STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI - 600 086
(For candidates admitted from the academic year 2011-12 & thereafter)

SUBJECT CODE : 11MT/AC/MS44

B. C. A. DEGREE EXAMINATION, APRIL 2015
FOURTH SEMESTER

COURSE : ALLIED CORE
PAPER : MATHEMATICS FOR COMPUTER SCIENCE-II
TIME : 3 HOURS **MAX. MARKS : 100**

SECTION – A

ANSWER ALL THE QUESTIONS: **(10X2=20)**

1. What are the two types of graphs?
2. Write the scope of statistics.
3. Give examples for poisson distribution.
4. Define Hypothesis in sampling.
5. State any two properties of algebraic equations.
6. Find the coefficient matrix from the system of equations
   $9 - 2x - 3y = z,\ x + 2y + 3z = 6,\quad 3x + y + 2z - 8 = 0.$
7. State Lagrange's Interpolation formula.
8. Write Newton-forward interpolations formula.
9. Define enciphering transformation.
10. What is Hash function?

SECTION – B

ANSWER ANY FIVE QUESTIONS: **(5X8=40)**

11. Prepare a two-way table for the following data.

Roll No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Marks in statistics	28	37	42	25	29	47	37	35	23	41	27	39	28	33	36	32	22	29	38	48
Marks in Economics	23	30	40	26	25	41	35	25	21	38	24	34	20	31	29	35	23	27	34	47

12. Prepare Histogram for the following data:

Wages	325 – 350	350 – 375	375 – 400	400 – 425	425 – 450
Frequency	30	45	75	60	35

13. The probability that a bomb hits a target is 0.8. Assuming a binomial distribution what is the probability that out of 10-bombings exactly 4 will be missed?

14. Evaluate $\sqrt{29}$ to four decimal places by Newton-Raphson method.

15. Find $f(2.5)$ by Newton-forward interpolation from

x	2	3	4	5
$f(x)$	14.5	16.3	17.5	18

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16. Find $\frac{dy}{dx}$ for $x = 1.2$ from

x	1	1.2	1.4	1.6	1.8	2	2.2
y	2.72	3.32	4.06	4.96	6.05	7.39	9.02

17. Solve the system simultaneous congruences

a) $2x + 3y \equiv 1(mod\ 26)$
$7x + 8y \equiv 2(mod\ 26)$

b) $x + 3y \equiv 1(mod\ 26)$
$7x + 9y \equiv 2(mod\ 26)$

c) $x + 3y \equiv 1(mod\ 26)$
$7x + 9y \equiv 1(mod\ 26)$

SECTION – C

ANSWER ANY TWO QUESTIONS: (2X20=40)

18. a) Draw the Ogives (less than and more than) for the following data and use it to find the median. (10 marks)

Marks	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69	70 – 79	80 – 89	90 – 99
No. of students	7	11	24	32	9	14	2	1

b) What are the objectives of classification? (10 marks)

19. a) The number of accidents in a year attributed to taxi drivers in a city follows a Poisson distribution with mean 3. Out of 1,000 – taxi drivers find approximately the number of drivers with
(i) no accidents in a year
(ii) more than 3-accidients in year (10 marks)

b) Solve the system of equations by Gauss-elimination method
$2x + 4y + 2y = 15$
$2x + y - 2z = -5$
$4x + y - 2z = 0$ (10 marks)

20. a) Using Lagrange's Interpolation estimate for weight of a baby at the age of 4-months. (10 marks)

Age (months)	0	2	3	5	6
Weight(lbs)	5	7	8	10	12

b) Solve the system of equations by Gauss-seidel method. (10 marks)
$9x + 2y + 4z = 20$
$x + 10y + 4z = 6$
$2x - 4y + 10z = -15$