Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-I

Paper-I [Foundation Course in English for Computing (CS-610)]

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

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 anarchic self-assertion which are splendid in the literature or tragedy, have com 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) 5 × 3 = 15

Questions :

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

2. Write an essay of about 400 words on any one of the following : 20

(a) A friends in need is a friend indeed
(b) Advantages & disadvantages of e-courses
(c) The Computer Revolution
(e) Detective Fiction

3. Turn the following into Passive Voice : 05

(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.

4. Make the following words negative by adding the appropriate prefix : 10

(i)	Congruous	(ii)	Accustomed	(iii)	Admissible	(iv)	Collegiate
(v)	Animate	(vi)	Valuation	(vii)	Own	(viii)	Climax
(ix)	Fortune	(x)	Deed				

5. Write a paragraph in about 200 words on any one of the following: 10
   (a) Wealth and happiness do not go together.
   (b) Computer has brought about a rapid change in human life.
   (c) World is changing rapidly.

6. Fill in the blanks with a, an, or the :- 05
   (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 a 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 :- 05

   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 Computer is 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 :- 10
   (a) Why is 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?

Examination Programme-2014
Bachelor of Computer Application (BCA Part – I)

Date	Papers	Time	Examination Centre
12/6/2014	BCA Paper–I	**8 to 11 am**	Nalanda Open University, Patna
14/6/2014	BCA Paper–II	**8 to 11 am**	Nalanda Open University, Patna
16/6/2014	BCA Paper–III (Practical)	**12.00 Noon to 3.00 PM**	School of Computer Science 12th Floor, Biscomaun Tower, Patna
18/6/2014	BCA Paper–IV	**8 to 11 am**	Nalanda Open University, Patna
20/6/2014	BCA Paper–V	**8 to 11 am**	Nalanda Open University, Patna
21/6/2014	BCA Paper–VI (Practical)	**12.00 Noon to 3.00 PM**	School of Computer Science 12th Floor, Biscomaun Tower, Patna

Nalanda Open University
Annual Examination - 2014
Bachelor in Computer Application (BCA), Part-I
Paper-II [Foundation Course in Humanities and Social Sciences (BSHF-101)]

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

*Answer any **Five** questions. **Question No. 1 is Compulsory.** All questions carry equal marks.*

किन्हीं **पाँच** प्रश्नों के उत्तर दीजिए । **प्रश्न सं0 1 अनिवार्य है ।** सभी प्रश्नों के अंक समान हैं ।

1. Compulsory objective questions. Answer all 16 objective type questions mentioned below. Each question carries one mark.
अनिवार्य वस्तुनिष्ठ प्रश्न । अधोलिखित सभी 16 वस्तुनिष्ठ प्रश्नों का उत्तर दीजिए । प्रत्येक का अंक 1 है ।

(a) Tick (√) or (×) as the case may be :-
सही (√) अथवा गलत (×), जैसी स्थिति हो, चिह्न लगावें :–

(i) The Right to Compulsory Primary Education has been implemented in Bihar from the 1st April, 2010. (Right/Wrong)
बिहार में 1 अप्रैल, 2010 से अनिवार्य प्राथमिक शिक्षा के अधिकार को लागू कर दिया गया है । (सही/गलत)

(ii) 50% seats have been reserved for women in Panchayati Raj Institutions of Bihar. (Right/Wrong)
बिहार के पंचायती राज संस्थाओं में महिलाओं के लिए 50 प्रतिशत स्थान आरक्षित किया गया है । (सही/गलत)

(iii) During New Stone Age no surplus food was available after self consumption. (Right/Wrong)
नव पाषाण काल के दौरान अपने खाने के बाद फालतू अनाज उपलब्ध नहीं था । (सही/गलत)

(iv) The industrialization of England was largely responsible for the de-industrialization of India. (Right/Wrong)
इंग्लैण्ड का औद्योगिकीकरण भारत के वि–औद्योगिकीकरण के लिए व्यापक रूप से जिम्मेदार था । (सही/गलत)

(v) The drain theory was put forward by the Western Scholars. (Right/Wrong)
ड्रेन सिद्धान्त पश्चिमी विद्वानों ने प्रस्तुत किया था ।

(vi) Knowledge is closely linked with racial superiority. (Right/Wrong)
ज्ञान का प्रजातीय श्रेष्ठता से निकट सम्बन्ध है । (सही/गलत)

(vii) The Bronze Age dates back to 5000 B.C. (Right/Wrong)
कांस्य युग का काल 5000 वर्ष ईसा पूर्व है ।

(viii) The solar calendar for the first time was developed in China.(Right/Wrong)
सर्वप्रथम, चीन में सोलर कैलेन्डर (सूर्य दैनिन्दनी) विकसित हुआ था । (सही/गलत)

(b) Fill in the blanks :-
रिक्त स्थानों की पूर्ति कीजिए :–

(i) "The man makes himself" has been written by ..... .
''मैन मेक्स हिमसेल्फ'' ..... द्वारा रचित है ।

(ii) The flow of Tigris river is ..... .
टिगरिस नदी की धारा ..... है ।

(iii) In 1887, the German Historain Brunner traced the genesis of feudalism to the ..... .
1887 में जर्मन इतिहासकार ब्रूनर ने कहा था कि सामंतवाद का संबंध ..... से है ।

(iv) Colonel James Tod believed that classical European feudalism existed in India in the ..... Province.
कर्नल जेम्स टाड की धारणा थी कि यूरोपीय सामंतवाद भारत के ..... प्रान्त में विद्यमान थी ।

(v) Pico-della Marendola (15th century humanist) belonged to ..... (Country's name).
पिको दिल्ला मिरोनदोला (15वीं शताब्दी का मानववादी) ..... का (देश का नाम) था ।

(vi) The Indian Constitution was enacted on ..... .
भारतीय संविधान ..... को अधिनियमित किया गया था ।

(vii) The partition of Bengal plan on announced on ..... .
बंगाल विभाजन योजना ..... को घोषित की गयी थी ।

(viii) Bihar province was created in the year ..... .
बिहार प्रांत का सृजन ..... वर्ष में किया गया था ।

2. How did the human life of the New Stone Age differ from that of the Old Stone Age.
नव पाषाण काल में मानव जीवन किस प्रकार पुरा पाषाण काल से भिन्न था?
3. Highlight the achievements in the field of art and architecture during Reniassance.
नवजागरण काल में कला तथा वास्तु कला के क्षेत्र की प्रमुख उपब्धियों पर प्रकाश डालिए ।
4. Give a brief account of the mass movements launched by Gandhiji in India's struggle for freedom.
भारत के स्वतंत्रता संग्राम में गाँधीजी द्वारा चलाये गये जन आंदोलनों का संक्षिप्त विवरण दीजिए।
5. What is regionalism? Is it an impediment to national unity in India?
क्षेत्रवाद क्या है? क्या यह भारत में राष्ट्रीय एकता में एक बाध क तत्त्व है?
6. Discuss the approaches to understanding social change.
सामाजिक परिवर्त्तन को समझने के दृष्टिकोण की चर्चा कीजिए ।
7. Highlight the key issues in Modern Governance.
आधुनिक 'अभिशासन' (गवर्नेंस) में सम्मिलित मुख्य मुद्दों पर प्रकाश डालिए ।
8. Examine the constituents of economic reforms in India.
भारत में आर्थिक सुधारों के संघटक तत्त्वों का परीक्षण कीजिए ।
9. What do you mean by Planning? Discuss the objectives of Planning in India.
योजना से आप क्या समझते हैं? भारत में योजना के प्रमुख उद्देश्यों की विवेचना कीजिए ।
10. How can ICT be used for development in India?
भारत में आई.सी.टी. को विकास के लिए किस तरह उपयोग में लाया जा सकता है?

Examination Programme-2014
Bachelor of Computer Application (BCA Part – I)

Date	Papers	Time	Examination Centre
12/6/2014	BCA Paper–I	**8 to 11 am**	Nalanda Open University, Patna
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21/6/2014	BCA Paper–VI (Practical)	**12.00 Noon to 3.00 PM**	School of Computer Science 12th Floor, Biscomaun Tower, Patna

Nalanda Open University
Annual Examination - 2014
BCA, Part-I
Paper-IV (PC Software Skills)

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

*Answer any **Five** questions. All questions carry equal marks.*

1. Explain various components of MS-Excel that makes it easier to use.

2. How Internet is useful. Explain the Working of an Internet and the devices used to run internet.

3. What is DNS? How are they used for network addressing? Name come commonly used domain names.

4. What are Decision Trees? What kind of problems can be best solved using decision trees. Assuming one such problem, show its proof.

5. What is a template in MS-Excel ? How is it different from Auto templates? Explain the use of Auto templates.

6. A certain number of men could do a piece of work in 60 days. If there were 8 more men it could be finished in 10 days less. Find the number of men that were there in the beginning.

7. What are Macros? Explain their utility in MS-Excel. Write steps for recording and running a macro in MS-Excel.

8. What is the utility of viewing a worksheet in multiple windows? Explain four ways of arranging the windows on the screen. How can data in a database be filtered?

9. What is "Alignment"? Explain the four alignment options which can be used for document alignment. Differentiate between a Worksheet and Workbook.

10. Write short notes on :
    (a) Browser
    (b) Firewall
    (c) Pivot Table

Examination Programme-2014
Bachelor of Computer Application (BCA Part – I)

Date	Papers	Time	Examination Centre
12/6/2014	BCA Paper–I	**8 to 11 am**	Nalanda Open University, Patna
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20/6/2014	BCA Paper–V	**8 to 11 am**	Nalanda Open University, Patna
21/6/2014	BCA Paper–VI (Practical)	**12.00 Noon to 3.00 PM**	School of Computer Science 12th Floor, Biscomaun Tower, Patna

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-I

Paper-V [Foundation Course in Mathematics in Computing (CS-60)]

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

*Answer any **Five** questions. All questions carry equal marks.*

1. Find the limits :

   (a) $\underset{x\to a}{Lt}\ \frac{x^{\frac{5}{2}} - (a)^{\frac{5}{2}}}{\sqrt{x} - \sqrt{a}}$ (b) $\underset{x\to 0}{Lt}\ \frac{(1+x)^{\frac{1}{n}} - 1}{x}$ (c) $\underset{x\to\infty}{Lt}\ \frac{xSin\propto - \propto Sinx}{x - \propto}$ (d) $\underset{x\to 0}{Lt}\ \frac{Sin7x - Sinx}{Sin6x}$

2. (a) To find differential coefficient of Cot x with respect to x with the help of first Principle.

   (b) Find the square root of $7 - 30\sqrt{-2}$.

3. (a) Find x and y if : $(x + iy) + (7 - 5i) = 9 + 4i$.

   (b) If 1, w, w^2 be three cube roots of 1 then show that $(3 + w + 3w^2)^6 = 64$

4. Find $\frac{dy}{dx}$:

   (a) $y = x^2\,Cosx \cdot Cot\,x$ (b) $y = \frac{x\,Cos\,x}{1+x^2}$ (c) $y = \log\,(x + \sqrt{x^2 + a^2}\,)$ (d) $y + x = Sin\,(y + x)$

5. (a) Find the maximum and minimum values of $x^3 - 2x^2 + x + 6$

   (b) Find A × B and B × A if A = [2, 3, 4], B = [a, b]

6. Integrate the following :

   (a) $\int \frac{3 - x^2}{1 + x^2}\,dx$ (b) $\int \frac{Cos2x - Cos2\propto}{Cosx - Cos\propto}\,dx$

   (c) $\int \frac{Sin\sqrt{x}}{\sqrt{x}}\,dx$ (d) $\int \tan^4 x\,dx$

7. Solve the following equations by Descart's method :

   (a) $x^4 - 2x^2 + 8x - 3 = 0$ (b) $x^4 + 8x^3 + 9x^2 - 8x = 10$

8. Solve the following simultaneous equations by Crammer's rule :

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

9. Find the equation of a sphere with centre (2, 0, –3) and which touches the plane $3x + 4y - z = 5$.

10. Find all the asymptotes of the curve :
    $x^3 - 6x^2y + 11xy^2 - 6y^3 + x + y = 0$

Examination Programme-2014
Bachelor of Computer Application (BCA Part – I)

Date	Papers	Time	Examination Centre
12/6/2014	BCA Paper–I	**8 to 11 am**	Nalanda Open University, Patna
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20/6/2014	BCA Paper–V	**8 to 11 am**	Nalanda Open University, Patna
21/6/2014	BCA Paper–VI (Practical)	**12.00 Noon to 3.00 PM**	School of Computer Science 12th Floor, Biscomaun Tower, Patna

Nalanda Open University
Annual Examination - 2014
Bachelor in Computer Application (BCA), Part-II
Paper-VII (Fundamental Course in Science and Technology), FST-01

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

Answer any Five questions. All questions carry equal marks.
किन्हीं पाँच प्रश्नों के उत्तर दीजिए । सभी प्रश्नों के अंक समान हैं ।

1. Define and distinguish with example any **Three** of the following pairs:-
अधोलिखित युग्मों से किन्हीं **तीन** को परिभाषित कीजिए एवं सोदाहरण विभिन्नता बताइयेः–
   (a) Paleontology and Archaeology (जीवाश्म विज्ञान एवं पुरातत्वविज्ञान)
   (b) Alchemy and Amalgamation (कीमियागर एवं अमलगमन)
   (c) Telescope and Spectroscopy (टेलीस्कोपी एवं स्पैक्ट्रोस्कोपी)
   (d) Calligraphy and Cartography (कैलिग्राफी एवं कार्टोग्राफी)
2. Describe the role of AIR and Doordarshan in educatin.
शिक्षा में आकाशवाणी और दूरदर्शन की भूमिका बताइए ।
3. Comment briefly on agriculture in the following special areas:-
निम्नलिखित विशेष क्षेत्रों में कृषि के बारे में संक्षेप में लिखिएः–
   (a) Arid zone (शुष्क प्रदेश) (b) Dry land (सूखी भूमि)
   (c) Hilly land (पहाड़ी प्रदेश)
4. (a) In what way the concept of spontaneous generation of life was discarded by the works of Louis Pasteur?
   लुई पास्चर के अनुसंधानों ने जीवन स्वतः जनन सिद्धांत को किस प्रकार गलत सिद्ध किया?
   (b) Explain briefly the impacts of Miller's experiment on the classical theories of origin of life.
   जीवन की उत्पत्ति के पुराने सिद्धांतों पर मिलर के प्रयोग से हुए प्रभावों की संक्षेप में व्याख्या कीजिए ।
5. What is Balanced Diet? Describe the composition of Balance Diet for an adult.
संतुलित आहार क्या है? एक वयस्क के लिए संतुलित आहार के घटकों का वर्णन कीजिए ।
6. Match the vitamins and minerals given in column I with their functions listed in column II of the following :
निम्नलिखित स्तंभ I में वर्णित विटामिन एवं खनिज (मिनरल) को स्तंभ II में दिए गए कार्यों से मिलान कराइये ।

Column I (स्तंभ I)	**Column II (स्तंभ II)**
(a) Vitamin B विटामिन बी	(i) Builds resistance to infection संक्रमण से प्रतिरोध निर्माण
(b) Vitamin A विटामिन ए	(ii) Necessary for the formation of hemoglobin of the blood रक्त में हेमोग्लोबिन के निर्माण के लिए आवश्यक
(c) Vitamin D विटामिन डी	(iii) Its absence may cause bow legs इसके अभाव में पैरों का टेढ़ापन होना
(d) Vitamin K विटामिन के	(iv) For building strong bones and teeth हड्डी एवं दाँत को मजबूत बनाना
(e) Vitamin C विटामिन सी	(v) Help us to have healthy eyes, smooth skin and shiny hair स्वस्थ नेत्र, कोमत त्वाचा एंव चमकदार बाल के लिए सहायक
(f) Calcium कैलसियम	(vi) It prevents bleeding रक्त प्रवाह को रोकना
(g) Iron लौह	(vii) Important for proper functioning of nerves and brain नस एवं मस्तिष्क के महत्वपूर्ण कार्य
(h) Iodine आइयोडिन	(viii) Prevents swelling of thyroid gland थायराइड ग्रंथि के सूजन की रोक

7. Define and distinguish with example any **Three** of the following pairs:
अधोलिखित युग्मों से किन्हीं **तीन** को परिभाषित कीजिए एवं सोदाहरण विभिन्नता बताइयेः–
   (a) Black dwarf and White dwarf
   (ब्लैक डवार्फ एवं व्हाईट डवार्फ)
   (b) Intergalactic and Interstellar
   (इन्टरग्लैब्कि एवं इन्टरस्टिलर)
   (c) Abiotic factors and Biotic factors
   (एबोटिक फैक्टर्स एवं बॉयोटिक फैक्टर्स)
   (d) Mass communication and Interpersonal communication
   (मास कम्यूनिकेशन एवं इन्टरपर्सनल कम्यूनिकेशन)
8. Write short answers for the following questions :
अधोलिखित प्रश्नों के लिए संक्षिप्त उत्तर लिखिएः–
   (a) What are the salient features of mixed and relay-cropping system?
   मिक्सड् एवं रिले–क्रापिंग प्रणाली की क्या प्रमुख विशेषताएँ हैं?
   (b) What points should one keep in mind while using fertilizers?
   (उर्वरक का प्रयोग करते समय किन–किन बिन्दुओं पर ध्यान रखना चाहिए?
9. Write the name of the Causative microbe for the following diseases.
निम्नलिखित रोगों के उत्पादक माईक्रोर्बो के नाम लिखिए ।
   (a) Cholera (हैजा)
   (b) Ring Worm (दाद)
   (c) AIDS (एड्स)
   (d) Chiken Pox (छोटी माता)
   (e) Malaria (मलेरिया)
   (f) Conjuctivitis (नेत्र–श्लेष्पला)
   (g) Guinea Worm (गिनी–कृमि)
   (h) Leprosy (कुष्ठ)
10. Discuss the causes and remedies of Water Pollution.
जल प्रदूषण के कारणों एवं निदान का विवेचन कीजिए ।

Examination Programme-2014
BCA (Part–II)

Date	08:00 A.M. to 11:00 A.M.	Examination Centre
21/5/2014	Paper VII	Nalanda Open University, Patna
23/5/2014	Paper -IX	Nalanda Open University, Patna
27/5/2014	Paper -X	Nalanda Open University, Patna
29/5/2014	Paper -XI	Nalanda Open University, Patna
31/5/2014	Paper -XIII	Nalanda Open University, Patna
02/6/2014	Paper-VIII Practical	Nalanda Open University, Patna
04/6/2014	Paper -XII Practical	Nalanda Open University, Patna
06/6/2014	BCA-XIV Practical	Nalanda Open University, Patna
Paper-VIII, XII & XIV Practical Exam Time – 12.00 Noon to 3.00 PM Venue : 12th Floor, Biscomaun Tower, Patna		

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-II

Paper-IX (System Analysis & Design), CS-05

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

Answer any Five questions. All questions carry equal marks.

1. Define any four basic elements in System Analysis. Explain the types of feasibility study. Also give an example of each.
2. List three features common to all types of File Organisations. Also, list three other features that are specific to each type of File Organisation.
3. Define Ergonomics. Give two objectives of it. Write two goals each of recovery testing and user acceptance testing.
4. List and justify four qualities of a good system analyst. Give two reasons why a system analyst should be involved with any project.
5. Explain the following terms :
   (i) EDP (ii) MIS (iii) DSS (iv) EIS (v) KBS
6. What is the purpose of a DFD ? Give the rules of designing a DFD. Design a DFD for a Library Management System.
7. Explain the levels of quality assurance' with an example of each. Define the term "system reliability"' Also give an example of an unreliable system.
8. What is the need of testing in a system development life cycle ? Explain five testing techniques.
9. Why do we require documentation ? Mention four software design and documentation tools. Also give one purpose of each tool.
10. Why maintenance important in software? What are the different types of system maintenance ? Explain them briefly.

Examination Programme-2014
BCA (Part–II)

Date	08:00 A.M. to 11:00 A.M.	Examination Centre
21/5/2014	Paper VII	Nalanda Open University, Patna
23/5/2014	Paper -IX	Nalanda Open University, Patna
27/5/2014	Paper -X	Nalanda Open University, Patna
29/5/2014	Paper -XI	Nalanda Open University, Patna
31/5/2014	Paper -XIII	Nalanda Open University, Patna
02/6/2014	Paper-VIII Practical	Nalanda Open University, Patna
04/6/2014	Paper -XII Practical	Nalanda Open University, Patna
06/6/2014	BCA-XIV Practical	Nalanda Open University, Patna
Paper-VIII, XII & XIV Practical Exam Time – 12.00 Noon to 3.00 PM Venue : 12th Floor, Biscomaun Tower, Patna		

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-II

Paper-X (Database Management System), CS-06

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

*Answer any **Five** questions. All questions carry equal marks.*

1. Define Data Manipulation Language(DML). List the various types of DML commands used in DBMS. Explain any four DML commands, their usage and example SQL statement.

2. Draw an ER diagram for an Insurance company covering the following aspects :
   (i) Various policies available (ii) Applying for a new policy
   (iii) Insurance claim (iv) Claim after maturity
   (v) Renewal
   Clearly indicate the entities, attributes, relationship and the key constraints.

3. What are the main features of client/server model ? Explain the stages involved in the development of an application using client/ server model.

4. What is Normalisation? Explain different types of Normalisation. Explain the concept of functional dependency with an example..

5. Describe the function and role of Database Administrator(DBA) in DBMS.

6. Mention the important features of the following file organisations :
   (i) Sequential (ii) Indexed sequential (iii) Direct

7. What are the different views in DBMS? Describe the aggregation and specialization, with the help of a suitable example for each and how they are represented in E-R diagram..

8. Explain the following Relational Algebraic operations .Also give an example for each.
   (i) Projection (ii) Selection (iii) Cartesian Product (iv) Join

9. Describe advantages and disadvantages of Database Management System. What are the application areas of DBMS? Explain giving examples.

10. Write short notes on :
    (a) Dynamic Data Exchange
    (b) Object Oriented DBMS
    (c) Hierarchical database model

Examination Programme-2014
BCA (Part–II)

Date	12.00 Noon to 3.00 PM	Examination Centre
21/5/2014	Paper VII	Nalanda Open University, Patna
23/5/2014	Paper -IX	Nalanda Open University, Patna
27/5/2014	Paper -X	Nalanda Open University, Patna
29/5/2014	Paper -XI	Nalanda Open University, Patna
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02/6/2014	Paper-VIII Practical	12th Floor, Biscomaun Tower, Patna
04/6/2014	Paper -XII Practical	Nalanda Open University, Patna
06/6/2014	BCA-XIV Practical	Nalanda Open University, Patna
Paper-VIII, XII & XIV Practical Exam Time – 12.00 Noon to 3.00 PM Venue : 12th Floor, Biscomaun Tower, Patna		

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-II

Paper-XI (Introduction to Computer Organisation), CS-64

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

*Answer any **Five** questions. All questions carry equal marks.*

1. Simplify the given function using SOP and draw a circuit and Karnaugh map for it : **F (a, b, c, d) = (1,2,5,6,8,9,11,12)**

2. What is Random Access Memory ? Explain its working with the help of its logic diagram.

3. What is the function of the Control Unit ? Explain wilke's control unit with the help of a diagram.

4. Explain the addressing modes used in microprocessos, giving an example of each.

5. What is a parity bit ? Explain its use with the help of an example. Explain how error can be detected and corrected using Hamming error correcting code.

6. What are different types of Registers used in a computer system? Explain any four types of registers.

7. Explain the following instructions of 8086 microprocessor with the help of an example.
   (i) MUL
   (ii) JMP
   (iii) AND
   (iv) TEST

8. What is Cache Memory ? Explain its organization and importance. Explain the three ways in which main memory block can be mapped in cache.

9. What are Decoders ? Explain the working of a 3 x 8 Decoder using its logic diagram and truth table.

10. Explain the following with the help of an example/diagram.
    (i) J-K flip-flop
    (ii) Seek time and latency time
    (iii) DMA
    (iv) BCD

Examination Programme-2014
BCA (Part–II)

Date	12.00 Noon to 3.00 PM	Examination Centre
02/6/2014	Paper-VIII Practical	School of Computer Science 12th Floor, Biscomaun Tower, Patna
04/6/2014	Paper -XII Practical	School of Computer Science 12th Floor, Biscomaun Tower, Patna
06/6/2014	BCA-XIV Practical	School of Computer Science 12th Floor, Biscomaun Tower, Patna

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-II

Paper-XIII (Multimedia), CS-66

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

*Answer any **Five** questions. All questions carry equal marks.*

1. What is a Sound Card ? Explain its principle and working. List any five facilities that need to be supported by a multimedia network for educational services.

2. What is meant by multimedia and Hypermedia ? Explain the method of storing images in vector format. Write some of its advantages .

3. Define multimedia. Describe any three components of Multimedia. Compare and contrast between knowledge based and scenario based simulations.

4. What is video-conferencing ? Give its advantages for business industry. Discuss the role of multimedia in knowledge transfer with the help of an example.

5. Explain the processes involved in planning and design of any multimedia application.

6. Explain the important features of Quick Time software used for developing multimedia applications.

7. Why 'compression' is necessary for multimedia data ? Explain some compression formats available for multimedia data like graphics, video and images.

8. Describe some authoring tools. Describe the ways in which contents can be formatted and delivered in a Multimedia Authoring System.

9. What is MIDI ? What features of MIDI makes it suitable for multimedia applications?

10 . Write short notes on the following :
   (a) Flash Software
   (b) Morphing
   (c) Photoshop Software
   (d) Animation

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-III

Paper-XV [Computer Networks (CS-68)]

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

*Answer any **Five** questions. All questions carry equal marks.*

1. What is digital signal ? How it is different from analog signal? Explain with the help of suitable diagram. How signals are measured?
2. What is transmission media? Why is it required? Explain different types of transmission media used for networking?
3. Define DNS. What is the need of DNS ? Give some examples of DNS? Explain the purpose of the following fields in TCP packet header ?
   (i) Time to live
   (ii) Sequence number.
4. What is the role of Data Link Layer in OSI model? Explain working of sliding window protocol with help of an example.
5. Compare ATM layered architecture with OSI model. Explain which OSI layer is responsible for the followings :
   (i) Crash Recovery (ii) Email
   (iii) Error control (iv) Compression
   (v) Packet Fragmentation
6. What is multiplexing ? Explain different types of multiplexing with suitable examples. Which layer of OSI model handles multiplexing?
7. Explain different types of network topologies with their advantages and disadvantages.
8. Explain different types of switching technique with suitable examples for each. Describe some protocols of Network and Transport layer .
9. Explain the following terms.
   (i) Routers (ii) Full Duplex transmission
   (iii) Hub (iv) Frame Relay
10. What is MAN ? Explain briefly how it is different from LAN and WAN. Which mode: Simplex, Half duplex, or Full duplex is used by the following and why ?
    (i) TV broadcast (ii) Mobile SMS
    (iii) Teleconferencing (iv) Walkie-Talkie communication.

Examination Programme-2014
BCA (Part–III)

Date	08:00 A.M. to 11:00 A.M.	Examination Centre
21/5/2014	BCA Paper-XV	Nalanda Open University, Patna
23/5/2014	BCA Paper-XVI	Nalanda Open University, Patna
27/5/2014	BCA Paper-XVII	Nalanda Open University, Patna
29/5/2014	BCA Paper-XVIII	Nalanda Open University, Patna
31/5/2014	BCA Paper-XIX(Practical)	Nalanda Open University, Patna
02/6/2014	BCA Paper-XX	Nalanda Open University, Patna
04/6/2014	BCA Paper-XXI	Nalanda Open University, Patna
06/6/2014	BCA Paper-XXII	Nalanda Open University, Patna
Paper-XIX Practical Exam Time – 12.00 Noon to 3.00 PM Venue : 12th Floor, Biscomaun Tower, Patna		

Nalanda Open University
Annual Examination - 2014
Bachelor in Computer Application (BCA), Part-III
Paper-XVI [TCP/IP Programming (CS-69)]

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

*Answer any **Five** questions. All questions carry equal marks.*

1. How are net-id and host-id distributed in class A, B and C ? What is a subnet? What is the concept of subnet masking? Name the address class of the following IPv4 addresses and give their subnet mask:
   (i) 127.10.31.10
   (ii) 192.0.0.10
   (iii) 129.12.1.2
   (iv) 222.16.1.3
2. Explain TCP/IP layer protocol architecture with their use in the networking. Give examples to describe these protocol.
3. Differentiate between connection-oriented and connectionless services. Give some examples to explain these concepts.
4. What is the use of TCP in networking. How does TCP manage corrupted segments and lost acknowledgements? Explain through an illustration.
5. Compare and contrast between OSI model and TCP/IP model layer by layer.
6. Explain Client/ Server model? What are the codes that the server must contain.
7. Differentiate between the followings :
   (i) Unicasting, Broadcasting and Multicasting.
   (ii) Authentication and Authorization.
8. Explain the terms :
   (i) Acknowledgement Number
   (ii) Checksum
   (iii) Network Address.
9. Write short notes on :
   (i) Stream socket (ii) datagram socket
   (iii) Recursive solution (iv) Iterative solution
10. Explain the purpose and importance of the following TCP/IP header field:
    (i) Window size (ii) Urgent pointer
    (iii) Fragment offset (iv) TTL
    (v) Header length

Examination Programme-2014
BCA (Part–III)

Date	08:00 A.M. to 11:00 A.M.	Examination Centre
21/5/2014	BCA Paper-XV	Nalanda Open University, Patna
23/5/2014	BCA Paper-XVI	Nalanda Open University, Patna
27/5/2014	BCA Paper-XVII	Nalanda Open University, Patna
29/5/2014	BCA Paper-XVIII	Nalanda Open University, Patna
31/5/2014	BCA Paper-XIX(Practical)	Nalanda Open University, Patna
02/6/2014	BCA Paper-XX	Nalanda Open University, Patna
04/6/2014	BCA Paper-XXI	Nalanda Open University, Patna
06/6/2014	BCA Paper-XXII	Nalanda Open University, Patna
Paper-XIX Practical Exam Time – 12.00 Noon to 3.00 PM Venue : 12th Floor, Biscomaun Tower, Patna		

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-III

Paper-XVII [Introduction To Software Engineering (CS-70)]

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

*Answer any **Five** questions. All questions carry equal marks.*

1. Define DFD? What are the rules for drawing the DFD? Draw a DFD for University Examination System.
2. How planning help in better development of the software? Explain different tools used for planning with examples of each.
3. Why Risk management important? Explain different types risk? How planning helps to reduce risk?
4. What is the need of measuring different parameters of a software? Explain various software metrics used .
5. Describe the phases of System Development Life Cycle using waterfall model.
6. Explain the roles and responsibilities of the following personals in the s/w development process :

   (i) Project Manager (ii) Project Leader (iii) Developer

7. Explain any two categories of CASE tools. Explain any two recent developments that has influenced the s/w development methodology.

8. Explain the process of software up-gradation, once the product is sold out to a customer / company. Explain various s/w crisis from the user's point of view.

9. Write short notes on the following :
   (a) Project scheduling
   (b) Project standards
   (c) Benchmark testing

10. What is the role and function of System Analyst in Software Engineering. Explain giving examples.

Nalanda Open University
Annual Examination - 2014
Bachelor in Computer Application (BCA), Part-III
Paper-XVIII [Computer Oriented Numerical Techniques (CS-71)]

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

*Answer any **Five** questions. All questions carry equal marks. **Calculator is allowed.***

1. (a) The equation $2x^3 + 5x^2 + 5x + 3 = 0$ has a root in internal [–2, –1]. Find roots with the help of Regula Falsi method.
   (b) Obtain the smallest positive root of the equation $x^3 - 5x + 1 = 0$ by using 3 iterations of the bisection method.
2. Solve the system of equations :

$$3x_1 + 2x_2 + x_3 = 3$$
$$2x_1 + x_2 + x_3 = 0$$
$$6x_1 + 2x_2 + 4x_3 = 6$$

   (Using Gauss Elimination method) Does the solution exist?
3. Solve the following system of equations by Gauss-Sediel iteration method :

$$2x_1 + x_2 - 3x_3 + 9x_4 = 31$$
$$3x_1 - 4x_2 + 10x_3 + x_4 = 29$$
$$2x_1 + 12x_2 + x_3 - 4x_4 = 13$$
$$13x_1 + 5x_2 - 3x_3 + x_4 = 18$$

   Carry out 4 iterations.
4. (a) Find Lagrange's Interpolating Polynomial for the data. Hence obtain $f(2)$.

x	0	1	4	5
$f(x)$	8	11	08	123

   (b) Using divided difference, show that the following data :

x	1	2	3	5	6
$f(x)$	1	3	7	21	31

   represents a second degree polynomial. Obtain this polynomial. Hence find the approximate value of $f(4)$.
5. (a) Find the Newton's forward difference interpolating Polynomial which agree with the table of values given below. Hence obtain the value of $f(x)$ at $x = 1.5$

x	1	2	3	4	5	6
$f(x)$	10	19	40	79	142	235

   (b) Evaluate the differences :
   (i) $\nabla^3[a_2x^3 + a_1x + a_0]$ (ii) $\nabla^3[a_3x^3 + a_2x^2 + a_1x + a_0]$
6. (a) Find the first and second derivatives of $f(x)$ at $x = 1.1$ from the following tabulated value :

x	1.0	1.2	1.4	1.6	1.8	2.0
$f(x)$	0.000	0.1280	0.5440	1.2960	2.4320	4.0000

   (b) Find $f1(x)$ at $x = 0.4$ from the following table of values :

x	0.1	0.2	0.3	0.4	0.5
$f(x)$	1.10517	1.22140	1.34986	1.49182	1.4256

7. (a) State and Prove Trapezoidal Rule.
   (b) Find an approximation to $\int_{1.1}^{1.5} e^x \, dx$ using Simpson's $\frac{1}{3}$rd rule with $h = 0.1$.
8. Using the fourth order Taylor's Series method find the solution of the differential equation $y' = x - y^2$, $y(0) = 1$. Find $y(0.1)$ talking $h = 0.1$.
9. Using the Euler's method tabulate the solution of the IVP :
   $y' = -2ty^2$, $y(0) = 1$
   in the interval [0, 1] taking $h = 0.1$.
10. Solve the following IVP's using Runge-Kutla second order method :

$$y' = \frac{y - t}{y + t}, \; y(0) = 1$$

    Find $y(0.5)$ taking $h = 0.5$

BCA (Part–III)

Date	12.00 Noon to 3.00 PM	Examination Centre
31/5/2014	BCA Paper-XIX(Practical)	12th Floor, Biscomaun Tower, Patna

Nalanda Open University
Annual Examination - 2014
Bachelor in Computer Application (BCA), Part-III
Paper-XX [Theory of Computer Science (CS-73)]

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

*Answer any **Five** questions. All questions carry equal marks.*

1. Explain Finite Automata. Describe different types of Finite Automata with examples.

2. Draw a Finite Automata(FA) which accepts all the words in 0 and 1, with each word containing even number of 0's and odd number of 1's. If the resultant FA is an NFA then draw an equivalent DFA for it.

3. Explain Pumping Lemma for Context Free Language? Show that the Language L= **$\{a^p \mid p>0\}$** is not Context Free .

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

5. Explain the difference between Deterministic Finite Automata (DFA) and Nondeterministic Finite Automata (NFA) with an example.

6. Draw a Turing machine for product function given as:
   F(m, n) = { m*n, for m>0, n>0.
   otherwise 0 }

7. Draw a Push Down Automata (PDA) for the Language L= **$\{a^n cb^n \mid n>0\}$.** Also explain its transition table.

8. Explain Primitive recursion. Show that subtraction and factorial function is primitive recursive.

9. Write short notes on any three:
   (i) Regular Expression
   (ii) Chomsky Normal Form
   (iii) Decidable and Undecidable Problem
   (iv) Ambiguity in CFG

10. What are the applications of Theory of Computations? Explain. Describe some unsolvable problems.

: महत्वपूर्ण सूचना :

BCA, Part-III के Paper-XXIII, Project Viva-Voce की परीक्षा दिनांक 09.06.2014 को 12वें तल, स्कूल ऑफ कम्प्यूटर साइंस, बिस्कोमान टॉवर, पटना में नीचे दिये जा रहे कार्यक्रम के अनुसार आयोजित होगी :

समय : 11.00 बजे से 2.00 बजे तक	समय : 2.00 बजे से 5.00 बजे तक
क्रमांक 110560001 से 110560083 तक	क्रमांक 110560086 से 110590149 एवं सभी पुराने बैच के छात्र

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-III

Paper-XXI [Introduction To Internet Programming (CS-74)]

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

*Answer any **Five** questions. All questions carry equal marks.*

1. Why Java is known as pure Object Oriented Language? What is super key word in Java ? Explain with example.
2. Differentiate between overloading and overriding with the help of suitable example. What is the difference in final and finally in Java ? Explain with example.
3. What is byte code in Java ? How does repaint ( ) method work for Applets in Java. Explain with an example.
4. Explain the following :
   (i) Class and object
   (ii) Unicode
   (iii) Wrapper Classes
   (iv) The instance of Operator
5. Write a program in Java to print the following output using 2 - D array for a given integer n.
   1
   2 2
   3 3 3
   4 4 4 4
   n n n n-- -n
6. Describe a package and its relationship with classes. Write a program in Java to copy one file to another file using command line arguments.
7. Differentiate between throw and throws in Java with the help of an example. What is Java virtual machine ? Explain Java Buzzwords.
8. What are user-defined exceptions? Explain the advantage of user defined exceptions with suitable example. What is the difference between keyword throw and throws?
9. Write a java program to find whether a given string is a substring or not, of a string provided as input to the program. What is Servlet ? Explain the use of GET and POST methods.
10. Describe the following classes :
    (i) Exception class
    (ii) Runtime exception class
    (iii) I/O exception class

: महत्वपूर्ण सूचना :

BCA, Part-III के Paper-XXIII, Project Viva-Voce की परीक्षा दिनांक 09.06.2014 को 12वें तल, स्कूल ऑफ कम्प्यूटर साइंस, बिस्कोमान टॉवर, पटना में नीचे दिये जा रहे कार्यक्रम के अनुसार आयोजित होगी :

समय : 11.00 बजे से 2.00 बजे तक	समय : 2.00 बजे से 5.00 बजे तक
क्रमांक 110560001 से 110560083 तक	क्रमांक 110560086 से 110590149 एवं सभी पुराने बैच के छात्र

Nalanda Open University

Annual Examination - 2014

Bachelor in Computer Application (BCA), Part-III

Paper-XXII [Internet Administration (CS-75)]

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

*Answer any **Five** questions. All questions carry equal marks.*

1. With the help of a protocol stack diagram, explain the layered architecture of WAP.

2. Describe encryption/decryption as a method of ensuring security. Discuss any three implementation methods

3. Describe all the features that an editor tools should provide. Explain various features that need to be offered by the editors for web authoring. Also list any 4 web authoring tools.

4. Write short notes on the following :
   (i) FTP services
   (ii) AOL Server
   (iii) WN Server

5. Write the features of CGI scripting. Also Mention any two disadvantages of CGI based applications. Define the proxy server. List and explain the classifications of proxy servers.

6. Explain the following concepts:
   (i) SMTP
   (ii) IMAP
   (iii) JDBC

7. Explain the working of Post Office Protocol (POP). What are distributed databases ? Explain their role in an Intranet.

8. On what basis would you choose between public key algorithm or symmetric key algorithm in an application ? Explain with the help of an appropriate example, the use of each.

9. What is a Search Engine ? How is it useful for Internet/Intranet ? Give the names of any four Search engines. Write the main function of each of the following :
   Telnet, Rlogin, SSH and RSH.

10. Write short notes for the following :
    (a) Distributed mail system protocol
    (b) Internet server API
    (c) Security threats in Internet.

: महत्वपूर्ण सूचना :

BCA, Part-III के **Paper-XXIII, Project Viva-Voce** की परीक्षा दिनांक 09.06.2014 को 12वें तल, स्कूल ऑफ कम्प्यूटर साइंस, बिस्कोमान टॉवर, पटना में नीचे दिये जा रहे कार्यक्रम के अनुसार आयोजित होगी :

समय : 11.00 बजे से 2.00 बजे तक	समय : 2.00 बजे से 5.00 बजे तक
क्रमांक 110560001 से 110560083 तक	क्रमांक 110560086 से 110590149 एवं सभी पुराने बैच के छात्र