

**SARDAR PATEL UNIVERSITY**  
**B Com (II - Semester) Examination**  
**2017**

**Friday, 31<sup>st</sup> March**  
**10.00 am - 12.00 pm**

**UB02CCOM04 - Business Mathematics II**

**Total Marks : 60**

**Note:** 1) Use of simple calculator is permitted.  
 2) Graph papers will be supplied on request.

**Q.1**

- (a) Define the derivative of a function and explain the rules of differentiation. (06)  
 (b) Find  $dy/dx$  of the following functions. (09)  
 (i)  $y = 4x^3 + 4e^x + \log x$  (ii)  $y = x^4 e^x$   
 (iii)  $y = \frac{2x+3}{3x+1}$

**OR**

**Q.1**

- (a) Find  $f'(x)$  of the function  $f(x) = x^2 + 3x$ , using definition. (05)  
 (b) Find the maximum and minimum values of the function  $y = x^3 - 3x^2 - 9x + 5$  (05)  
 (c) Find  $dy/dx$  of the following functions. (05)  
 (i)  $y = (4x^2 + 3x + 5)^7$  (ii)  $y = 3t^2 + 4t, x = t^2 + 5t$

**Q.2**

- (a) Find the values of the following: (05)  
 (i)  ${}^{10}C_3$  (ii)  ${}^4C_1 + {}^5P_2$  (iii)  ${}^5C_2 \times {}^5P_2$   
 (b) Solve the following equations. (05)  
 (i)  ${}^{15}P_x = 2730$  (ii)  ${}^nP_3 : {}^{(n+1)}P_3 = 3:4$   
 (c) How many different numbers of six digits can be formed by using the digits 2, 1, 7, 8, 0, 4? How many of them will be divisible by 5. (05)

**OR**

**Q.2**

- (a) How many different words can be permuted by using all the letters of the following words: (05)  
 (i) SARDAR (ii) CORRELATION  
 (b) Find the value of  ${}^9C_5 + {}^9C_6 + {}^{10}C_7 + {}^{11}C_8$  (05)  
 (c) In how many ways a committee of 4 members can be formed out of 4 professors, 6 boys and 2 girls so as to include 1 professor and at least 1 girl? (05)

**Q.3**

- (a) Derive the equation of a straight line passing through two points. (05)  
 (b) Obtain the area of triangle formed by the vertices  $(-2, 1)$ ,  $(3, 2)$  and  $(-2, -2)$ . (05)