BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

ASSIGNMENTS

(July - 2022 & January - 2023)

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.

Course Code	:	FEG-02
Course Title	:	English
Assignment Number	:	BCA (1)/02/Assignment/2022-23
Maximum Marks	:	100
Weightage	:	25%
Last Dates for Submission	:	31ˢᵗ October, 2022 (For July Session)
	:	15ᵗʰ April, 2023 (For January Session)

There are six 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.

Attempt all the questions

Q1. Read the following passage and make notes in an appropriate format: **(15)**

The Voice had to be listened to, not only on account of its form but for the matter which it delivered. It gave a message to the country that it needed greatly. It brought to the common people a realization of their duty to concern themselves with their affairs. The common, people were made to take an interest in the manner in which they were governed in the taxes they paid in the return they got from those taxes. This interest in public affairs - politics as you may call it - was to be the concern no longer of the highly educated few but of the many - the poor, the propertyless, the workingmen in town and country. Politics was not to be the concern of a small aristocracy of intellect property of the masses. And with the change in the subjects of politics that Voice bought about also a change in the objects of polities. Till then politics had busied itself mainly with the machinery of Government towards making its personnel more and more native, with proposals for a better distribution of political power, with protests against the sins of omission and of commission of the administration. This Voice switched politics on to concern for the needs of the common people. The improvement of the lot of the poor was to be the main concern of politics and the politician. The improvement, especially of the lives of the people of the neglected villages, was to be Placed before Governments and political organizations as the goal of all political endeavour. The raising of the standard of living of the people of the villages, the finding of subsidiary occupations which would give the agricultural poor work for their enforced leisure during the off season and an addition to (heir exiguous income, the improvement of the housing of the poor, the sanitation, of the villages – these were to be the objectives to be kept in view. In the towns, the slums and cherries were to receive especial attention. There was especially a class of the poor for which that compassionate Voice pleaded and protested. This was for the so-called depressed class, the outcastes of Hindu society. The denial of elementary human rights to this class of people it considered the greatest blot on Hindu society and history. It raised itself in passionate protest against the age- old wrongs of this class and forced those that listened to it to endeavour to remove the most outrageous of them like untouchability. It caused a revolution in Hindu religious practice by

having Hindu temples thrown open to these people. It made the care of them a religious duty of the Hindus by re-naming them Harijans.

-Mr. Ruthnasami

Q2. Write a summary of the passage and give it an appropriate title. **(15)**

Q3. Write a paragraph of 100-150 words on any one of the following topics: **(10)**
    a) Digital world-a boon or a bane?   b) Online Education

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

Q5. Write a report in 250 words of an interview you had with a Sports Star. **(20)**

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

(a)   **(b)**   **(c)**

(d)

Course Code	:	ECO-01
Course Title	:	Business Organization
Assignment Number	:	BCA (1)/01/Assignment/2022-23
Maximum Marks	:	100
Weightage	:	30%
Last Dates for Submission	:	31st October, 2022 (For July Session)
	:	15th April, 2023 (For January Session)

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.

Attempt all the questions:

Q1. What are the essential features of business? List different objectives of business. **(10+10)**

Q2. What is capital structure? Describe factors that determine the capital structure. **(2+18)**

Q3. Discuss various arguments in support of and against advertising. **(20)**

Q4. Discuss the pervasiveness of risk in business. Describe briefly the management of business risks. **(10+10)**

Q5. Comment briefly on the following statements: **(4 x 5)**

  a) An entrepreneur is a good judge of which products will sell.

  b) Stock exchange plays a very important role in the economic development of a country.

  c) There are various reasons of the government participating in business.

  d) The government company form of organization suffers from certain limitations.

Course Code	:	BCS-011
Course Title	:	Computer Basics and PC Software
Assignment Number	:	BCA (1)/011/Assignment/2022-23
Maximum Marks	:	100
Last Date of Submission	:	31st October, 2022 (For July Session)
		15th April, 2023 (For January Session)

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) What is VLSI? How did it change the design of a computer system? Explain the working of von Neumann Architecture with the help a diagram. Also explain the process of execution of an instruction for a von Neumann machine.

b) What are the different standards of representing character in a computer? Name and explain any two such standards with the help of examples. List the ASCII codes of all the decimal digits.

c) Convert the following numbers as directed
  (i) Decimal 197.0625 into equivalent binary and hexadecimal.
  (ii) Decimal 4567654 into binary and hexadecimal
  (iii) String "Character Codes of alphabets and special character $ #" to ASCII and UNICODE strings.
  (iv) Hexadecimal ABCDFFED to decimal and binary

d) What is the need of ROM in a computer? How is it different to RAM? Why is cache memory needed even if a computer has RAM and ROM? Why secondary memory is needed?

e) Explain the disk layout of Hard disk and CD-ROM? Also, explain the access time of magnetic disk and CD-ROM. Which of these has smaller access time?

f) Compare and contrast the following technologies:
  (i) Parallel port and Serial port
  (ii) Mouse and Light pen
  (iii) Voice based input and Keyboard input
  (iv) Inkjet printers and Laser printers

g) Explain the characteristics/functions of the following in the context of a computer system:

    (i) Proxy Server

    (ii) Motherboard

    (iii) Scandisk utility

    (iv) My Documents

Q2. (Covers Block 2)   **(7×4=28)**

a) What are the key features of client/server architecture? What are the benefits of using client/server architecture? How is file sharing architecture different from client/server architecture?

b) Explain the characteristics of object-oriented programming? What are the advantages of using object-oriented programming?

c) List and explain the functions of the following in the context of software:

    (i) Types of Software Licensing

    (ii) Software as a service

    (iii) Diagnostic programs

    (iv) Perverse Software

d) Explain the following in the context of an Operating System:

    (i) Graphical User Interface and Command line interface

    (ii) Directory structure and its use in File Management

    (iii) Input/Output Services

    (iv) Process management in multitasking operating system

    (v) Time Sharing system

    (vi) Memory management in multi-programming operating system

e) Draw a flow chart and write an algorithm to find the sum of the digits of any two digit number given as input. (Hint: For the input number 68, the sum of digits would be 6+8=14. The key is to extract each digit.).

f) Explain the meaning and output of each line of the following program segment. How many times the loop at (ii) and (iii) will be executed?

    (i) int n = 10;

        int i, x=1;

    (ii) for (i=1; i<=n; i=i+2)

          {

    (iii) x = x * i;

          }

    (iv) printf ("The final value is %d ", x);

g) Identify the software or type of software that will be required for the following situations. Also, explain the steps that would be performed to solve the situation in question, if applicable.

    (i) A software development company maintains the list of tasks, expected time of completion of the tasks on which staff, people are working. Which software would help the company in planning and scheduling the projects.

    (ii) You are planning to apply for a job in at least 10 companies. You are required to create a letter for the human resource management of each company. Identify which software and what features of that software would be used by you. Explain these features.

    (iii) You want to judge the performance of each employee by finding the number of hours he/she has worked in last month. The employee attendance data (with in and out time) is available to you. This data is to be analyzed and suitable graphs are to be created to highlight individual work hours. Identify the suitable software and the features of the software that would be needed to create graphs.

    (iv) You are required to create a meeting information system for an organization. This system should setup meetings for different groups of employees informing them about meeting date, meeting agenda, notes etc. What kind of software will you use for such work?

Q3. (Covers Block 3) (6×4=24)

(a) What are the advantages of Computer Networks? Explain the following terms in the context of computer networks:

    (i) Mode of transmission

    (ii) Packet and Circuit Switching

    (iii) Optical Fiber

    (iv) Radio Wave transmission

(b) Explain the characteristics of Bus topology and Ring topology. Also explain the characteristics of LAN and WAN. List one application each of LAN and WAN.

(c) Explain the functions of the following in the context of networking:

    (i) Modem

    (ii) Network Interface cards

    (iii) Repeaters

    (iv) OSI model

(d) What is a URL and IP address? How are they related? How URL can be converted to an IP address? Explain with the help of an example. Explain how a subnet mask 255.255.255.0 will be able to help in identifying various components of an IP address.

(e) What is a search engine? What are the basic actions performed by a search engine? Explain. What would be search terms if you are looking forward to the following:

    (i) List of Universities offering PhD Programme in Computer Science

(ii) List of Browsing software.

(f) Explain the following in the context of Internet and its applications:
(i) E-mail
(ii) Collaborations

Course Code : BCS-012
Course Title : Basic Mathematics
Assignment Number : BCA(1)012/Assignment/2022-23
Maximum Marks : 100
Weightage : 25%
Last Date of Submission : 31st October, 2022 (For July Session)
                               15th April, 2023 (For January Session)

Note: This assignment has 15 questions of 80 marks (Q.no.1 to 14 are of 5 marks each, Q15 carries 10 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.

Q1. Solve the following system of equations by using Matrix Inverse Method.
1. $3x + 4y + 7z = 14$
2. $2x - y + 3z = 4$
3. $2x + 2y - 3z = 0$

Q2. Use principle of Mathematical Induction to prove that:
$\frac{1}{1*2} + \frac{1}{2*3} + \ldots\ldots\ldots + \frac{1}{n(n+1)} = \frac{n}{n+1}$

Q3. How many terms of G.P $\sqrt{3}$, 3 , $3\sqrt{3}$, ………..   Add up to 39

Q4. If $y = a.e^{mx} + b.e^{-mx}$, Prove that $d^2y/dx^2 = m^2 y$

Q5. For what value of 'k' the points (-k + 1, 2k), (k, 2 - 2k) and (- 4 - k, 6 - 2k) are collinear.

Q6. Evaluate $\int \frac{x\,dx}{[(x+1)\,(2x-1)]}$ and $\int \frac{dx}{(e^x - 1)^2}$

Q7. If 1, w, w^2 are Cube Roots of unity show that $(1 + w)^2 - (1 + w)^3 + w^2 = 0$.

Q8. If α, β are roots of equation $2x^2 - 3x - 5 = 0$ form a Quadratic equation whose roots are $α^2$, $β^2$

Q9. Solve the inequality $\frac{3}{5}(x - 2) \leq \frac{5}{3}(2 - x)$ and graph the solution set.

Q10. A spherical ballon is being Inflated at the rate of 900 cm³/sec. How fast is the Radius of the ballon Increasing when the Radius is 15 cm.

Q11. Find the area bounded by the curves $x^2 = y$ and $y = x$.

Q12. 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.

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

Q14. Show that the lines $\frac{X - 5}{4} = \frac{y - 7}{-4} = \frac{z - 3}{-5}$ and $\frac{X - 8}{4} = \frac{y - 4}{-4} = \frac{z - 5}{4}$ Intersect.

Q15. A manufacturer makes two types of furniture, chairs and tables. Both the products are processed on three machines A1, A2 and A3. Machine A1 requires 3 hours for a chair and 3 hours for a table, machine A2 requires 5 hours for a chair and 2 hours for a table and machine A3 requires 2 hours for a chair and 6 hours for a table. The maximum time available on machines A1, A2 and A3 is 36 hours, 50 hours and 60 hours respectively. Profits are $ 20 per chair and $ 30 per table. Formulate the above as a linear programming problem to maximize the profit and solve it.

Course Code	:	BCSL-013
Course Title	:	**Computer Basics and PC Software**
Assignment Number	:	**BCA(1)/L-013/Assignment/2022-23**
Maximum Marks	:	**100**
Weightage	:	**25%**
Last date of Submission	:	**31ˢᵗ October, 2022 (For July Session)**
	:	**15ᵗʰ April, 2023 (For January Session)**

Answer all the questions in the assignment which carry 80 marks in total. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Make suitable assumption if necessary

Section 1: Linux operating system

Q1. **(a)** Run the following (Linux commands and write the output) **(10)**

- mkdir
- init
- ls – l
- chmod
- kill

(b) Perform the following tasks in Linux **(6)**

(i) Display the first 10 lines and last 10 lines of a text file (you need to create a text file consisting around 50 lines)

(ii) Identify all files in your home directory which a group has written permission on it.

(iii) To count the no. of times word "*the*" has occurred in the text file.

Section 2: Power point

Q2. Create a Power Point Presentation on the important features of Windows OS (minimum 10 slides) **(16)**

(i) All slides should follow the common design format

(ii) Add a video to at least one slide which can be run on full screen option

(iii) All the slides should have timer based transition.

(iv) All the slides should have perform heading and slide notes.

(v) Each slide should have one image related to Windows operating system.

Section 3: Word Processing

Q3. **(a)** Create multilevel month and week wise schedule for performing different academic tasks. Months should be numbered as A1…….to A12. Each month should be further broken into weeks numbered as W1…W4.For each week , academic activities such as attending counseling sessions, watching video lectures, etc., should be in numerical order(1,2,3…) **(6)**

(b) Design a flyer for a COVID 19 vaccination campaign. Use different styles, sizes, fonts, colours and effects. **(10)**

Section 4: Worksheet

Q4. Create a work sheet containing pricing information of a company which deals in sales of computers & computer peripherals. You are required to calculate discount, sales price (MRP- Discount) and profit margin(MRP-sales price) **(16)**

Product	Product code	Manufacturing Cost	MRP	Discount (10%)	Profit margin
Computer	C-1	24000.00	27000.00	-	-
Laser printer	C-2	4000.00	6000.00		
Filing cabinet	C-3	6500.00	7000.00		
27th monitor	C-4	2200.00	3000.00		
Mouse	C-5	430.00	500.00		

Section 5: Browsing and Discussion Forum

Q5. Collaborate online (in a group) on Google docs to create a presentation on 'Smart City Design'. All the group members should work on the presentation simultaneously from their respective machines. Use speaker notes for any online discussion and present a comprehensive report. (The report should comprise the latest amenities in the design of smart cities). **(16)**