Nalanda Open University
Bachelor of Computer Application, Part-I
Final Examination, 2008
Paper-I, (CS-610)

Time: 3.00 Hrs.   Full Marks: 75

Answer all questions.

1. Read the following passage carefully and answer the questions that follow:-

    The new dangers resulting from our more organic society call for certain changes in the kind of character that is admired. The bold buccaneer, or the great conqueror such as Alexander or Napoleon, has been admired and is still admired although the world can no longer afford this type of character. We come here upon a diffidently. It is a good thing that people should be adventurous and that there should be scope for individual enterprise, but the adventure and enterprise, if they are not to bring total disaster, must steer clear of certain fields in which they were formally possible. You can still, without harm to your fellowmen wish to be the first man to reach the moon. You may wish to be a great poet or a great composer or a man who advances the boundaries of scientific knowledge. Such adventure injures no one. But if Napoleon is your ideal, you must be restrained. Certain kind of anarchie self-assertion which are splendid in the literature or tragedy, have come to involve too much risk. A motorist alone on an empty road may drive as he pleases, but in crowded traffic he must obey the rules. More and more the lives of the individuals come to resemble the motorist in traffic rather than the lonely driver in an empty desert.

                                                                 (Bertrand Russell)

    Questions:
    (a) Choose a suitable title to the passage.   1
    (b) Why can't the modern world afford to have adventurous
        characters like Alexander or Napoleon?   5
    (c) What is splendid in the literature of tragedy?   5
    (d) What idea does the writer want to convey by giving the analogy
        of a motosist?   5
    (e) What kind of adventures injures no one?   5
    (f) Write down central idea of the passage in one sentence.   5

2. Write an essay on any one of the following: 10
    (a) A friend in need is a friend indeed.
    (b) Olympic Games
    (c) Detective fiction
    (d) A College Library
    (e) A Moonlit Night

3. Turn the following into Passive Voice: 6
    (a) He urged the Council to reduce the rates.
    (b) He wants someone to take photographs.
    (c) My father planted this tree.
    (d) He hurt his leg in an accident.
    (e) They are repairing the bridge.
    (f) Napoleon conquered Austria.

4. Fill in the blanks with may or can in the following 5 sentences: 5
   (a) You _____ not think so, but dirty streets _____ cause epidemics.
   (b) With a little effort you and your wife _____ keep the house clean.
   (c) Look at the dark clouds, it _____ rain tonight.
   (d) Rubbish should he put in the dustbin so that it _____ be removed by cleaners every day.
   (e) " _____ you stand on your head"?

5. Fill in the blanks in the sentences below with the verbs in the brackets in the correct form: 5
   (a) Before he left for the tour, he _____ (take) trouble to arrange for all that would he needed.
   (b) They _____ (Complete) the construction of the house when we arrived.
   (c) I _____ not yet ____ (arrived) at a solution to the problem.
   (d) _____ he _____ (write) the letter to his Secretary?
   (e) The wind _____ (blow) all the dried leaves to one side of the road.

6. Fill in the blanks with a, an, or the 5
   (a) He belongs to _____ rich family.
   (b) I thought you were _____ honest man.
   (c) I am not _____ good judge of poetry.
   (d) I had to wait at _____ bus stand for _____ long time.
   (e) The students have formed _____ union.

7. Fill in the blanks in the following sentences by using the appropriate words from the list given below: 10
   Monster Computer, Analog Computer, Digital Computer, Micro Computer, Mini Computer.
   (a) A computer that measures continuously data such as speed and chemical composition is called an _____.
   (b) The largest, fastest and most expensive class of computers in known as _____
   (c) A _____ is distinguished from a main computer by small size, lower cost and less data handling capacity.
   (d) A _____ manipulates discontinuous data and performs arithmetic and logic operations in such data.
   (e) A small computing machine based upon an integrated circuit microprocessor is generally known as _____.

8. Answer the following questions: 8
   (a) Why is the demand for monster computer increasing?
   (b) From where does the mini computer get its name?
   (c) What are the special features of mainframe computers?
   (d) Why are the digital computers popular in the business world?
   (e) For what sort of data are analog computers used?

ඊ ශ ශ

Nalanda Open University
Bachelor of Computer Application, Part-I
Term End Examination, 2008
Paper-III, (CS-611)

Time: 2.00 Hrs.   Full Marks: 60

Answer any Five Questions

1. Describe the components of Von Neumann architecture. What is the purpose of defining any architecture of a Computer system? Can a Computer system be made by just a single chip? Justify your answer.

2. What are the security threats to a Computer if it is connected to Internet? What are worms? How are they different from Computer Viruses?

3. Write the function of each layer in an OSI reference model.

4. What is Optical Fibre? Can an optical fibre be used as a transmission medium for a Wide Area Network? Justify your answer.

5. What is Reduced Instruction Set Computer (RISC)? How is it different from a Von Neumann machine?

6. What is batch operating system? What were the disadvantages of this system that led to multiprogramming system? What is multitasking? What are its applications?

7. What is the need of a Presentation Software like Powerpoint? Describe five most important features needed in a presentation package. Give reason for your selection.

8. Draw and explain any theree topologies of a LAN.

9. Describe the following terms in brief.
   (a) Word
   (b) Giga Byte
   (c) Routers
   (d) Bridge

10. Compare and contrast between-
   (a) DRAM and SRAM
   (b) Serial Interfaces and Parallel Interfaces.
   (c) Dial up Internet connection and Broadband Internet connection

****

Nalanda Open University
Bachelor of Computer Application, Part-I
Term End Examination, 2008
Paper-IV, (CS-612)

Time: 3.00 Hrs.

Full Marks: 75

Answer any Five Questions

1. Given a 12-litre vessel filled up with milk and two empty vessels with capacities of 9 litres and 5 litres. How can you divide the milk into 2 equal portions? Explain and write the sequences of steps to solve.

2. Explain how the access of work book in EXCEL can be restricted from other users.

3. List and explain different tools and services available on Internet.

4. What is template? Mention its use in MS-EXCEL and write the sequence of steps to create a template with the help of an example.

5. Explain the following-
   (i) FTP
   (ii) E-commerce
   (iii) E-Greetings
   (iv) Hymermedia

6. Explain the features of the following with the help of an example of each-
   (i) Goal Seek
   (ii) Solver

7. What is Internet? Briefly explain the workingof Internet. Also explain four methods of connecting to the Internet.

8. Explain the following functions giving examples of each:-
   (i) EXP( )
   (ii) CEILING
   (iii) AND ( )
   (iv) REPLACE ( )

9. Explain what is firewall. Describe the role of firewall in protecting network from hackers.

10. The sum of four numbers A,B, C and D is 110, C is twice A, sum of A and D is equal to that of B and C and A:B is 3:5. Find the value of A,B, C and D.

****

Nalanda Open University
Bachelor of Computer Application, Part-I
Main Examination, 2008
Paper-VI, (CS-62)

Time: 2.00 Hrs.   Full Marks: 60

Answer all questions.

1. Write a 'C' program to check if a string entered from the keyboard is a Palindrome or not.

2.(a) Construct the binary tree using the following post-order and in-order sequences:
   Post- order   :   B G H F R W T Z YS P
   In- order   :   B F G H P R S T W Y Z
   Also, write the Preorder Sequence of if.

  (b) Write an algorithm for Multiplication of two Metrics.

3. Write a program in 'C' language that accepts the name of a life as input and prints the contents of that file in reverse order. (That is the last line of the input file will be printed as the first line on the output and so on.)

4. Define a circular queue. Write an algorithm to implement the insertion and deletion operations in a circular queue.

5. How is a graph represented by an adjacency matrix? Write any two drawbacks of such a representation.

6. Discuss the differences between the following file organization techniques:-
   * Sequential File Organization
   * Index Sequential File Organization
   * Direct File Organization
   To what type of applications are each of the above techniques suited?

7. Draw the internal memory representation of the following Binary tree using sequential representation:-
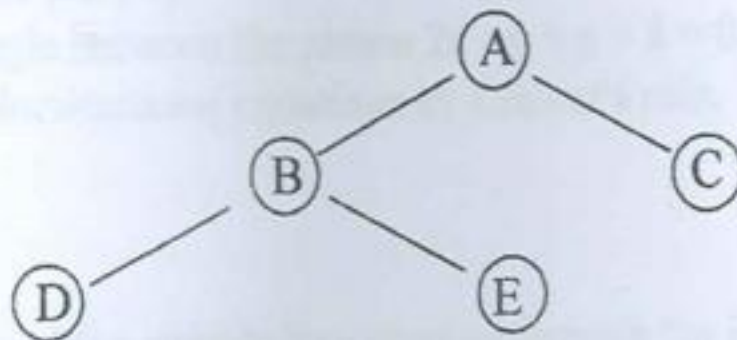
8. Write Prim's algorithm.
9. What is an AVL Tree? How does it differ from a Binary Tree?
10. Explain the following with an example of each:
   (i) Garbage Collection
   (ii) Heap
   (iii) "Structure" in C
   (iv) Height balanced tree
   (v) Hash function

ೞ ೞ ೞ

Nalanda Open University
Bachelor in Computer Application, Part-I
Final Examination, 2008
Paper - CS - 60

Time: 3.00 Hrs.   Full Marks: 75

Answer any five questions.

1. (a) If $R \rightarrow R$ is defined by $f(x) = x^2 - 3x + 5$ find (a) $f^{-1}(3)$ (b) $f^{-1}(15)$.
   (b) Let R be the set of real numbers. Define $f : R \rightarrow R$ and $g : R \rightarrow R$ by $f(x) = 3x - 2$ and $g(x) = x^2 + 4$
       Find (a) gof (b) fog.

2. Find the Limit

   (a) $\underset{n \rightarrow \infty}{Lt} \left\{ \dfrac{1^2}{n^3} + \dfrac{2^2}{n^3} + \dfrac{3^2}{n^3} + \ldots\ldots\ldots + \dfrac{n^2}{n^3} \right\}$

   (b) $\underset{x \rightarrow 0}{Lt} \dfrac{e^{\sin x} - 1 - \operatorname{Sin} x}{x^2}$

3. (a) Simplify $\dfrac{3(a+b)}{\sqrt{a} - \sqrt{-b}} + \dfrac{4a + 9b}{3\sqrt{-b} - 2\sqrt{a}}$, $a > 0, b > 0$

   (b) To find the cube roots of -1.

4. (a) To find from the first Principle. The differential co-efficient of $\sec^{-1} x$.

   (b) Find $\dfrac{d^2 y}{dx^2}$ if $x = a\cos\theta, y = a\sin\theta$.

5. (a) If $y^{1/m} + y^{-1/m} = 2x$ Prove that $(x^2 - 1)y2 + xy1 - m^2 y = 0$

   (b) If $y = x^2 \log x$ then find yn.

6. Evaluate the following integrals
   (a) $\int (\log x)^2 dx$ (b) $\int \dfrac{xe^x}{(x+1)^2} dx$ (c) $\int_0^{\pi/4} \tan^4 x \, dx$

7. (a) Taking 6 sub divisions of the interval [0, 6] find an approrumate value of $\int_0^6 \dfrac{x^2}{1+x^2} dx$

   using simpson's $\dfrac{1}{3}$ rd Rule.

   (b) Solve the Equation: $x^3 + 3x^2 - 27x + 104 = 0$ by Cardano's method.

8. (a) Find the Projection of the line-segment joining the points (2,3,4) and (3,4,5) on the line whose direction ratios are (6,6,-7).

   (b) Find the acute angle between the planes $2x - y + z + 8 = 0$ and $x + y + 2z - 14 = 0$.

9. Solve the following simultaneous equations by Cramer's rule.

   $x + y + z = 7$

   $5x + 4y - 3z = 1$

   $6x - 3y + 2z = 8$

10.(a) Find the equation of the straight line passing through the intersection of the lines $x - 2y = 1$ and $x + 3y = 2$ and parallel to the line $3x + 4y = 3$.

   (b) Find the Egn of the tangent to the hyperbola $4x^2 - 9y^2 = 1$ which is parallel to the line $4y = 5x + 7$.