THE INSTITUTE OF CORPORATE SECRETARIES OF PAKISTAN
C.I.S EXAMINATION JANUARY 2013
MODULE A PAPER: BUSINESS MATHEMATICS AND STATISTICS GROUP I

Time allowed 3 Hours **Max. Marks: 100**

Instructions: Attempt THREE questions from Section A and THREE from Section B, whereas question No. 1 is compulsory.
Time Allowed: 3 hours Maximum Marks: 100

Compulsory

Q1. Choose the correct answer: **(10 Marks)**

i. The sum of deviations of the values from their mean is;
(a) Maximum (b) Minimum (c) Zero

ii. Median is the most……value in arranged data.
(a) Maximum (b) Middle (c) Minimum

iii. In network analysis dotted arrows represents;
(a) Event (b) Dummy activity (c) Activity

iv. $\int x^3\,dx$;
(a) $x^3(1/3)$ (b) $3x^2$ (c) $x^4(1/4)$

v. If a side of a square is 5 then the volume is;
(a) 125 (b) 25 (c) 10

vi. The slope of any line perpendicular to the 3x-6y=24 is;
(a) -2 (b) -4 (c) -6

vii. $\int_4^5 x^2\,dx$ is equal to;
(a) 1/61 (b) 61/4 (c) ¼

viii. 6! 5! / 4! Is equal to;
(a) 2600 (b) 3600 (c) 4600

ix. a^0 equals to;
(a) a (b) 0 (c) 1

x. -5, 0, 5……. the next term is;
(a) 10 (b) 50 (c) -50

Section – A
(Each question caries 15 marks)

Q2. (a) Factorize any T**wo** of the following

i. $6ax – 9ay – 6by + 4bx$

ii. $5a^2 - 40ab^3$

iii. $a^3 – 3a – 18$

(b) Solve the equation by using **Quadratic** formula $4x^2 – 31x + 21 = 0$.

Q3. (a) Find, the value of $(0.6576)^{1/3}$ by using **Logarithm**. Note: Ask for log booklet.

(b) At what nominal rate compounded quarterly will a principal accumulate to the same amount as at 12% compounded S**emi**-annually?

Q4. A ball is bounces two-thirds of the distance it falls. If it is dropped from a height of 10 meters, how far does it move before hitting the floor for the fourth time?

Q5. (a) In six hours A walks 10 kilometers more than B does in five hours; and in 8 hours B walks seven kilometers more than A does in 5 hours. What are speeds of each person?

(b) Find the equation of a line passing through (20, -30) and perpendicular to $4x + 2y = -18$.

Q6. Solve the system of equation by using Cramer's rule;

$X_1 + 4X_2 – 3X_3 = 16$

$8X_1 – 12X_2 – 4X_3 = -10$

$-2X_1 + 3X_2 – X_3 = 14$

Section – B
(Each question carries 15 marks)

Q7. For the data given below verify that the sum of the deviations from mean is zero;

22, 17, 27, 14, 22, 18.

Q8. For the data given below calculate:

(a) Range

(b) Quartile Deviation

169	188	157	223	173	189	169	186
178	190	235	216	186	194	221	

Q9. Determine the regression equation of Y on X

X	1	1	5	5
Y	1	3	2	4

Q10. Calculate simple price index numbers for the following data taking:

(a) 1960 as base year

(b) 1965 as base year

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968
Price	15	14	19	21	24	23	25	22	26

Q11. A company can produce three products, A, B and C. The products yield a contribution of Rs.8, Rs.5 and Rs.10 respectively. The products use a machine which has 400 hours capacity in the next period. Each unit of the products uses 2, 3 and 1 hour respectively of the machine's capacity. There are only 150units available in the period of a special component which is used singly in products A and C. 200kgs only of a special alloy is available in the period. Product A uses 2kgs per unit and product C uses 4kgs per units. There is an agreement with a trade association to produce on more than 50 units of product B in the period. The company wishes to find out the production plan which maximizes contribution. Express the problem in the Standardized Format.