

BACHELOR OF COMPUTER APPLICATIONS

(Revised Syllabus)

BCA(Revised Syllabus)/ASSIGN/SEMESTER-I

ASSIGNMENTS
(For July, 2014 and Jan., 2015 sessions)

(1st Semester)

BCS-011

BCS-012

BCSL-013



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068**

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Course Code	:	BCS-011
Course Title	:	Computer Basics and PC Software
Assignment Number	:	BCA(1)-011/Assignment/14-15
Maximum Marks	:	100
Weightage	:	25%
Last Date of Submission	:	15th October, 2014/15th April, 2015

This assignment has three questions of 80 marks (each section of a question carries same marks). Answer all the questions. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Please give precise answers. The word limit for each part is 200 words.

Question 1: (Covers Block 1) (7×4=28 Marks)

- a) Explain the terms: transistor, integrated circuit and von Neumann Architecture in the context of a Computer. Have the developments of very large scale integration affected the von Neumann Architecture? Explain your answer.
- b) In the context of memory organisation, what tradeoff is faced by a computer? Explain the characteristics of primary, magnetic and optical memories. Differentiate between sequential and random access.
- c) Convert the following numbers as stated
 - (i) Decimal 117.0125 to binary
 - (ii) Decimal 2459 to hexadecimal
 - (iii) Character **X** and **x** to ASCII and Unicode
 - (iv) Decimal 3456 to binary
- d) What is the need of ports in a computer system? What is the purpose of Universal Serial Bus? Name the devices that can be connected using Universal Serial Bus.
- e) Differentiate between the following:
 - (i) Static RAM vs Dynamic RAM
 - (ii) Seek time vs Latency time
- f) Explain the following terms:
 - (i) Resolution of monitors
 - (ii) Liquid Crystal Displays
 - (iii) Line printers
 - (iv) Workstation
- g) What are the uses of following Utility Software:
 - (i) Disk checkers
 - (ii) System restore
 - (iii) Disk Defragmenter
 - (iv) Disk Management

Question 2: (Covers Block 2)**(7×4=28 Marks)**

- a) Why are different software architectures developed? Explain the concept of cloud computing giving its advantages and disadvantages.
- b) Explain the Structured and modular software design paradigm with the help of an example. How is a service (as in service oriented software paradigm) different than an object? Explain with the help of an example.
- c) Why do you need an operating system in a computer? Explain the file management, memory management and process control management in an Operating system. List the user level commands of any operating system for file management.
- d) Draw a flow chart of a program that adds odd numbers up to 100.
- e) Explain the terms: variable, data type, one dimensional array and subroutine with the help of an example each.
- f) Explain the uses and/or facilities provided by the following software:
 - (i) E-mail
 - (ii) Database Management System
 - (iii) Spreadsheet
 - (iv) Word Processing
- g) Define the following terms:
 - (i) Open Source
 - (ii) Open Source development model
 - (iii) System Software
 - (iv) Compiler
 - (v) Device Driver
 - (vi) Linker
 - (vii) Anti-virus software
 - (viii) Diagnostic program

Question 3: (Covers Block 3)**(6×4=24 Marks)**

- (a) What is a data communication system? Explain the characteristics of various communication media.
- (b) Compare and contrast the characteristics of LAN, MAN and WAN.
- (c) Explain the following terms in the context of Internet.
 - (i) TCP
 - (ii) IP Address
 - (iii) URL
 - (iv) DNS
 - (v) Subnet mask
 - (vi) Gateway
 - (vii) Switch
 - (viii) HTTP

- (d) Explain the issues relating to security in the context of a browser. List and explain the actions that are performed by a search engine on the web.
- (e) Explain the features of e-learning software. What are the security threats faced during e-learning?
- (f) Explain the following in the context of Internet, giving their features and uses:
 - (i) Blog
 - (ii) Social networking

Course Code	:	BCS-012
Course Title	:	Basic Mathematics
Assignment Number	:	BCA(1)-12/Assignment/ 14-15
Maximum Marks	:	100
Weightage	:	25%
Last Date of Submission	:	15 th October, 2014/15 th April, 2015

Note: There are 15 questions in the following assignment carrying a total of 80 marks. Rest 20 marks are for viva-voce. Answer all the questions. Each question is having 5 parts. All parts carry equal marks.

Q 1. Verify that $A = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$ is invertible or not. (5)

Q 2. Use Matrix Method to Solve the following system of homogenous linear equations
 $2x - y + 2z = 0$; $5x + 3y - z = 0$; $x + 5y - 5z = 0$ (5)

Q 3. Determine the rank of matrix $A = \begin{pmatrix} 0 & 1 & 2 & 1 \\ 1 & -1 & 2 & 0 \\ 5 & 3 & 14 & 4 \end{pmatrix}$ (5)

Q 4. How many terms of the A.P. 1,4,7,.. must be taken, so that the sum may be 715? (5)

Q 5. Determine the 12th term of G.P., whose 8th term is 192 and common ratio is 2. (5)

Q 6. If 1, w , w^2 are cube roots of Unity. Then do following tasks (5)

a) Show that $(1 + w)^2 - (1 + w)^3 + w^2 = 0$.

b) Evaluate the determinant $\begin{vmatrix} 1 & w & w^2 \\ w & w^2 & 1 \\ w^2 & 1 & w \end{vmatrix}$

Q 7. If a positive number exceeds its positive square root by 12, then find the number. (5)

Q 8. Solve the inequality $\frac{6}{x-3} < 5$. (5)

Q 9. Solve the Quadratic inequality $6x^2 + 7x - 3 > 0$. (5)

Q10 Find the area bounded by curves $Y = X^2$ and $X = Y^2$ (5)

Q11 Use the principle of Mathematical Induction to prove (5)
 $1^3 + 2^3 + 3^3 + \dots + n^3 = (1/4) n^2 (n+1)^2$

Q12 Solve following system of linear equations using Cramer's Rule (5)
 $x + 2y - z = -1$ $3x + 8y + 2z = 28$ $4x + 9y + z = 14$

Q13 Sand is being poured in to a conical pile at constant rate $50 \text{ cm}^3/\text{minute}$. Frictional forces in sand are such that the height of cone is always one half of the radius of its base. How fast is the height of the pile. Increasing when the sand is 5cm deep ? (7)

Q14 Best Gift packs company manufactures two types of gift packs type A and type B. Type A requires 5 minutes each for cutting and 10 minutes for assembling. Type B require 8 minutes each for cutting and 8 minutes for assembling. There are at most 200 minutes available for cutting and at most 4 hours, available for assembling. The profit is 50 each for type A and 25 for type B. How many gift packs of each type should the company manufacture in order to maximise the profit. (8)

Q15 Perform following (5)

- (a) Show that $\lim_{x \rightarrow 0} \frac{|x|}{x}$ does not exist.
(b) Show that $f(x) = |x|$ is continuous at $x = 0$.

Course Code	:	BCSL-013
Course Title	:	Computer Basics and PC Software Lab
Assignment Number	:	BCA(I)-013/Assignment/14-15
Maximum Marks	:	100
Weightage	:	25%
Last Date of Submission	:	15th October, 2014/15th April, 2015

Note: This assignment has ten questions of 80 marks. Answer all the questions. Rest 20 marks are for viva voce. You may use illustrations and diagrams, printouts of the solutions to enhance explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation.

Section-1 Powerpoint Assignment

Q.1 Make a presentation (minimum 15 slides) on BCA Programme, which should include the following details: **(15 marks)**

- (a) objectives of the programme
 - (b) list of theory courses in each semester
 - (c) list of practical courses in each semester
 - (d) total no. of credits, pass percentage, assignment weight age
- All slides should have slide notes.

Q.2 Briefly write the advanced features of the software used in making the presentation in The above question and how it can be further improved. **(5 marks)**

Section-II Outlook

Q.3 Imagine that you are an instructor and want to reschedule your practical class on computer basics. You are required to fix time, book a classroom and other resources and inform student through e-mail for conducting the session.

Write all the options available in outlook to fulfill the scenario above? **(5 marks)**

Q.4 Set up an alert in the desktop to notify whenever email arrives in your email box for the university. **(5 marks)**

Section-III Browsing and Discussion Forum

Q.5 Open any browser and do the following: **(5 marks)**

- Set this browser as your default browser
- Change the appearance of the browser with different background images
- Search for all placement organisations
- Add some of these organisations as favorites

Write all the steps to perform the above tasks.

Q.6 Select advanced search option of google for the following:

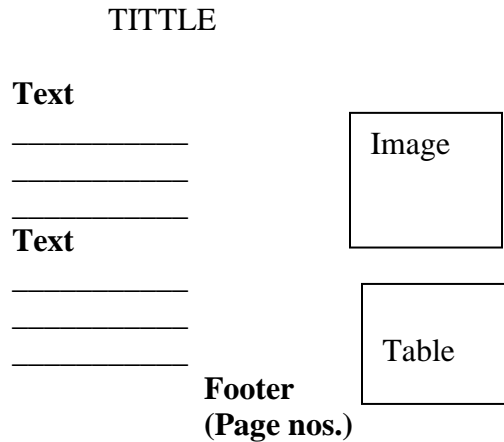
- (i) Top English films between 1975-1980.
- (ii) Top ten computer journals and magazines published worldwide. **(5 marks)**

Q.7 Collaborate online (in a group) on Google docs to create a presentation on ‘*mobile operating system*’. All the group should work on the presentation simultaneously from their respective machines. Use speaker notes for any online discussion.

(10 marks)

Section IV-Word Processor

Q.8 Create a word document and type the text given below. The headings, footer, formatting and layout should be as given in the following sample: **(10 marks)**



Q.9 Create a newsletter in a three column layout. Each page should have a inside border. The page should be landscape oriented. The footer should have a page no. and date. **(10 marks)**

Section-V: SpreadSheet

Q. 10 Create a new workbook containing teacher’s salary for all twelve months. There should be at least five records in each column, use formulae to display the sum of twelve months salary in different columns. It should be bold and underlined. **(10 marks)**