# BACHELOR OF COMPUTER APPLICATIONS
# (BCA_NEW)

BCA_NEW ASSIGNMENT  SEMESTER - I

## ASSIGNMENTS

## (July-2024 & January-2025)

**BEVAE-181, BEGLA-136, BCS-111, BCS-012, BCSL-013**

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THE PEOPLE'S
UNIVERSITY

**SCHOOLOFCOMPUTERANDINFORMATIONSCIENCE
S 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.
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).

| Course Code | : | BEVAE-181 |
|---|---|---|
| Course Title | : | Environmental Studies |
| Assignment Number | : | BCA (I)/181/Assignment/2024-25 |
| Maximum Marks | : | 100 |
| Last Date of Submission | : | 31ˢᵗOctober, 2024 (For July Session) |
| | : | 30ᵗʰApril, 2025 (For January Session) |

**This assignment has two parts for a total of 100 marks. Attempt all the questions in both the parts.**

### PART-A

1.  "Sustainable development is an ideal-a goal towards which all human societies need to be moving" Justify the statement with suitable arguments.  **8**

2.  Marine ecosystem is the largest and most stable ecosystem on the earth and is of great ecological significance. Elucidate your answer with suitable examples.  **8**

3.  "Poverty amidst plenty, nature is bountiful but tribals are poor" explain this statement with respect to forest resources.  **7**

4.  "India's energy needs can only lie in adopting non-conventional sources of energy". Explain in detail.  **7**

5.  Answer the following questions in about 150 words each.  **4x5=20**
    a) Explain the significance of Kul and Bamboo drip irrigation practices.
    b) "Soil which forms the uppermost layer of the land, is the most precious of all resources". Explain this statement.
    c) Explain an indirect use value of biodiversity.
    d) "Species diversity is the most visible component of Biodiversity." Explain
    e) Differentiate between food chain and food web.

### PART-B

6.  Explain the need for people's participation in environmental conservation with suitable case studies.  **8**

7.  Explain the relevance of wetland with respect to nature reserves at the global level.  **7**

8.  Explain the objectives of the Environment Protection Act of 1986 and its role in environmental conservation.  **7**

9.  Answer the following questions in about 150 words each.  **4x4=16**

    a) How does the environment influence human health? Explain it in detail with suitable example.
    b) Explain the problems associated with improper waste disposal and its impact on humans.
    c) Acid rain is considered one of the major global issues. Explain acid rain and its effects.
    d) Explain the different parameters that can assess water quality as a consumption.

10. Explain the following terms in about 60 words each:  **3X4=12**

a) Environmental Justice
b) Central Pollution Control Board (CPCB)
c) Smog
d) Green House Gases

| Course Code | : | BEGLA-136 |
|---|---|---|
| Course Title | : | English at the Workplace |
| Assignment Number | : | BCA (I)/136/Assignment/2024-25 |
| Maximum Marks | : | 100 |
| Last Date of Submission | : | 31stOctober, 2024 (For July Session) |
| | : | 30thApril, 2025 (For January Session) |

**This assignment has three sections for a total of 100 marks. Answer all the questions of all the sections.**

# SECTION A

1. Write short notes on the following:                                5x4=20

   a) Types of customers at the workplace
   b) Characteristics of Work Ethics
   c) Common Trends in E Communication
   d) Behavior Code at the Workplace

# SECTION B

10x4=40

1. Briefly write about your dream job and how you plan to make it a reality?
2. Discuss the importance of body language during interviews.
3. Make a presentation for your organization on why you think it is essential to have a portfolio while apply for a position in an organization.
4. You are interested in applying for the position of a web designer in a company. Write a covering letter for this position, showing how you are suitable for the job.

# SECTION C

20X2=40

1. Prepare a CV (Curriculum Vitae) for a job you wish to apply for, mentioning your qualifications, work experience achievement etc. relevant to the job.
2. You are planning to appear for an interview for the position of a English Language Trainer in a reputed institution. Write out ten questions you expect to be asked and your answers to these questions.

| | | |
|---|---|---|
| Course Code | : | **BCS-111** |
| Course Title | : | **Computer Basics and PC Software** |
| Assignment Number | : | **BCA (I)/111/Assignment/2024-25** |
| Maximum Marks | : | **100** |
| Last Date of Submission | : | **31st October, 2024 (For July Session)** |
| | : | **30th April, 2025 (For January Session)** |

**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:** **7×4=28 Marks**

**(a)** What are the functions of various operational units of a computer system? What is von Neumann Architecture? How can you relate von Neumann architecture to an actual computer? Explain with the help of an example configuration.

**(b)** Compare and contrast the characteristics and/or organization of the following:
  (i) DRAM Vs. SRAM
  (ii) Access time on Magnetic disks Vs. access time on Magnetic tapes
  (iii) Pen Drive Vs. CD-RW
  (iv) ROM Vs. PROM

**(c)** Convert the following numbers as stated
  (i) Decimal 64.005125 to binary
  (ii) Decimal 2376 to hexadecimal
  (iii) Character **A** and **Z** to ASCII and Unicode Hexadecimal CFE9A to binary

**(d)** What is an instruction? What are its components? What is the role of an instruction in a computer? Explain with the help of an example. Where does the instruction reside at the time of execution.

**(e)** A 2.5 inch diameter disk has 8 platters with each platter having two data recording surfaces, each platter on disk has 4084 tracks, each track has 400 sectors and one sector can store 1 MB of data. Calculate the storage capacity of this disk in Bytes. If this disk has a seek time of 2 milli-seconds and rotates at the speed of 6000 rpm, find the Access time for the disk. Make suitable assumptions, if any.

**(f)** What are the uses of various components of motherboard of a computer? List at least four output devices and ports to which these devices can be connected. Explain the characteristics of these output devices and ports.

**(g)** What are the uses of following Software:
  (i)    Data Compression Utility
  (ii)   Media Player
  (iii)  Disk Defragmenter
  (iv)   Disk checker

**Question 2:** 7×4=28 Marks

**(a)** Why do you need virus detection software? What are their drawbacks? What are the techniques to identify a virus? List any 4 latest virus for desktop systems.

**(b)** Consider that you have to run several computer programs simultaneously on a computer. Each program takes input from a file and output information on a printer. How does different components of an Operating system (like memory management, I/O management, Process management, file system and user interface) will help in execution of these programs.

**(c)** Explain the differences between procedural programming and object oriented programming with the help of one example program of each.

**(d)** Draw a flow chart of a program that adds N even numbers starting from 1. The value of N should be input by the user.

**(e)** List the elements of a programming language. Explain the terms data type, expression, assignment; and logical, relational and equality operators with the help of an example each.

**(f)** What are the phases of project development in which project management software can help. Explain with the help of examples.

**(g)** Explain the following with the help of an example/diagram, if needed:
    (i)    Development Model for Open Source Software
    (ii)   Tools for program development
    (iii)  Use of functions and Macros
    (iv)  Database and Database Management System

**Question 3:** 6×4=24 Marks

**(a)** Explain the characteristics of any two guided and any two unguided channels for data transmission.

**(b)** Four branch offices of an organisation are located in four major cities of a vast country. Explain the characteristics of the network that will be needed for every branch office. All the four branch offices network should also be connected by another network. Explain the characteristics of this network also.

**(c)** What is Internet? What are the major protocols used on Internet? What is an IP address? How can an IP address be related to a web address? Explain with the help of an example.

**(d)** What are the different features of a browser? If you want to perform Online Banking Transactions, what precautions will you take before performing a transaction?

**(e)** Describe the process of creating a web email account. What are the different components of a mail message? Explain with the help of a diagram.

**(f)** Explain the following in the context of Internet and its applications, giving their features and uses:
    (i)  Online Education
    (ii) eCommerce

| | | |
|---|---|---|
| Course Code | : | **BCS-012** |
| Course Title | : | **Basic Mathematics** |
| Assignment Number | : | **BCA(I)012/Assignment/2024-25** |
| Maximum Marks | : | **100** |
| Weightage | : | **25%** |
| Last Date of Submission | : | **31stOctober, 2024 (For July Session)** |
| | | **30thApril, 2025 (For January Session)** |

**Note: There are 16 questions in the following assignment carrying a total of 80 marks (each question carries 5 marks), Rest 20 marks are for viva-voce. Answer all the questions.**

**Q1:** For what value of 'k' the points ( -k + 1, 2k), (k, 2 - 2k) and ( - 4 - k, 6 - 2k) are collinear.

**Q2:** Solve the following system of equations by using Matrix Inverse Method.
$$3x + 4y + 7z = 14$$
$$2x - y + 3z = 4$$
$$2x + 2y - 3z = 0$$

**Q3:** Use principle of Mathematical Induction to prove that:
$$\frac{1}{1*2} + \frac{1}{2*3} + \ldots\ldots\ldots + \frac{1}{n(n+1)} = \frac{n}{n+1}$$

**Q4:** How many terms of G.P $\sqrt{3}$ , 3 , $3\sqrt{3}$ , ………..      Add upto 39 + 13

**Q5:** If $y = ae^{mx} + be^{-mx}$, Prove that $d^2y/dx^2 = m^2 y$

**Q6:** Integrate function $f(x) = x/[(x+1) (2x-1)]$ w.r.t x

**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 $2x^2 - 3x - 5 = 0$, them find a Quadratic equation whose roots are $\alpha^2$, $\beta^2$

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

**Q10:** If a positive number exceeds its positive square root by 12, then find the number.

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

**Q12:** Find the inverse of the matrix A = $\begin{pmatrix} 1 & 6 & 4 \\ 2 & 4 & -1 \\ -1 & 2 & 5 \end{pmatrix}$ , if it exists,

**Q13:** If *m* times the *m*th term of an A.P. is *n* times its *n*th term, show that (m + n)th term of the A.P. is zero.

**Q14:** Show that

    i)$\lim_{n \to 0} \frac{|x|}{x}$does not exist          ii) f(*x*) = |*x*| is continuous at *x* = 0.

**Q15:** Suriti wants to Invest at most 12000 in saving certificates and National Saving Bonds. She has to invest at least 2000 in Saving certificates and at least 4000 in National Saving Bonds. If Rate of

Interest on saving certificates is 8% per annum and rate of interest on national saving bond is 10% per annum. How much money should she invest to earn maximum yearly income? Find also the maximum yearly income.

**Q16:** A spherical balloon is being Inflated at the rate of 900 cm$^3$/sec. How fast is the Radius of the balloon Increasing when the Radius is15 cm.

| Course Code | : | BCSL-013 |
|---|---|---|
| Course Title | : | **Computer Basics and PC Software Lab** |
| Assignment Number | : | **BCA(I)/L-013/Assignment/2024-25** |
| Maximum Marks | : | **100** |
| Weightage | : | **25%** |
| Last date of Submission | : | **31ˢᵗOctober, 2024 (For July Session)** |
| | : | **30ᵗʰApril, 2025 (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 the presentation. Make suitable assumptions, if necessary.**

**Question 1:** Answer the following in the context of the Linux Operating System. You must write all the commands that you have used for answering the questions. Also, attach printout OR a file (may be in pdf format) containing the screenshots of the output.

**a)** Write and run the following Linux commands and attach the screenshots of the output of each commands                                                                                                   **10 marks**

i) who

ii) man

iii) cat

iv) cp

v) chmod

vi) ls

vii) cmp

viii) cd

ix) mkdir

x) grep

**b)** Create a text file in Linux consisting of 25 lines.  Display the first 4 and last 4 lines of this file. Count how many times the word "the" appeared in this file. Display the file permissions of the file created by you. Now, change the file permissions of this file to rw-rw----.                                    **6 Marks**

**Question 2:** Create a presentation using any Presentation software on the topic "Internet Technologies" (minimum 10 slides) having the following features:                                                             **16 Marks**

**i)** All slides should use a common design template.

**ii)** Add an audio file to a slide. Also, add a video file that should run on a full-screen.

**iii)** All the slides should have timer-based transitions.

**iv)** All the slides should have proper headings and slide notes.

**v)** Each slide should have one image related to the topic.

Write the sequence of steps that you have performed to create these slides. Also attach printout OR a file (may be in pdf format) containing the handout of all the slides (6 slides per page).

**Question 3:**

 **a)** Use a Word Processor to create a document about the topics covered in BCSL013. It should include (i) a multi-level list highlighting the topics and subtopics of the Units; (ii) a table consisting of unit number, unit title, and number of pages of that unit; (iii) a paragraph about the objectives of the course.

**6 Marks**

**b)** Design a flyer on the topic "The Solar Power". Use different styles, sizes, fonts, colours and effects.

**10 Marks**

Write the sequence of steps that you have performed to create the document and flyer. Also attach a printout OR a file (may be in pdf format) containing document and flyer.

**Question 4:** Create a worksheet containing the payroll of a company as given in the following table:

**16 Marks**

| Employee Name | Basic Salary (B) | Dearness Allowance (DA) (30% of B) | Total Gross Salary (G) | Income Tax (IT) (25% of G) | PF (10% of G) | Net Salary (N) |
|---|---|---|---|---|---|---|
| Raman | 50000 | | | | | |
| Mohit | 65000 | | | | | |
| Siraj | 60000 | | | | | |
| David | 50000 | | | | | |
| Phillip | 45000 | | | | | |
| Roger | 30000 | | | | | |

You must enter all the labels and details as given above. You may use the following formulae:

$$DA = 30\% \text{ of } B$$
$$G = B + DA$$
$$IT = 25\% \text{ of } G$$
$$PF = 10\% \text{ of } G$$
$$N = B + DA - IT - PF$$

Write the sequence of steps that you have performed to create the formulae in different cells. Also attach printout OR a file (may be in pdf format) containing the worksheet.

**Question 5:** Use MS Outlook or any other email software to perform the following tasks:

**16 Marks**

**a)** Make a weekly meeting schedule for a group meeting, along with two other BCA students, about the agenda – "Process of Assignment Submission". This weekly meeting should be scheduled for two consecutive weeks.

**b)** Write an email to your friends (at least 5) inviting them to attend a lecture which is to be presented by you. Make your Signature and add it to the e-mail message.

**c)** Create a vacation/ holiday message that should be sent to all the emails received by you in a vacation week (say 5$^{th}$ December, 2024 to 12$^{th}$ December, 2024; or 7$^{th}$ June, 2025 to 15$^{th}$ June 2025).

**d)** A person is sending several e-mails to you which you want to delete automatically. Configure your mail account to achieve this functionality in your mailbox for a specific email id.

Make and state suitable assumption, if any.

Write the sequence of steps that you have performed in different parts of this question. Also attach printout OR a file (may be in pdf format) containing the screen shots of the output.

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