

**SARDAR PATEL UNIVERSITY**  
**BBA (FT) I Semester Examination**  
**Friday, 22 November 2013**  
**2.30 - 4.30 pm**  
**UM01CBBF07 - Business Mathematics**

**Total Marks : 60**

Q.1

- (A) Define the terms with illustration. [06]
- (1) Universal set                      (2) Union and intersection of two sets  
 (3) Null set                              (4) Subset  
 (5) Complement of a set
- (B) If  $A=\{1,3\}$ ,  $B=\{5,6\}$  and  $C=\{6,9\}$  then verify [06]
- (1)  $A \times (B \cap C) = (A \times B) \cap (A \times C)$   
 (2)  $A \times (B \cup C) = (A \times B) \cup (A \times C)$
- (C) If  $A=\{-3, -2, 2, 0\}$  and  $B=\{3, 2, -2, 0\}$  then find [03]
- (1)  $A \cap B$     (2)  $A \cup B$     (3)  $A - B$

**OR**

Q.1

- (A) State the associative and distributive laws for three sets A, B, C and verify them by taking  $A=\{1, 2, 5, 6, 8\}$ ,  $B=\{2, 4, 6, 10, 11\}$  and  $C=\{1, 2, 3, 5, 6, 11, 12\}$  [06]
- (B) State and verify both Demorgan's law using Venn diagram. [05]
- (C) If  $A=\{1,2\}$  and  $B=\{3,4\}$  then find, [04]
- (1)  $A \times B$     (2)  $B \times A$     (3)  $A \cup B$     (4)  $A \cap B$

Q.2

- (A) Obtain the equation of a line joining two points  $A(x_1, y_1)$  and  $B(x_2, y_2)$  [05]
- (B) Find the area of  $\triangle ABC$  having vertices  $A(-3, 2)$ ,  $B(1, -2)$  and  $C(5, 6)$  [05]
- (C) Let  $P(1, 2)$  and  $Q(-1, -2)$  be given points. Find the slope of the line, which is perpendicular to the line PQ. [05]

**OR**

Q.2

- (A) Determine the value of K if [06]
- (1)  $3Kx + 5y + K = 0$  passes through the point  $(-1, 4)$   
 (2)  $4x - Ky - 7 = 0$  has the slope 3.
- (B) Find x if the distance between  $P(-3, -2)$  and  $Q(x, 1)$  is  $3\sqrt{10}$ . [04]
- (C) A line passes through the point of intersection of the lines  $x+2y-1=0$  and  $2x+3y-4=0$  and it makes equal intercepts on both the axes, then find the equation of a line. [05]

- Q.3
- (A) What is an aggregate amount for Rs.4000 at 12% rate of compound interest for 3 years, if the interest is compounded (1) Annually (2) Semi Annually [05]
- (B) The population of a city at present is 76162, which was 65673 before 5 years. Find out the rate of growth of population. [05]
- (C) Samir deposited Rs.15000 with a leasing company at 11% rate of compounds interest. How much interest will he get ? at the end of 5 years ? [05]

OR

- Q.3
- (A) Cost of building a new house is Rs.470000 at present. If it increases at 8% Every year, find out the increased cost of a similar house if it is built after 3 years. [05]
- (B) A sum of money may double itself in 10 years by investment at compound interest, which is calculated annually then find the rate of interest. [05]
- (C) Explain the term : Compound interest and simple interest (with proper Example) [05]

- Q.4
- (A) Convert a decimal fractions into percentage. (1) 1.35 (2) 0.725 (3) 0.02 (4) 0.0016 [04]
- (B) Bhavik spends 88% of his income, still he saves Rs.1260 a month. Find his monthly income. [05]
- (C) Explain : Proportion and Continued Proportion. Also write the difference between ratio and proportion. [06]

OR

- Q.4
- (A) If 20 men can do a piece of work in 45 days. How many men will be required to do it in 25 days ? [05]
- (B) Find the mean proportional of (1)  $5\sqrt{15}$  and  $\sqrt{15}$  (2) 3 and 1083 [05]
- (C) In an Examination 37.5% were girls. 75% of the boys and 62.5 of the girls passed. If 342 girls failed. Find the number of boys failed. [05]

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