhriti had Rs. 600 left after spending 75% of her money, how much did she have in the beginning ? (06)

OR

Q.4

- (a) In 500 litre mixture of milk and water, milk is 450 litre. Find the percentage of water in the mixture. (04)
- (b) 36 carpenters make 108 chairs in a certain period. How many carpenters will make 84 chairs in the same period. (05)
- (c) The ratio of the number of boys to the number of girls in a college is 3:5. If 15 new girls are admitted to the college, find how many new boys should be admitted so that the ratio of the number of boys to the number of girls becomes 4:5. (06)

