

**BACHELOR OF COMPUTER  
APPLICATIONS  
(BCA)  
(Revised Syllabus)**

BCA(Revised Syllabus)/ASSIGN/SEMESTER-I

**ASSIGNMENTS**

**(July - 2023 & January - 2024)**

**FEG-02, ECO-01, 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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### Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date.
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to BCA Programme Guide.
3. To become eligible for appearing the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the BCA Programme Guide.



**Q4.** You are the Secretary of the Students Union in your college. Write a report in 250 words of a meeting held to discuss the forthcoming Annual Cultural Function. **(20)**

**Q5.** Write a report in 250 words of an interview you had with Education Minister of India. **(20)**

**Q6.** Write a composition of 250-300 words based on any **one** of the pictures given below: **(20)**

**(a)**



**(b)**



**(c)**



**(d)**

<b>Course Code</b>	:	<b>ECO-01</b>
<b>Course Title</b>	:	<b>Business Organization</b>
<b>Assignment Number</b>	:	<b>BCA (I)/01/Assignment/2023-24</b>
<b>Maximum Marks</b>	:	<b>100</b>
<b>Weightage</b>	:	<b>30%</b>
<b>Last Dates for Submission</b>	:	<b>31<sup>st</sup> October, 2023 (For July Session)</b>
	:	<b>30<sup>th</sup> April, 2024 (For January Session)</b>

**There are five questions in this assignment which carried 100 marks. Answer all the questions. Please go through the guidelines regarding assignments given in the Program Guide for the format of presentation.**

- Q1. What do you understand by commerce? Briefly explain the classification of commerce with suitable examples. **(2+18)**
- Q2. Explain briefly the importance of stock exchange in a modern society. What are its shortcomings? **(10+10)**
- Q3. What do you understand by advertising media? Discuss the importance of media for advertising. **(2+18)**
- Q4. Define the term 'Banker'. What is the relationship between a banker and his customer? **(2+18)**
- Q5. Comment briefly on the following statements: **(4×5)**
- (a) Economics activities are concerned with production, exchange and distribution of goods and services.
  - (b) A company established by a special act of the parliament or state legislature is called 'statutory company'.
  - (c) Capital market denotes transactions involving procurement and supply of long-term funds which take place among individuals and institutions.
  - (d) Retailing refers to sale of goods to the ultimate users.

<b>Course Code</b>	:	<b>BCS-011</b>
<b>Course Title</b>	:	<b>Computer Basics and PC Software</b>
<b>Assignment Number</b>	:	<b>BCA (I)/011/Assignment/2023-24</b>
<b>Maximum Marks</b>	:	<b>100</b>
<b>Last Date of Submission</b>	:	<b>31<sup>st</sup> October, 2023 (For July Session)</b>
	:	<b>30<sup>th</sup> April, 2024 (For January Session)</b>

**This assignment has three questions of 80 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.**

**Q1. (Covers Block 1)**

**(7×4=28)**

- a) A computer program consists of instructions and data on which the instruction operates. How are these instructions of a program executed by a computer? Where are these instructions and data stored during execution? What is the role played by Input/output devices?
- b) Computer systems always have small RAM, yet it mostly has a large secondary memory like hard disk? Why? The access time of a hard disk is much larger than RAM, even than RAM is smaller in size than hard disk. Justify. Also, mention various types of RAM.
- c) Convert the following numbers as directed
  - (i)  $264.015_{(10)}$  into binary and hexadecimal
  - (ii)  $345611_{(10)}$  into octal and binary
  - (iii) String "DATA STRUCTURES marks 50" to ASCII and Unicode string
  - (iv)  $8D614E_{(16)}$  to decimal and binary
- d) How can you calculate the capacity of a Winchester disk given its density and speed? A disk has 10 recording surfaces. Each surface has 2000 tracks, each track has 512 sectors and each sector can store 1MB of data. Calculate the capacity of this disk.
- e) Compare and contrast the following technologies:
  - (i) Parallel Port versus Serial Port
  - (ii) Light Pen versus Touch Screen
  - (iii) LED Monitors versus Projection Displays
  - (iv) Laser printers versus Inkjet printers
- f) Explain the characteristics/functions of the following I/O devices:
  - (i) Flash Drive
  - (ii) Graphics Tablet
  - (iii) PenDrive
  - (iv) External Hard Disk
- g) Explain the uses of following Software/Utilities:
  - (i) TALLY software

- (ii) Defender in WINDOWS-11
- (iii) Disk Fragmenter
- (iv) Database software

**Q2.** (Covers Block 2)

**(7X4= 28)**

- a) What is client/server architecture? What are its advantages and disadvantages? Is cloud computing also a client/server architecture? Justify your answer.
- b) Explain the features and uses of the following computer software:
  - (i) Debugger
  - (ii) Linkers
  - (iii) Editor
  - (iv) Spreadsheet software
- c) What is the kernel of an operating system of a Computer? Explain the terms multiuser, multiprogramming and multitasking in the context of an operating system.
- d) Differentiate between the following:
  - (i) GUI versus Voice Input
  - (ii) File Management system versus Input/Output control system in the context of an Operating system
  - (iii) A process versus a program
  - (iv) LINUX versus WINDOWS
- e) Draw a flow chart and write an algorithm to find the sum of  $n$  numbers given as input. (You must use looping construct).
- f) Define the following terms in the context of programming with the help of an example for each:
  - (i) Loop- statement
  - (ii) N-dimensional Arrays
  - (iii) Logical operators
  - (iv) Relational Operators
- g) Explain the following with the help of an example/diagram, if needed:
  - (i) Proprietary software
  - (ii) Scheduling in the context of project management software
  - (iii) Mailmerge in MS-Word
  - (iv) Creating tables using a DBMS.

**Q3.** (Covers Block 3)

**(6X4=24)**

- (a) Explain the following terms in the context of computer networks:
  - (i) Packet switching
  - (ii) Half Duplex transmission
  - (iii) Need of computer networks
  - (iv) Channel of data transmission.

- (b) A Multinational company has its sales offices in 100 different countries of the World. It uses a computer network to collect world- wise sale and order data at its head office. What kind of network the company should make for its sales offices and head office? Justify your answer.
- (c) What is TCP/IP? What is an IP address? Explain various components of IP address with the help of an example.
- (d) What is a browser? How does a browser work? How does it communicate with the web server? Explain with the help of an example.
- (e) How can you enhance your search results from Internet? Explain with the help of examples. List four applications of the Internet.
- (f) Explain the following in the context of Internet and its applications, giving their features and uses:
  - (i) Search Engine
  - (ii) Microsoft Edge



<b>Course Code</b>	:	<b>BCS-012</b>
<b>Course Title</b>	:	<b>Basic Mathematics</b>
<b>Assignment Number</b>	:	<b>BCA(I)012/Assignment/2023-24</b>
<b>Maximum Marks</b>	:	<b>100</b>
<b>Weightage</b>	:	<b>25%</b>
<b>Last Date of Submission</b>	:	<b>31<sup>st</sup> October, 2023 (For July Session)</b> <b>30<sup>th</sup> April, 2024 (For January Session)</b>

**Note: This assignment has 16 questions of 80 marks (each question carries equal marks). Answer all the questions. Rest 20 marks are for viva voce. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation.**

**Q1.** If  $A = \begin{pmatrix} 3 & -1 \\ 2 & 1 \end{pmatrix}$ , (5)

Show that  $A^2 - 4A + 5I_2 = 0$ . Also, find  $A^4$ .

**Q2.** Find the sum of first all integers between 100 and 1000 which are divisible by 7. (5)

**Q3.** a) If  $p^{\text{th}}$  term of an A.P is  $q$  and  $q^{\text{th}}$  term of the A.P. is  $p$ , find its  $r^{\text{th}}$  term. (5)  
b) Find the sum of all the integers between 100 and 1000 that are divisible by 9.

**Q4.** If  $1, \omega, \omega^2$  are cube roots of unity, show that (5)  
 $(2 - \omega)(2 - \omega^2)(2 - \omega^{19})(2 - \omega^{23}) = 49$ .

**Q5.** If  $\alpha, \beta$  are roots of  $x^2 - 3ax + a^2 = 0$ , find the value(s) of  $a$  if  $\alpha^2 + \beta^2 = \frac{7}{4}$ . (5)

**Q6.** If  $y = \ln \frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1+x} + \sqrt{1-x}}$ , find  $\frac{dy}{dx}$ . (5)

**Q7.** Evaluate :  $\int x^2 \sqrt{5x - 3} dx$  (5)

**Q8.** Use De Moivre's theorem to find  $(\sqrt{3} + i)^3$ . (5)

**Q9.** Solve the equation  $x^3 - 13x^2 + 15x + 189 = 0$ , Given that one of the roots exceeds the other by 2. (5)

**Q10.** Solve the inequality  $|\frac{2}{x-1}| > 5$  and graph its solution. (5)

**Q11.** Determine the values of  $x$  for which  $f(x) = x^4 - 8x^3 + 22x^2 - 24x + 21$  is increasing and for which it is decreasing. (5)

**Q12.** Find the points of local maxima and local minima of  $f(x) = x^3 - 6x^2 + 9x + 2014$ ,  $x \in \mathbf{R}$ . (5)

**Q13.** Using integration, find length of the curve  $y = 3 - x$  from  $(-1, 4)$  to  $(3, 0)$ . (5)

**Q14.** Show that the lines, given below, Intersect each other. (5)

$$\frac{x-5}{4} = \frac{y-7}{-4} = \frac{z-3}{-5} \text{ and } \frac{x-8}{4} = \frac{y-4}{-4} = \frac{z-5}{4}$$

**Q15.** A tailor needs at least 40 large buttons and 60 small buttons. In the market, buttons are available in two boxes or cards. A box contains 6 large and 2 small buttons and a card contains 2 large and 4 small buttons. If the cost of a box is \$3 and cost of a card is \$2, find how many boxes and cards should be purchased so as to minimize the expenditure. (5)

**Q16.** Find the scalar component of projection of the vector (5)

$$\vec{a} = 2\hat{i} + 3\hat{j} + 5\hat{k} \text{ on the vector } \vec{b} = 2\hat{i} - 2\hat{j} - \hat{k}$$

<b>Course Code</b>	:	<b>BCSL-013</b>
<b>Course Title</b>	:	<b>Computer Basics and PC Software Lab</b>
<b>Assignment Number</b>	:	<b>BCA(I)/L-013/Assignment/2023-24</b>
<b>Maximum Marks</b>	:	<b>100</b>
<b>Weightage</b>	:	<b>25%</b>
<b>Last date of Submission</b>	:	<b>31<sup>st</sup> October, 2023 (For July Session)</b>
	:	<b>30<sup>th</sup> April, 2024 (For January Session)</b>

**This assignment has three questions of 80 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 the presentation. Make suitable assumptions, if necessary**

**Q1.** Answer the following in the context of the Linux Operating System

(a) Run the following (Linux commands and write the output) **(10)**

- i) ln
- ii) ls
- iii) ps
- iv) who
- v) diff

(b) Create a text file consisting of 30 lines and display the first 5 and last 5 lines of this file. Count the number of times the word “has” appeared in this file. Display the file permissions of the file created by you and change its permissions to rwx-----.

**(6)**

**Q2.** Create a presentation using any Presentation software on the important features of the Linux Operating System (minimum 10 slides) having the following features: **(16)**

- (i) All slides should use a common design template.
- (ii) Add one audio and one video to at least one slide each. The video file should run on a full-screen option.
- (iii) All the slides should have a timer-based transition.
- (iv) All the slides should have proper headings and slide notes.
- (v) Each slide should have one image related to the Linux operating system.

**Q3.**

(a) Use a Word Processor to create information about BCA. It should include a multi-level list highlighting the courses that a student should study (with subtopics) in the first semester; a detailed table about courses, blocks, and units of BCS011; and a few paragraphs about the 2nd-semester courses. **(6)**

- (b) Design a flyer for “The Sustainable Development of India”. Use different styles, sizes, fonts, colours and effects. **(10)**

- Q4.** Create a worksheet containing the billing information of a company as given in the following table: **(16)**

Item Name	Unit Sold (S)	Price Per Unit (P)	Sale Amount (SA)	Discount (D)	Discount Amount (DA)	Amount to be Paid (FP)
Pen	10	20		5%		
Pencil	20	5		10%		
Eraser	10	5		10%		
CD	50	25		20%		
Paper Rim	5	200		5%		
Notebook	10	100		10%		
Total amount to be paid						

You must enter all the labels and amounts as stated. For the Sale Amount (SA), Discount Amount (D) and Amount to be Paid (FP), you may use the following formulae:

$$SA = S * P$$

$$DA = D * SA$$

$$FP = SA - DA$$

The total amount to be paid is the sum of all the FPs.

- Q5.** Use MS Outlook or any other email software to perform the following tasks: **(16)**

- Make a weekly meeting schedule for a group meeting with four of your friends about the agenda – “Importance of Practical in BCA”. This weekly meeting should be scheduled for 4 consecutive weeks.
- Write an email to your friends (at least 5) inviting them to a prayer meeting. Make your Signature and add it to the e-mail message.
- Create a vacation/ holiday message that should be sent to all the emails received by you in a vacation week (say 20<sup>th</sup> September to 27<sup>th</sup> September).
- Suppose a person is sending across many e-mails which you want to delete automatically. Configure your mail account to achieve this functionality in your mailbox.