

[This question paper contains 6 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1115A

D

Unique Paper Code : 6332491101

Name of the Paper : Computer Fundamentals

Name of the Course : B.Voc. (Web Designing)

Semester : I

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. The paper has two sections: Section A is compulsory.
3. Attempt any four questions from Section B.

Section A

1. (i) Differentiate Machine language and High-level language. (3)

P.T.O.

(ii) Convert the following: (3)

(a) $(563)_{10} = ()_2$

(b) $(1091)_{10} = ()_2$

(c) $(110001010)_2 = ()_{10}$

(iii) With the help of a diagram categorize computers into categories based on their size. Also, give an example of each category. (3)

(iv) What is CPU's working memory and why is it called as the working memory? Briefly comment about their storage capacity and speed. (3)

(v) What is an OMR device? List its applications. (3)

(vi) Give the full form of following: (3)

(a) ASCII

(b) EPROM

(c) DVD

- (vii) Explain any two pointing devices. (3)
- (viii) List the drawbacks of the first generation computers and second generation computers. (3)
- (ix) What are the applications of computer in Health sector? (3)
- (x) Explain ASCII Code.

Arrange following in ascending order based on their ASCII Codes: Delhi, Goa, Mumbai, Kolkata, Gurugram, Dubai. (3)

Section B

2. (a) Differentiate between the following (two differences each): (5)
- (i) Arithmetic Unit and Logic Unit
- (ii) System Software and Application Software

- (b) Perform the following operations :
- (i) Add $(10101100)_2$ and $(100111001)_2$
 - (ii) Subtract $(10101111)_2$ from $(10010111)_2$. Using 2's Complement (2+3)
- (c) What are registers? List out the commonly found registers in the CPU and explain their functions. (5)
3. (a) Which category of software is an Operating System (OS)? Mention four key functions of an Operating System? (5)
- (b) "The clarity of image on the computer screen depends on three factors." Describe these factors. (5)
- (c) Write short notes on: (5)
- (i) Multiprocessing OS
 - (ii) Real Time OS

4. (a) Classify the different internal and external memories of a computer in terms of cost, access time and storage capacity using memory hierarchy. What is the use of Primary memory? (5)
- (b) With the help of a block diagram, explain the basic organization of a computer system. (5)
- (c) Differentiate between System Software, Application Software and Utility Software with one example for each. (5)
5. (a) What is the need of RAM and ROM in a computer system? Differentiate between RAM and ROM. List different types of ROM. What is BIOS and which type of ROM it is? (5)
- (b) Write different types of printer. Explain any two types of printer in detail. (5)
- (c) Given the three storage devices
- (i) Hard disk

(ii) Pen drive

(iii) Magnetic tape, what will be their primary uses? Give advantage and disadvantage of each of these secondary memories. (5)

6. (a) Write short notes on:

(i) Big Data

(ii) Mobile Computing

(iii) Bluetooth

(5*3)

(E)
28/2/23

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1119A

D

Unique Paper Code : 6332491102

Name of the Paper : Object oriented programming
using C++

Name of the Course : B.Voc. (Web Designing)

Semester : I

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Q1. is compulsory
3. From Q2. To Q7. Attempt any **four** questions.

1. (i) Write a C++ program to swap two numbers using pointer (30)

P.T.O.

- (ii) State use of new operator.
- (iii) Explain use of friend function with the help of suitable example.
- (iv) State any four points of differentiation between function overloading and function. overriding
- (v) Explain the concept of abstract class.
- (vi) Compare and contrast the variables and constants in C++. What are the rules to be followed for identifiers?

(vii) What is the output of the following code?

(viii) `#include<iostream.h>`

(ix) `#include<string.h>`

```
void main() {  
  
    cout<<strlen("Hello, World.\n")<<"\n";  
  
}
```

(x) What is the output

```
#include<iostream.>
```

```
void main(){
```

```
int x=0;
```



```
while(x++<5){  
    static x;  
    x+=2;  
    cout<<x<<" ";  
}  
  
}
```

2. (i) Compare and contrast for, while and do-while looping statements. (8)
- (ii) What is constructor? Explain (7)

3. Compare and contrast the procedural programming and object-oriented programming. (15)

4. (i) Write a C++ program involving a virtual function. (8)
- (ii) Write a C++ program to demonstrate function overloading. (7)

5. (i) Explain the concept of dynamic allocation with suitable example? (7)
- (ii) Write a program using a try block to detect and throw an exception if the condition "divide by zero" occurs. (8)
6. What is the need of inheritance? Draw a diagram to represent the forms of inheritance. (15)
7. Explain the usage of access specifiers in inheritance and show their visibility when they are inherited as public, private and protected. (15)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1123-A

D

Unique Paper Code : 6332491103

Name of the Paper : Fundamentals of Mathematics

Name of the Course : B.Voc. (Web Designing)

Semester : I

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions.

1. Do the following parts : (9×2)

(a) Find the intervals in which $f(x) = 2x^3 - 9x^2 + 12x$ is increasing and the intervals on which f is decreasing.

(b) Find the open interval on which $f(x) = x^4$ is concave up and where it is concave down. Also determine points of inflection, if any.

P.T.O.

2. Do the following parts : (9×2)

(a) $A = \begin{pmatrix} 3 & 2 \\ 4 & 1 \end{pmatrix}$ and $B = \begin{pmatrix} a & b \\ 3 & 5 \end{pmatrix}$, find a and b such that
 $AB = BA$.

(b) Use Cramer's rule to solve the system :

$$3x_1 - x_2 - 2x_3 - 8 = 0$$

$$4x_1 - 3x_3 + 1 = 0$$

$$2x_1 - 3x_2 + 5x_3 + 32 = 0.$$

3. Do the following parts : (9×2)

(a) Let $f(x) = \frac{x+1}{x-1}$, find a formula for f^{-1} , and state
the domain and range of function f^{-1} .

(b) Examine the continuity of the function

$$f(x) = \frac{x^2 - 4}{x - 2} \text{ at } x = 2.$$

4. Do the following parts : (9×2)

(a) Show that the function $f(x) = |x|$ is continuous
everywhere but not differentiable at $x = 0$.

(b) Prove that $\lim_{x \rightarrow 0} \frac{1}{x^2} = +\infty$.

5. Do the following parts : (9×2)

(a) Suppose that f and g are continuous such that

$$\lim_{x \rightarrow 3} g(x) = 5 \text{ and } f(3) = -2. \text{ Find } \lim_{x \rightarrow 3} \left[\frac{f(x)}{g(x)} \right].$$

(b) Express the matrix $\begin{pmatrix} -4 & 2 & 5 \\ 6 & 3 & 7 \\ -1 & 0 & 2 \end{pmatrix}$ as a sum of

skew-symmetric and symmetric matrix.

6. Do the following parts : (9×2)

(a) Determine the relative minimum and relative maximum of the function $f(x) = x^4 - 4x^3 + 1$ on $[-1, 4]$.

(b) Let $f(x) = \begin{cases} x+1, & x \leq 1 \\ x-1, & x > 1 \end{cases}$,

Find the limits that exist

(i) $\lim_{x \rightarrow 1^-} f(x)$

(ii) $\lim_{x \rightarrow 1^+} f(x)$

(iii) $\lim_{x \rightarrow 1} f(x)$

7. Do the following parts : (9×2)

(a) If : $f(x) = \begin{cases} 1, & \text{when } x \text{ is rational} \\ -1, & \text{when } x \text{ is irrational} \end{cases}$

then show that f is not integrable on close interval $[0,1]$.

(b) Using Fundamental Theorem of Calculus, evaluate

$$\int_1^9 \sqrt{x} \, dx .$$

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[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6463

Unique Paper Code : 61018318

Name of the Paper : GEC-3.1 Karyalayee Hindi

Name of the Course : **B.VOC. (CBCS) (Web Designing), 2022**

Semester : III

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **all** questions.

छात्रों के लिए निर्देश

1. इस प्रश्न-पत्र के मिलते ही ऊपर दिए गए निर्धारित स्थान पर अपना अनुक्रमांक लिखिए ।
2. **सभी** प्रश्न अनिवार्य हैं ।

1. कार्यालयी हिन्दी के स्वरूप पर प्रकाश डालते हुए उसके क्षेत्रों तथा उद्देश्यों को स्पष्ट कीजिए ।

P.T.O.

अथवा

कार्यालयी हिन्दी को परिभाषित करते उसके महत्त्व पर प्रकाश डालिए।

(12)

2. टिप्पणी को परिभाषित करते हुए उसकी विशेषताओं तथा नमूने की व्याख्या कीजिए।

अथवा

सामान्य हिन्दी और कार्यालयी हिन्दी को परिभाषित करते हुए अन्तर स्पष्ट कीजिए

(12)

3. विज्ञापन से आप क्या समझते हैं उदाहरण सहित समझाइए ।

अथवा

कार्यालय से निकलने वाले पत्रों में किन्हीं तीन की व्याख्या कीजिए।

(12)

4. प्रारूपण को परिभाषित करते हुए इसके प्रकारों की व्याख्या कीजिए ।

अथवा

संक्षेपण की विशेषता बताते हुए उसकी विधियों पर प्रकाश डालिए ।

(12)

5. किन्हीं तीन पर टिप्पणी लिखिए। (4×3=12)

(i) राजभाषा तथा राष्ट्रभाषा

(ii) परिपत्र

(iii) आवेदन पत्र

(iv) पारिभाषिक शब्दावली

6. (क) निम्न पांच पारिभाषिक शब्दों के हिन्दी प्रतिरूप लिखिए:-

Complex, Currency, Dividend, Administrator, Chief
Minister, Controller, Empire, Epistemology, Good will,
Honorarium (5)

(ख) पांच अभिव्यक्तियों का हिन्दी प्रतिरूप लिखिए।

Vice chairman, Army ordnance department, Atomic
Energy Commission, Central Institute of Hindi,
Commission for minorities, Press Council of India,
Regional Rural Bank, Vigilance Officer, Rural
Programme, Audience, Autograph (5)

P.T.O.

- (ग) किन्हीं पांच पद अनुभाग तथा कार्यालयों के नामों का हिन्दी अनुवाद कीजिए।

Action has not yet been initiated, As per details below, Carried forward, Competent authority's sanction is necessary, Issue reminder urgently, Kindly acknowledge, No further action is called for, Please see the Preceding notes, Deduction at source (5)

5
[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6467

Unique Paper Code : 61018341

Name of the Paper : (GEC-3.2) Statistical Data
Analysis Using R

Name of the Course : **B.Voc. Web Designing**
(CBCS) 2022

Semester : III

Duration : 2 Hours

Maximum Marks : 50

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **four** questions.
3. **All** questions carry equal marks.

1. (i) Make stem and leaf plot for given data

3 5 7 5 3 2 6 8 5 6 9 4 5 7 3 4

How it works on above vector? Explain all additional instructions which can be applied on stem and leaf plot in R.

P.T.O.

(ii) What is histogram in statistics? How to plot histogram in R? Explain all additional instructions which can be applied on histogram in R.

2. How to create ogive graph in R? Use the following data showing the score of 20 students to create ogive graph.

22 17 26 27 14 15 21 18 8 19
26 12 21 15 18 21 10 16 20 18

3. What is multiple linear regression in R? Consider the table of data

x	2	8	13	10	12	12	8	16	5	5	14
y	4	16	18	13	19	16	8	5	19	6	7

- (a) Draw a scatter plot of data points (x, y) .
- (b) Does the data set appear to have a strong or weak linear relationship?
- (c) Would you predict a correlation near -1 , 0 , or $+1$? Verify your intuition by calculating the correlation coefficient.
- (d) Compute a line of best fit for the data (that is, a linear model).

4. Explain all commands related to Normal Distribution which can be used in R? Write the code to generate 20 numbers with a mean of 5 and a standard deviation of 1.
5. Consider the pressure data frame.

temp eratu re	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360
press ure	0. 00 02	0. 00 12	0. 00 60	0. 03 00	0. 09 00	0. 27 00	0. 75 00	1. 85 00	4. 20 00	8. 80 00	17. 30 00	32. 10 00	57. 00 00	96. 00 00	157. 00 00	247. 00 00	376. 00 00	558. 00 00	806. 00 00

- (a) Construct a scatterplot with pressure on the vertical axis and temperature on the horizontal axis. Are the variables related linearly or nonlinearly?
- (b) The graph of the following function passes through the plotted points reasonably well :

$$y = (0.168 + 0.007x)^{20/3}.$$

The differences between the pressure values predicted by the curve and the observed pressure values are called residuals. Construct a normal QQ-plot of these residuals and decide whether they are normally distributed or whether they follow a skewed distribution.

- (c) Now, apply the power transformation $y^{\frac{3}{20}}$ to the pressure data values. Plot these transformed values against temperature. Is a linear or nonlinear relationship evident now?
- (d) Calculate residuals for the difference between transformed pressure values and those predicted by the straight line. Obtain a normal QQ-plot and decide whether the residuals follow a normal distribution or not.
6. How to perform Hypothesis Testing in R using t-Test. Carry out one Sample t-Testing on any vector of numeric data. Explain all additional instructions or options which can be applied on t-Test in R.

[This question paper contains 7 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6470

Unique Paper Code : 61018314

Name of the Paper : (GEC-3.3) – Life Skills
Education

Name of the Course : **B.VOC. (CBCS) 2022**

Semester : III

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **any five** questions.
3. **All** questions carry equal marks.

1. Explain the core life skills. Why life skills education is important? (15)

P.T.O.

2. Define decision making skill. Describe the common decision making mistakes and also briefly explain the differentt decision making styles with suitable examples. (15)

3. (a) Sissy is 4 years of age and has recently moved from Singapore to live in Australia. She has been at the service for a month now. Her first language is Malay, in which she uses to respond to all educators and children. She is beginning to pick up a few words of English but continues to communicate in her home language. Many educators respond to sissy by saying 'I don't understand, and trying to get her to use English instead'. Giving Sissy directions or routines to follow is quite a challenge as she doesn't respond when being spoken to, instead turning away and putting her head down, sheltering her body away.

During meal and snack times, even when encouraged with hand gestures, Sissy refuses to join the group and sit with the other children at the table. Sissy has made no friends and doesn't respond to any of the educators either. Sissy sits on her own or plays independently with the same dolls and puzzle each time she attends.

- (i) Describe three ways educators could show respect when communicating with Sissy.
- (ii) Provide examples of verbal and non-verbal communication methods to interact with Sissy to enable her to feel respected and important with in the program.
- (iii) Identify two effective strategies to communicate in the most efficient way possible when a language barrier exists.

(9)

P.T.O.

(b) Explain the different qualities of a good communicator. (6)

4. (a) Explain the concept of Self Awareness? How to boost self-esteem? (6)

(b) Reema and Vaishali are good friends. They met after a rather long period of time and are happy to see each other. Reema is not her usual bubbly self, but looks a bit depressed. When Vaishali asks her if everything is OK with her, Reema shares that she is quite upset by the fact that she has recently developed acne and does not know what to do about it. She feels that she looks quite unattractive because of them. This sets Vaishali thinking about her own concerns. She is very conscious of the fact that she has not grown as tall as most of her class mates and feels that her

body is quite 'flat' and does not look womanly enough. She thinks that her friends may be making fun of her.

Answer the following based on the above situation:

- (i) How can Reema and Vaishali cope up with the situation using different life skill
 - (ii) What do they think are most important qualities that they seek in their friends?
 - (iii) Does physical appearance matter the most? Give Justification for your answer. (9)
5. (a) What is Critical Thinking? Explain the components of critical thinking with suitable examples. (10)

6470

6

- (b) Imagine you are in a situation, where your parents want you to join your sister for a marriage which you do not want to attend as you know that it is a boring one. Alternatively, your parents have given you a chance to spend your weekend with a set of relatives, all elderly people. You are equally disinterested in them. You have to choose any one between the two of them. Both are equally unattractive to you. Which one you think you should prefer and why? (5)

6. Write notes on the following:

(a) Positive Youth Development

(b) Cultural Practices that Govern everyday life.

(7.5+7.5)

6470

7. Ex

(a

(b

(c

6470

7

7. Explain the following:

(a) Emotional Intelligence

(b) Effective Communication

(c) Creative thinking skills.

(5×3=15)

(200)

7
[This question paper contains 3 printed pages.] P

Your Roll No.....

Sr. No. of Question Paper : 6458

Unique Paper Code : 61018518

Name of the Paper : Geographical Information System (GEC-5.2)

Name of the Course : **B.Voc. (Web Designing / Software Development) (CBCS) 2022**

Semester : V

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **all** questions.
3. **All** questions carry equal marks.

1. What is GIS Used For? Elaborate your answer with suitable examples.

OR

P.T.O.

6458

2

What are the Hardware and Software requirements of GIS. Write about any two GIS softwares.

2. Explain Global Positioning System (GPS) and its segments in detail.

OR

What is the difference between GPS and DGPS? Discuss their significance.

3. What are the different types of GIS Data?

OR

Differentiate between spatial and non-spatial data structure with suitable examples?

4. What is Overlay. Explain different types of Overlay methods.

OR

6458

3

Write a note on GIS Data Analysis with especial emphasis on Input and Output.

5. Define Land use Land Cover (LULC). How GIS is useful in LULC mapping.

OR

Why Forest monitoring is important. How do we utilize GIS in forest mapping and monitoring.

(100)

[This question paper contains 3 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6461

Unique Paper Code : 61018528

Name of the Paper : Quality Management (GEC-5.3)

Name of the Course : B.Voc. (Web Designing)
(CBCS), 2022

Semester : V

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
 2. Attempt any five questions.
 3. All questions carry equal marks.
 4. Illustrate with diagrams wherever necessary
-
1. Explain the 6 basic approaches of Quality Management and mention the dimensions of quality for the services sector? How do you quantify quality?

P.T.O.

2. What is the role of leadership in Quality Management?
What are the criteria to achieve the Malcolm Baldrige National Quality Award?
3. How to translate needs into requirements, explain using the Kano Model. Explain any 3 different types of techniques used to measure customer satisfaction?
4. What is cost of quality? Explain the different types of quality costs proposed by Joseph Juran.
5. How to implement the Quality Function Deployment? Illustrate.
6. What is a quality statement? Explain the sequential steps involved in ISO 9000 certification.
7. Write short notes on any 3 of the following:
 - (i) 6-Sigma Methodology

6461

3

(ii) Taguchi Loss Function

(iii) Teboul's Model to define Customer Satisfaction

(iv) Control Charts and Statistical Quality Control
(SQC)