Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA) Part-I
Paper – I

Time : 3 hours *Maximum Marks : 80*

Answer all questions.

1. Read the following passage carefully and answer the questions that follows.

Then he remembered what followed that evening. It was decided that the young man should spend the years of is captivity under the strictest supervision in one of the lodges of the banker's garden. I was agreed that for fifteen years he should not be free to cross the threshold of the lodge to see human being to hear the human voice or to receive letters and news papers. Hw was allowed to have a musical instrument and books, and was allowed to write letters, to drink wine, and to smoke. By the terms of the agreement, the only relations he could have with the outer world were by a little window made purposely for that object. He might have anything he wanted- books, music, wine and through the window. The agreement provided for every detail and every trifle that would make his imprisonment strictly and bound the young man to stay there exactly fifteen years beginning from twelve O'clock November 14,1870 and ending at twelve O'clock of November 14, 1885. The slightest attempt on his part to break the conditions, if only two minutes before the end, released the banker from the obligation to pay him two millions.

2x5=10

(a) Choose a Suitable title to the passage.
(b) Between whom the agreement to live in confinement for fifteen years was signed?
(c) Where was the young man required to spend the years of his captivity?
(d) What facilities were granted to the young man while living in solitary confinement?
(e) How could he have relations with the outer world?

2. Write an essay on any one of the following:

20

(a) Cyber Crime
(b) Honesty is the Best Policy
(c) Your Aim in life
(d) Rising prices

3. (a) Change the voice :– 2
   (i) He showed me the new building
   (ii) Shakespeare wrote 'Hamlet'.
   (b) Complete the sentences with suitable question tag 2
   (i) You have read the novel .....?
   (ii) He said to me, "I am not a very rich man.....?
   (c) Change into indirect speech. 2
   (i) The teachers said, "The Sun sets in the west".
   (ii) Earth revolve round the Sun.
   (d) Correct the sentences. 2
   (i) It is raining continuously for ten hours.
   (ii) Earth revolve round the Sun.
   (e) Combine the sentences into one by using 'too, to'. 2
   (i) He is very tired. He cannot work.
   (ii) He was quite angry. He could not speak.

4. Write a paragraph in about 200 words on any one of the following 10
   (a) Use fullness of computer in human life.
   (b) Need for distribution of work in society.
   (c) Science has brought a rapid change in human life.

5. Fill in the blanks with must or have to in the following sentences: 5
   (a) I ..... leave now; it is getting late.
   (b) I can never remember peoples phone numbers: I always ..... look up.
   (c) You ..... try to be a little more tactful.
   (d) It isn't fair, I always ..... do the dirty work
   (e) If there is a problem. You ..... report it to me.

P.T.O.

6. Choose a verb with either the present perfect or past simple for these sentences: 10

agree appear continue disappear have move reach show solve write

(i) Research ..... that cycling can help patients overcome their illness.
(ii) The rabbit just ..... in my garden one day last week.
(iii) With this promotion, I feel that I ..... a turning point in my career.
(iv) Oh, no! My car .....!
(v) Quite early in the negotiations, they ..... to lower the prices.
(vi) In 1788 he ..... his last great work in Vienna.
(vii) There's not much more to do, now that we ..... the main problem.
(viii) Throughout the summer of 1980 Mahender ..... to divide his time between Delhi and Mumbai.
(ix) When he was 13, his parents ..... to the United States.
(x) Seema ..... her friendship with her husband despite the separation.

7. Insert suitable prepositions in the following sentences. 5

(i) Depend ..... me; I will never harm you.
(ii) Exercise is necessary ..... good health.
(iii) My plane failed to take ..... at the right time.
(iv) He is confined ..... bed for a week.
(v) I congratulated her ..... her success.

8. **(a) Fill in the blanks by using the appropriate words from the words given below.** 5

Monster Computer, Analog Computer, Digital Computer, Micro Computer, Mini Computer.

(i) A Computer that measures continuously data such as speed and chemical composition is called ..... .
(ii) The largest, fastest and most expensive class of computers is known as .....
(iii) A ..... is distinguished from a main computer by small size, lower cost and less data handling capacity.
(iv) A ..... manipulates discontinuous data and performs arithmetic and logic operations in such data.
(v) A small computing machine based on an integrated circuit microprocessor is generally known as ..... .

(b) Match words of list A with words of similar meaning in list B. **5**

A	**B**
Meditation	Conflict
Oblivion	worship
Adore	Contemplation
Strife	forgetfulness
Rowing	Noisy

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Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA) Part-I

Paper-II (Foundation Course in Humanities and Social Sciences) BHSF –101

Time: 3.00 Hrs. **Full marks: 80**

Answer five questions. Question No.1 is compulsory.
पाँच प्रश्नेां के उत्तर दीजिए । प्रश्न संख्या एक अनिवार्य है ।

(1) Mark correct √ or Wrong X. as the case may against each of the following sentence 16×1=16
अधोलिखित में से प्रत्येक, के सामने सही (√), अथवा गलत (×), जैसी स्थिति हो, का चिह्न लगावें ।

(i) The Neolithic human being seems to have been a peace loving person. (true/false)
ऐसा लगता है कि नव पाषाण कालीन मानव शांतिप्रिय था । (सही/गलत)

(ii) The population in the Neolithic Age was on the decrease. (true/false)
नव पाषाण काल में जनसंख्या घट रही थी । (सही/गलत)

(iii) Urban settlements were there in the stone Age. (true/false)
पाषाण काल में शहरीकरण हो गया था । (सही/गलत)

(iv) Severe restrictions were imposed on the citizens in Europe during the Renaissance period. (true/false)
यूरोप में पुनर्जागरण के काल में नागरिकों पर कठोर प्रतिबंध लगाए जाते थे । (सही/गलत)

(v) The feudal society was a class–less society. (true/false)
सामन्ती समाज एक वर्गहीन समाज था । (सही/गलत)

(vi) 'Humanism' was a great contribution of Renaissance. (true/false)
मानववाद पुनर्जागरण की महान देन थी । (सही/गलत)

(vii) Renaissance contributed to the development of secular ideas. (true/false)
पुनर्जागरण ने धर्मनिरपेक्ष विचारों के विकास में योगदान दिया । (सही/गलत)

(viii) Nation–states emerged in a very short time in Europe. (true/false)
यूरोप में थोड़े समय में राष्ट्र-राज्यों का उदय हो गया । (सही/गलत)

(ix) Bartholomew Diaz sailed to America in 1492. (true/false)
बार्थोलोम्यू डायज 1462 में समुद्री यात्रा करके अमेकिा पहुँचा । (सही/गलत)

(x) The drain theory was put forward by the Western Scholars. (true/false)
ड्रेन सिद्धान्त पश्चिमी विद्वानों ने प्रस्तुत किया था । (सही/गलत)

(xi) Compass is used to measure distance. (true/false)
दिशा सूचक यंत्र दूरी मापने के काम आता है । (सही/गलत)

(xii) The First Five Year Plan emphasized on development of irrigation capacity. (true/false)
प्रथम पंचवर्षीय योजना ने सिंचाई क्षमता के विकास पर बल दिया । (सही/गलत)

(xiii) Direct attack on poverty was a plan strategy during the 1980s. (true/false)
1980 के दशक के दौरान योजना की रणनीति गरीबी पर प्रत्यक्ष प्रहार थी । (सही/गलत)

(xiv) Trickle down effect visualised that rice farmers would benefit from green revolution. (true/false)
थोड़ा-थोड़ा करके मिल रहे प्रभावों से प्रतीत हुआ कि हरित क्रांति से लाभ धनी किसानों को होगा । (सही/गलत)

(xv) Mahalanobis model formed the basis of the Second Plan. (true/false)
महालनोबिस मॉडल दूसरी पंचवर्षीय योजना का आधार बना । (सही/गलत)

(xvi) Is diffusion one of the causes of social change? (true/false)
क्या प्रसार सामाजिक परिवर्तन के कारणों में से एक है । (सही/गलत)

2. What do you understand by 'Protestant Revolution'? What kind of economic and political changes accompanied it?
'प्रोटेस्टेंट क्रांति' से आप क्या समझते हैं? उसके साथ किस प्रकार के आर्थिक तथा राजनीतिक परवर्तन आए?

3. Discuss the characteristic features of the Harapan civilisation. How did it decline?
हड़प्पा सभ्यता के चारित्रिक लक्षणों पर चर्चा कीजिए । यह सभ्यता किस प्रकार अवनत हुई?

4. Discus the legacy of nationalist movement in India.
भारतीय राष्ट्रवादी आन्दोलन की विरासत की चर्चा कीजिए ।

5. Discuss the functions of family as a social institution.
सामाजिक संस्था के रूप में परिवार की भूमिका की चर्चा कीजिए ।

6. Explain the essentials of decision – making in administrative organisations.
प्रशासनिक संगठनों में निर्णय लेने के मूलभूत तत्वों की व्याख्या कीजिए ।

7. Explain the significance of human rights.
मानव अधिकारों के महत्व की व्याख्या कीजिए ।

8. What do you understand by communalism? Was it a legacy of the British rule?
साम्प्रदायिकता से आप क्या समझते हैं? क्या यह ब्रिटिश शासन की देन थी?

9. Discuss the important features of the Indian federal system.
भारतीय संघीय व्यवस्था के महत्वपूर्ण लक्षणों पर चर्चा कीजिए ।

10. What is an eco–system? Discuss its importance
पारिस्थितिकी-तंत्र क्या है? इसके महत्व पर चर्चा कीजिए ।

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Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA) Part-I
Paper-IV (CS-612)

Time: 3.00 Hrs. **Full Marks: 80**

Answer any Five questions.

1. What is a Decision Tree? Solve the following problem using Decision Tree: "You have been given 13 (thirteen) coins, one of which is different (heavier) from the rest in weight how will you pick it in no more than three weighings? Also draw the decision tree for the given problem.
2. What is a Browser? Differentiate between Gopher and World Wide Web browsing mechanisms.
3. What is a Pivot table? List the sources from which a pivot table can be created. Write the steps for creating a pivot table?
4. What is Internet? Briefly explain the working of Internet. Also explain different methods of connecting to the Internet.
5. What are charts? Why are they created in Excel? Explain any six chart components.
6. Gives a 12 liter vessel filled with milk and two empty vessels with capacity of 9 liters and 5 liters. How can you divide the milk into 2 equal portions? Explain and write sequence of steps to solve the problem.
7. What is the significance of Domain Name System? List any three geographic and non-geographic domain names.
8. With the help of an example, explain the application of a decision tree. Also draw the decision tree for your example.
9. Differentiate between relative, absolute and mixed cell reference giving suitable examples for each.
10. What is the importance of "scenario"? Write the step-by-step procedure for creating Scenario.

Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA) Part-I
Paper – V (CS–60)

Time : 3 hours ***Maximum Marks : 80***

Answer any five questions. All questions carry equal marks.

1. Find the Limits

   (a) $\underset{x\to 4}{Lt}\ \dfrac{x^3-2x^2-9x+4}{x^2-2x-8}$ (b) $\underset{x\to 0}{Lt}\ \dfrac{e^{ax}-e^{bx}}{x}$

   (c) $\underset{\theta\to 0}{Lt}\ \dfrac{3Sinx-Sin3x}{x^3}$ (d) $\underset{x\to 0}{Lt}\ \dfrac{e^{\sin x}-1-\sin x}{x^2}$

2. (a) To find differential coefficient of $Sin^{-1}x$ with respect to x with the help first principle.

   (b) If A = {1, 2, 3}, B = {4, 5, 6}, then find A X B and B X A.

3. (a) Obtain $\dfrac{2+3i}{1-i}$, in the from (a + ib), $a, b\in R$

   (b) If 1, W, W^2 be the three cube roots of unity then show that
   $(1-W+W^2)\ (1-W^2+W^4)\ \ (1-W^4+W^8)\ \ (1-W^8+W^{16}) = 16$

4. (a) Solve the equation
   $x^4-2x^3-5x^2+10x-3=0$

   (b) State Lagrange's Mean value theorem.

5. Find $\dfrac{dy}{dx}$ (a) $y=\dfrac{5}{1+5x+7x^2}$ (b) $y = e^{(x^2+2x)}$

   (c) $x=a\,Cos^3\theta$, $y=b\,Sin^3\theta$ (d) x + y = tan (xy)

6. Integrate the following.

   (a) $\int \dfrac{Cos^3x}{Sin^2(2x)}dx$ (b) $\int \dfrac{\tan^{-1}x}{1+x^2}dx$

   (c) $\int \dfrac{\sqrt{x}}{\sqrt{x}+2}dx$ (d) $\int x e^{mx}\,dx$

7. Find the equation of the perpendicular bisector of the line segment joining the points (1,1) and (2,3).
8. Find the equation of the Parabola whose focus is (–1, 2) and directrix is x–2y-15=0.
9. Find the equation of the ellipse whose one focus is (–1, 1), directrix is x–y+3=0 and eccentricity is $\dfrac{1}{2}$.
10. Solve the following simultaneous equations by Crammer is rule.

    x + y + z = 7
    5x + 4y – 3z = 1
    6x – 3y + 2z = 8

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Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA)
(Fundamental course in Science and technology) FST-01
Paper- VII

Time : 3 hours **Maximum Marks : 80**

Answer any five questions. All questions carry equal marks.
(किन्हीं पाँच प्रश्नों का उत्तर दीजिए। सभी प्रश्नों के अंक समान हैं।)

1. With the help of suitable examples, discuss the social function of science.
उपयुक्त उदाहरणों की मदद से, विज्ञान की सामाजिक कार्यों की विवेचना कीजिए।

2. Some diseases have been listed in ***column I;*** Write down the corresponding deficiencies ***column II.***

COLUMN - I	**COLUMN-II**
Disease (रोग)	Deficiency (पोषक तत्व की कमी)
(a) Night blindness (रतौंधी)	
(b) Goitre (घेंघा)	
(c) Kwashiokar (क्वाश्योरकर)	
(d) Marasmus (सूखा रोग)	
(e) Rickets (रिकेट्स)	
(f) Anameia (एनीमिया)	
(g) Pellagra (पेलाग्रा)	
(h) Bow legs (टाँगे टेढ़ी)	

3. Discuss the reasons for development of science in European society during post renaissance period. Describe the factors responsible for Industrial Revolution.
पुनर्जागरण के बाद की अवधि के दौरान यूरोपीय समाज में विज्ञान के विकास के कारणों की चर्चा कीजिए। औद्योगिक क्रांति के लिए जिम्मेदार कारकों का वर्णन करें।

4. State if the following statements are true (T) or false (F).
बताईये कि निम्नांकित कथन सही (T) है अथवा गलत (T) :–

(i) Splitting of nucleus into two parts is called fusion.
नाभिकीय बिखंडन से दो भागों में बंटवारे की प्रक्रिया को संलयन कहा जाता है।

(ii) The theory "Origin of species" was proposed by Lamarck.
"जीवन की उत्पत्ति" के सिद्धांत को लैमार्क द्वारा प्रस्तावित किया गया था।

(iii) The loudness of noise is measured in Hertz.
ध्वनि के ऊँचे स्तर को हट्र्ज में मापा जाता है।

(iv) Hormones are secretions of ductless glands.
हार्मोन नलीहीन ग्रंथियों के स्त्राव होते हैं।

(v) Man can occupy more than one trophic level.
मनुष्य एक से अधिक पौष्टिकता स्तर पर कब्जा कर सकता है।

(vi) DPT stands for Diphtheria, Pertussis, Tetanus.
डीपीटी गलघोंटू, काली खासी, टेटनस का लघु रूप है

(vii) In relay cropping, a crop is sown before the preceding crop is harvested.
रिले क्रॉपिंग में, पूर्ववर्ती फसल की कटाई से पहले दूसरी फसल बोई जाती है।

(viii) MIC was responsible for Bhopal disaster.
भोपाल गैस कांड के लिए जिम्मेदार एम आई सी था।

(ix) Stars have fixed positions in space.
अंतरिक्ष में सितारे की स्थिति नियत होती है।

(x) Deficiency of vitamin D causes rickets in children.
विटामिन डी की कमी से बच्चों में रिकेट्स नामक रोग हो जाता है।

(xi) Carbohydrates and fats are called body - building foods.
कार्बोहाइड्रेट और वसा शरीर निर्माणकारी खाद्य पदार्थ कहे जाते हैं।

(xii) Ergonomics is the study of the interaction of organisms with their environment.
जीवों और उनके पर्यावरण के बीच पारस्परिक क्रिया के अध्ययन को श्रम दक्षता शास्त्र कहते हैं।

(xiii) Wind is a non - renewable energy resource.
पवन एक गैर अक्षय ऊर्जा संसाधन है।

(xiv) Causative agent for dengue fever is a virus.
डेंगू बुखार एक वायरस के कारण होता है।

(xv) Chicken pox is water born disease.
चेचक पानी जनित रोग है।

(xvi) Telephone is a device mainly used for mass communication.
टेलीफोन एक उदाहरण है जिसका उपयोग मुख्य रूप से जन संचार के लिए हुआ है।

5. Write short notes on any **two** of the followings:
अधोलिखित में से किन्हीं **दो** पर संक्षिप्त टिप्पणियाँ लिखिएः

(a) Write two application of LASER.
लेजर के दो अनुप्रयोग लिखें।

(b) Adverse effects of deforestation.
वनों की कटाई के प्रतिकूल प्रभाव।

(c) What are persistent pollutants?
दीर्घ स्थायी प्रदूषक क्या है?

(d) What is meant by essential amino acids?
आवश्यक अमीनो एसिड से क्या तात्पर्य है?

6. Write short answers for the following questions:
अधोलिखित प्रश्नों के लिए संक्षिप्त उत्तर लिखिए।

(a) Differentiate between the renewable and non - renewable resources of energy.
ऊर्जा के नवीकरणीय और गैर नवीकरणीय संसाधनों की बीच अंतर कीजिये।

(b) What is meant by a balanced diet? Suggest the composition of a balanced diet needed by an adult working man.
एक संतुलित आहार का क्या अर्थ है? किसी परिश्रम करने वाले वयस्क के लिए आवश्यक संतुलित आहार की संरचना का सुझाव दीजिये।

7. Explain the theory of chemical evolution and give its scientific basis.
रासायनिक विकास के सिद्धांत की व्याख्या कीजिए और इसके वैज्ञानिक आधार के बारे में बताएं।

8. What is semi-conductor? Discuss the various semi-conductor devices and their uses.
सेमीकन्डक्टर क्या है? विभिन्न सेमीकन्डक्टर–साधनों एवं उनके उपयोगों का विवेचन कीजिए।

9. What do you mean by alternate food resources? Briefly discuss the advancements our country has made in their production.
वैकल्पिक खाद्य स्त्रोतों से आपका क्या तात्पर्य है? इन साधनों के उत्पादन के लिए हमारे देश में हुयी प्रगति की संक्षेप में चर्चा कीजिए।

10. List various modes of spread of diseases. Discuss any two of these modes along with methods of prevention.
रोगों के प्रसार के विभिन्न तरीकों की सूची बनाइये। इनमें से किन्हीं दो विधियों की और उनके द्वारा होने वाले रोगों की रोकथाम की चर्चा कीजिए।

Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA)
(ELEMENTS OF SYSTEM ANALYSIS AND DESIGN) CS-05
Paper- IX

Time : 3 hours **Maximum Marks : 80**

Answer any five questions. All questions carry equal marks.

1. Define System? Explain the characteristics and components of a system. Describe any real life system.
2. Who is a system analyst? What is the role of a System analyst in system development? Explain the attributes of a good system analyst.
3. How is Data Flow Diagram(DFD) useful in analysing the data and processes used in a system? Draw a DFD for Hospital management system. Make necessary assumptions if required.
4. What is Cost-Benefit analysis? Explain different types of Cost and Benefits giving examples for each type.
5. Explain different design tools used in development of a system. Explain the factors used for controlling form design. Why prototyping is used in software development.
6. Why documentation of a system is done.? Explain different types of documentation and their use in system development.
7. Explain how testing is important System Development Life Cycle. Describe different types of testing processes and their utility.
8. (a) What are the steps in implementation of a software.? Explain.
   (b) Explain software conversion method and bench-marking concepts in software development.
9. Explain Corrective, Adaptive and Perfective maintenance with an example. Why maintenance of a software important.
10. Write a short note on any three of the following:
    (i) Methods of Input Verification
    (ii) Feasibility Study
    (iii) Vendor Selection
    (iv) Software Quality

Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA) Part-II
(DATABASE MANAGEMENT SYSTEM)
Paper – X (CS-06)

Time : 3 hours ***Maximum Marks:80***

1. What is a database? Describe the elements of Database. Explain the architecture of DBMS with a suitable diagram.

2. What role does an E-R Diagram play in Database Management System. Explain different components of an E-R diagram with a suitable example.

3. Why Data Normalization important? Explain. Give an example of a table which is in 3NF and requires to be normalized in BCNF.

4. Explain the different models of Database Management system.

5. What are the different indexing methods? Explain ISAM and VSAM. Explain the advantages of B-tree and B+ tree.

6. Describe different types of file organization with examples of each type. Which type of file organisation is the best and why?

7. What are database anomalies? How are they handles? Explain the concept of View updates in database management system.

8. Compare and contrast between RDBMS and OODBMS. Write five SQL queries and explain their purpose.

9. Explain with suitable examples any six rules of E.F. Codd for DBMS.

10. Write short notes on any three:
    (a) ISAM and VSAM
    (b) Data Dictionary
    (c) Network Model
    (d) Remote Procedure Call (RPC)

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Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA) Part-II
Paper – XI (CS-64)

Time : 3 hours ***Maximum Marks:80***

Answer any five questions.

1. (a) Perform the following arithmetic operations using 8-bit registers. Use binary signed 2's complement notation. Indicate overflow/underflow, if any
   (i) – 66 – 65
   (ii) 53 – (–44)
   (iii) – 64 + 38
   (iv) 52 – 48
   (b) Convert the following :
   (i) $(101100.001)_2 = (\ )_{10}$
   (ii) $(F476.BD)_{16} = (\ )_{10}$
   (iii) $(6342.57)8 = (\ )_2$
   (iv) $(459)_{10} = (\ )_{16}$
2. Simplify the following Boolean function using SOP form, using Karnaugh-Map. **F (A, B, C, D) = (0, 2,4, 6,7,8, 11,12,13).** Draw the circuit for the solution using NOR gates only.
3. What are Universal gates. Draw AND, OR, NOT and XOR Gates using Universal gates and give their truth tables.
4. Explain the use of Multiplexers and De-multiplexers. Draw a **16 X 1** Multiplexer.
5. What is the difference between S-R flip-flop and J-K flip flop? What are the problems with these flip-flops and how they can be rectified? Explain.
6. Explain the difference between combinational circuits and sequential circuits with examples. Draw a mod-3 counter. Why counters are used?
7. Explain different types of Machine Instructions and Addressing modes with examples.
8. What are horizontal and Vertical micro-instructions? What is the need of micro-programmed control unit in a computer ? Explain.
9. Describe different types of memories used in Computer system. What is memory interleaving and why it is used.
10. Write short notes on any four :
    (a) RISC and CISC
    (b) Arithmetic Logic Unit
    (c) I/O Devices
    (d) Pipelining
    (e) Associative mapping in cache.

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Nalanda Open University
Annual Examination - 2013
Bachelor in Computer Application (BCA) Part-II
Paper – XIII (CS-66)

Time: 3 hours ***Maximum Marks: 80***

Answer any five questions.

1. With the help of an illustration, explain the planning and design, Production and Distribution of a multimedia application.

2. Discuss the hardware and software used in a multimedia PC.

3. Describe, how education and training fields are influenced and effected by multimedia.

4. Explain the role of multimedia in Publishing Industry with suitable example.

5. What is development life-cycle of multimedia contents? Also, explain the various phases involved in multimedia development..

6. Explain, with example, the use of storyboard for graphical representation of multimedia project.

7. What is video on demand? Explain the methods available to deliver/distribute video on demand. Explain the working of Quick Time Software

8. What is hypertext? Explain this with a diagram. Also, explain its major elements.

9. Describe the following file formats and mention the related Software through which we can work with them :

   (a) AVI
   (b) JPG
   (c) MOV
   (d) PCX
   (e) WAV

10. Discuss Cross - platform capability of a multimedia. Discuss the features of Image Q and Authorware tools.

Nalanda Open University
FINAL EXAM YEAR -2013
BACHELOR IN COMPUTER APPLICATION (BCA), Part-III
PAPER-15 (CS-68: COMPUTER NETWORKS)

Time: 3 hours ***Maximum Marks: 80***

Answer any FIVE questions .All questions carry equal marks.

1. Explain the difference between OSI model and TCP/IP model with a proper diagram.

2. What is transmission mode? Why it is required? Explain different types of transmission modes.

3. What are topologies? Compare and contrast Star and Ring topology with diagram of each.

4. Explain the function of Router, Bridge, Hub and Switch and the layers at which they are used.

5. Explain different types of routing and congestion control algorithms.

6. Explain LAN, WAN and MAN and protocols associated with each of these networks.

7. Explain the function of a modem. What are the modulation techniques used in modems Explain TCP header format?

8. Define Virtual circuit and datagram. Differentiate between virtual circuit subnet and datagram subnet. What are the two popular approaches to packet switching ? Explain any one of them.

9. Explain the classes of service defined for ATM. Give an example for each service class.

10. Explain the following terms.
    (i) DNS
    (ii) ISDN
    (iii) Multiplexing
    (iv) Baseband

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Nalanda Open University
Annual Examination-2013
BCA, Part-III, PAPER-XVI
(BCS-061: TCP/IP Programming)

Time: 3 hours ***Full Marks: 80***

Answer any FIVE questions .All questions carry equal marks.

1. How flow control is managed in TCP? Explain sliding window protocol in detail using an example.
2. What is the purpose of layering? How many layers does the TCP/IP Protocol Suit Contain? Explain the function of each layer of TCP/IP Protocol Suit.
3. What are the functionalities of primary and secondary DNS servers? How does the DNS server work? Explain with the help of suitable example
4. What is the need of IP addresses? Which format is used to store the IP addresses? Explain and differentiate different classes of IP address with an example of each.
5. What is the Distance vector routing algorithm? Explain its working with the help of a suitable example.
6. What is meant by "uniform resource locator"? Give an example of 'URL' and explain the meaning of it's various fields.
7. Why quality of service parameters need to be defined in network operation ? Explain any three quality of service parameters.
8. Differentiate between unicasting, broadcasting and multicasting methods of message transmission.
9. Differentiate between the working of SMTP and POP protocols.
10. What is HTTP? Explain any four methods used by HTTP for data transfer.

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Nalanda Open University
Annual Examination -2013
B.C.A. Part-III, Paper-XVII
CS-70: Software Engineering

Time: 3 hours ***Maximum Marks: 80***

Answer any FIVE questions .All questions carry equal marks.

1) What is System Development Life Cycle? Explain each phase of SDLC.

2) Compare and contrast between different process model. Explain their advantages and disadvantages.

3) Consider a Library Information System. Identify at least 10 risks associated with such a software system.

4) What is Software testing ? Explain why different types of testings are required for a Software System.

5) What is adaptive maintenance? Explain how it is different from corrective maintenance ? Explain at least four recent developments that influenced the software development methodologies.

6) Define Forward Engineering & Reverse Engineering. Describe the situations for which they are suitable to apply.

7) What is Software fault ? Explain how faults are detected found in a Software System? What is Software reliability? Explain the process of software review.

8) Mention any five principles of Software Engineering. Explain the following terms in the context of Software Engineering.
(i) Debugger (ii) Reparability (iii) Verification (iv) User Interface.

9) What are CASE tools ? List various CASE tools in use. Explain briefly the advantages of using CASE tools.

10) Write short notes on :
   (a) COCOMO
   (b) DFD
   (c) Risk Management.

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Nalanda Open University
FINAL EXAM YEAR -2013
BACHELOR IN COMPUTER APPLICATION (BCA), Part-III
PAPER-XVIII (CS-71: COMPUTER NETWORKS)
Calculator is allowed

Time: 3 hours ***Maximum Marks: 80***

Answer any FIVE questions .All questions carry equal marks.

1. (a) Do three iterations of the secant method to solve the equation.
$x^3 + x - 6 = 0$, starting with $x_0 = 1$ and $x_1 = 2$

   (b) Use the Newton's Raphson method for the real root of $x^3 + x^2 + 3x + 4 = 0$ correct to four decimal places.

2. Solve the system of Equations
$$16x_1 + 22x_2 + 4x_3 = -2$$
$$4x_1 - 3x_2 + 2x_3 = 9$$
$$12x_1 + 25x_2 + 2x_3 = -11$$
Using Gauss Elimination method.

3. Solve the system of Equations.
$$-8x_1 + x_2 + x_3 = 1$$
$$x_1 - 5x_2 - x_3 = 16$$
$$x_1 + x_2 - 4x_3 = 7$$

4. (a) Find Leagrange's Interpolatimy. Polynormal for the data. Hence obtain f(2).

x	0	1	4	5	7
y = (x)	8	11	68	123	202

   (b) If $f(x) = x^3$ find the value of f [a, b, c]

5. (a) Using Newton's forward differences find the approximate value of f(1.5)

x	-1	0	1	2	3	4
f (x)	6	1	0	3	10	21

   (b) Use Newton's Backward difference formula for interpolating polynomial for the data.

x	4	6	8	10	12	14
f(x)	19	40	79	142	192	216

6. (a) Find the relationship among E, Δ and D.

   (b) Find $f'(x)$ at x = 0.4 from the following table of values

x	0.1	0.2	0.3	0.4
f (x)	1.10517	1.22140	1.34986	1.49182

7. (a) State and Prove Simpson's $\frac{1}{3}$rd rule.

   (b) Find an approximation to $\int_{1.1}^{1.5} e^x \, dx$ using the trapezoidal rule with $\hbar = 0.1$

8. Using Runga Kutta fourth order method
$y' = \frac{y - t}{y + t}$, $y(0) = 1$, Find y (0.5) taking h = 0.5

9. Using the third order Taylor's series method, find the solution of the differential equation.
$xy' = x - y$, $y = 2$ at $x = 2$ taking h = 1

10. Solve the following IVPs using Euler's method
$y^1 = 1 - 2xy$, $y(0.2) = 0.1948$, Find y(0.4) with h = 0.2

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Nalanda Open University
Annual Examination-2013
B.C.A. Part-III, Paper-XX
CS-73: THEORY OF COMPUTER SCIENCE

Time: 3 hours ***Maximum Marks: 80***

Answer any FIVE questions .All questions carry equal marks.

1. Differentiate between Regular Grammar and Context Free Grammar giving proper examples for each.

2. Draw a Finite Automata and its transition table which accepts all the words in a, b with "**abba"** as substring.

3 Explain Pumping Lemma? Show that the Language $\mathbf{L= \{a^n b^n c^n \mid n =0,1,2...\}}$ is not regular.

4. For the following regular expression, construct equivalent finite automata:
   (i) a***(a+b)*b*a***
   (ii) (**aa+bab+bb)***
   (iii) **(00*+10*+1*0*)**
   (iv) **0*010*(1+01)***

5. What is a NULL NFA? Explain that for every NULL NFA there is an NFA with an example.

6. Draw a Turing machine for the function given as:

   F(m,n)= { **m-n, for m> n**
   otherwise 0 }

7. Draw a Push Down Automata (PDA) for the Language **L** that accepts the string "ababbaba" **.** Also explain its transition table.

8. What are the applications of Theory of Computations? Explain.

9. Write short notes on :

   (i) Ambiguity
   (ii) Chomsky Classification of Grammar
   (iii) Mealy and Moore machine

10. What is primitive recursion? Explain Primitive Recursion for product Function.

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Nalanda Open University
Final Exam-2013, BCA, Part-III
Paper-XXI
CS-74: INTRODUCTION TO INTERNET PROGRAMMING

Answer any five questions. All questions carry equal marks

Time – 3 Hrs F.M-80

1. What is run-time polymorphism? How does it differ from compile-time Polymorphism? Explain with an example.
2. What is the role of a default exception handler in Java? Differentiate between 'throw' and 'throws'.
3. Write a program for I/O operation using Buffered Input Stream and Buffered Output Stream that accepts user name, age and address from the user and displays it on the Console.
4. Describe the accessibility of unnamed, private, protected and public members within a package, subclass and globally.
5. What is finally block in Java? How many finally blocks can be associated with a try block? Give an appropriate example and explain.
6. What happens if an abstract modifier is applied to a method in a class? Also, what happens when it is applied to a class? Explain with suitable examples.
7. Differentiate between the following :
   (i) Thread and Process
   (ii) Applet and Application
   (iii) Java and C++ Programming
8. What is Layout Manager? Explain Flow Layout and show how Flow Layout is set in Java through an example program?
9. What is a multithreading? Give two advantages of multithreading. Explain one way of creating thread in Java. Also explain how a thread priority is set in Java?
10. What is built - in Exceptions in Java? Explain the use of any one of them with the help of suitable Example.

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महत्त्वपूर्ण सूचनाः-

बी.सी.ए. पार्ट-।।। के पत्र सं०-XXIII (Project Report/Viva) की परीक्षा दिनांक-01.09.2013 को पूर्वाह्न 11.00 बजे से बिस्कोमान टावर के 12वें तल पर स्थित कम्प्यूटर लैब में आयोजित होगी ।

Nalanda Open University
Annual Examination-2013
B.C.A., Part-III, Paper-XXII
CS-75 : INTRANET ADMINISTRATION,

Time : 3hours ***Maximum Marks : 80***

Answer any Five questions. All questions carry equal marks.

1. What is an Intranet ? How is it different from the internet ? Explain the working of an Intranet with the help of a diagram.

2. Explain the five security models that can be referred to by organisations for chalking out their security plans and policies.

3. Name any four Editors that can be used for Web authoring. Explain any six features which are desirable in an Editor.

4. What is an IP address? Why it is used? Explain various classes of IP addresses.

5. Define the following terms w.r.t. the Intranets :
   (i) Daemon
   (ii) Browser
   (iii) URL
   (iv) FAQs

6. What are Firewalls ? Explain the three firewall architectures. Explain how SOCKS can be used to construct a firewall on a TCP/IP based server.

7. Write short notes on the following :
   (a) POP
   (b) CGI
   (c) GPRS
   (d) ODBC

8. List and explain any six benefits that an organisation can draw from intranet applications. Name some web based tools and explain the term GPRS.

9. Briefly describe the features of the AOL server. Describe Address Resolution Protocol (ARP)
   as a communication protocol. Describe its message format and explain the various fields.

10. What is GroupWare ? Describe any five broad range of applications associated with them.

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