

Subject: Math: IV-VI(ii)/IX-XI(ii) M.A/M.Sc: Part- II / Composite, 1st -A/2011

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University of Sargodha

M.A/M.Sc Part-II / Composite, 1st -A/2011

Math: IV-VI(ii)/IX-XI(ii) Computer Applications

Maximum Marks: 40

Fictitious #: _____

Time Allowed: 45 Min.

Objective Part

Signature of CSO: _____

Note: Cutting, Erasing, overwriting and use of Lead Pencil are strictly prohibited. Only first attempt will be considered.

Q No1: (A) Choose the correct answer

Marks = 1×5 = 5

(i) 1024 KB ≡

(a) One MB (b) Two MB (c) Three MB (d) Four MB

(ii) CPU is an example of

(a) Software (b) hardware (c) program (d) input

(iii) Information given to CPU is known as

(a) DATA (b) raw material (c) processing (d) none of these

(iv) The results obtained by the CPU are known as

(a) Out put (b) executing (c) opening (d) all above

(v) Least number of hardwares used in building a computer are

(a) 6 (b) 7 (c) 8 (d) 5

(B) Write true or false

Marks: 1×10 = 10

- i. The commands ?? are used to obtain information about solve and Map. T/F
- ii. Assignment statement doesn't perform calculation. T/F
- iii. An Algorithm is used to solve a problem. T/F
- iv. The command Names["form"] lists all objects that match the pattern defined T/F
- v. The STOP statement terminates the execution of programme. T/F
- vi. In computer programming functions can be used in many ways T/F
- vii. In flow chart rectangle is used for input or out put operation. T/F
- viii. A typical help window contains a detailed description of all command T/F
- ix. A flowchart is a diagrammatic representation of an algorithm. T/F
- x. The basic arithmetic operations are performed in the natural way with Mathematica T/F

(C) Fill in the Blanks

Marks: 1×5 = 5

- i. A space or * between variables is used to denote _____.
- ii. If expression is an array, then variable must be an _____.
- iii. The command Apart[expression] computes the _____ decomposition of expression
- iv. To define piecewise-defined functions, we use Condition _____.
- v. The number of elements in an array is called its-----.

Marks: $2 \times 10 = 20$

Q No.2: Give the short answer

(i) What is VAL function?

(ii) Write types of Intrinsic Data?

(iii) Give an example of automatic array.

(iv) What is DIM function?

(v) In FORTRAN what is module?

(vi) Write a algorithm to read two numbers and determine which number is larger?

University of Sargodha

M.A/M.Sc Part- II/Composite, 1st -A/2011

Math: IV-VI(ii)/IX-XI(ii) Computer Applications

Maximum Marks: 60

Time Allowed: 2:15 Hours

Subjective Part

Note: Attempt any three questions. All questions carry equal marks.

Q No.3: (a) Write a program in FORTRAN 90 to evaluate $\int_0^{\pi/2} \sin x$, by using trapezoidal rule.

(b) What are the arithmetic expression and the assignment expressions?

(c) Define an array what are the elements of the array

Q No.4: (a) Write a program in FORTRAN 90 to find the real roots of

$$f(x) = 2x^3 - 5x^2 + 3x - 2$$

By using method of false position the roots lies between 1 and 2

(b) What are nested Do-loops. Write a program to print multiplication table from 2 to 10.

Q No.5: (a) Write a program in 'FORTRAN 90' to find the roots of the equation

$$\cos x = x + \frac{1}{2}$$

By using iterative method, answer must be correct up to 4 decimal places

(b) Write an algorithm and flow chart to check if a number n is negative, positive or zero.

Q No.6: (a) Write a computer program in 'FORTRAN 90' to solve ODE

$$\frac{dy}{dx} = 3x + \frac{1}{2}y, y(0) = 1 \text{ by taking } h = 0.2 \text{ using R K method of order four.}$$

(b) Describe different structure of Do-statement of FORTRAN 90 with at least one example of each.

(c) Compute an algorithm and flow chart to read number and determine which is large

Q No.7: (a) Draw a flow chart to find a factorial of a number

(b) Write a computer program to solve a system of equations using Jacobi's method

$$+4x_1 - x_2 - x_3 = 0.5$$

$$-x_1 + 4x_2 - x_3 = 1.3$$

$$-x_1 + 4x_3 - x_4 = 1.0$$

$$-x_2 - x_3 + 4x_4 = 1.6$$