SC

SEAT No._____ (648 A-25)

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SARDAR PATEL UNIVERSITY
BBA (ITM) (4 Years) (NC) EXAMINATION
SEMESTER – II
Friday, 6th April 2018
2.00 P.M. to 4.00 P.M.
UM02CBBI06: BUSINESS MATHEMATICS – II

Total Marks: - 60

Q.1

(a) A committee of 6 is to be formed from 6 students and 3 professors. In how many ways this can be done so that the committee contains at least 3 students? **07**

(b) **1.** Find ${}_{11}P_3 \, , {}_{14}C_{13}$ **08**

2. Find n: ${}_nP_3 = 6 \cdot {}_nC_5$

Q.1 **OR**

(a) How many numbers of 6 digits is formed from the digits 4, 5, 6, 7, 8 and 9, if no digit is repeated? How many of them are divisible by 5? How many are divisible by 2? **07**

(b) How many different words can be formed using the following words without repetition? **08**

1. DADDY
2. BUSINESS
3. COMMERCE
4. TRIANGLE

Q.2

(a) Differentiate following w.r.t. x : **10**

1. $y = 7x^6 + 4x^5 + 9x^3 - 5x + 9$
2. $y = \log(2x^2 + 3x + 9)$

(b) Find the maximum or minimum value of the function $f(x) = x^2 + x + 1$ **05**

Q.2 **OR**

(a) Differentiate following w.r.t. x : **10**

1. $y = 2t^2 + t + 1, \; x = 3t + 1$
2. $y = e^x \cdot 7^x$
3. $y = \frac{\log x}{x}$

(b) Write rules of Derivative. **05**

(P.T.O.)

Q.3

(a) Explain the terms: Compound interest, Annuity. **07**

(b) A company issued 60,000 debentures each of Rs 100 to be redeemed after 9 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. **08**

Q.3 **OR**

(a) The production of a company at present is 35,000 tons. It aims at 7% growth rate of Production. Find out its production at the end of 9th year? **07**

(b) Mr. Janak Purchased a machine worth Rs. 5, 00,000. Its expected life is 12 years. It is estimated that after 12 years, the price of the machine will increase by 60%. To buy a new machine, it has been decided to create a sinking fund and invest it at 14% rate of compound interest. Find the sum to be transferred to the sinking fund on 31st December of every year. **08**

Q.4

(a) Discuss components of time series. **08**

(b) Obtain the trend from the time series given below by method of moving average of **[i]** 3 years and **[ii]** 5 years. **07**

Year	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Yield	500	540	550	530	520	560	600	640	620	640

Q.4 **OR**

(a) Explain uses of time series. **08**

(b) Find seasonal indices for the following time series by Simple Average Method. **07**

Year	April to June	July to September	October to December	January to march
2012-13	36	43	44	102
2013-14	39	44	57	98
2014-15	47	53	58	104
2015-16	47	56	60	130