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**3 (Sem-4/CBCS) CSC SE 1/2/3/4/5**

**2024**

**COMPUTER SCIENCE/COMPUTER  
APPLICATION/INFORMATION TECHNOLOGY**

( Skill Enhancement Course)

**Answer the Questions from any one Option.**

**OPTION - A**

**( R Programming )**

Paper : CSC-SE-4014

**OPTION - B**

**( HTML Programming )**

Paper : CSC-SE-4024

**OPTION - C**

**( System Administration and Maintenance )**

Paper : CSC-SE-4034/TCA-SE-4014/TIT-SE-4024

**OPTION - D**

**( Android Programming )**

Paper : CSC-SE-4044

**OPTION - E**

**( PHP Programming )**

Paper : CSC-SE-4054

**( ICT Hardware )**

Paper : TCA-SE-4024

**( E-Commerce Technology )**

Paper : TIT-SE-4014

Full Marks : 50

Time : Two hours

**The figures in the margin indicate  
full marks for the questions.**

Answer **either** in English **or** in Assamese.

Contd.



## OPTION - A

### (R Programming)

Paper : CSC-SE-4014

1. Answer the following questions as directed :  
1×4=4

(a) In R programming, comments start with a '#' character.

(State True or False)

(b) In R programming Data Frames are similar to spreadsheets with rows and columns.

(State True or False)

(c) \_\_\_\_\_ function in R programming can be used to generate a sequence of numbers.

(Fill in the blank)

(d) A \_\_\_\_\_ is simply a list of items that are of the same type in R programming.

(Fill in the blank)

2. Define the following terms : 2×3=6

(a) print( ) function

(b) split( ) function

(c) mapply ( ) function

3. Answer the following questions : (any two)

5×2=10

(a) Write a function in R to calculate the mean of a given vector of numbers.

(b) Differentiate between Vector and Data Frame in R programming.

(c) Write brief description of subsetting in R programming.

(d) Explain briefly the common Data Frame operations in R programming.

4. Answer the following questions : (any three)

10×3=30

(a) Give an overview and main features of R programming.

(b) Define operator. Explain different types of operators available in R programming.

(c) Define Control Structures. Give brief description of any four control structures in R programming.



- (d) Write a brief description of debugging tools and profiler in R programming.
- (e) Write the function in R to calculate the mean and sum of a given vector of numbers.
- (f) Write an R program that prints a multiplication table for numbers up to 10.

### OPTION - B

#### (HTML Programming)

Paper : CSC-SE-4024

1. Answer the following questions :  $1 \times 4 = 4$

তলৰ প্রশ্নসমূহৰ উত্তৰ দিয়া :

- (a) What is HTML ?

HTML কি?

- (b) What is <hr> tag ?

<hr> টেগ কি?

- (c) How many header tags are there in HTML ?

HTML ত কিমান ধৰণৰ টেগ আছে?

- (d) What is URL ?

URL মানে কি?

2. Answer the following questions :  $2 \times 3 = 6$

তলৰ প্রশ্নসমূহৰ উত্তৰ দিয়া :

- (a) What is the use of <img> tag ? Give the syntax of <img> tag.

<img> টেগ কিয় ব্যৱহাৰ কৰা হয়? <img> টেগৰ syntax লিখা।



(b) What is a web browser ? Mention name of *any two* web browsers.

ৱেব ব্ৰাউজাৰ কি? যিকোনো দুটা ৱেব ব্ৰাউজাৰৰ নাম লিখা।

(c) How to create hyperlinks in HTML ?  
HTML ত হাইপাৰলিংক কিদৰে প্ৰস্তুত কৰা হয়?

3. Answer **any two** of the following questions :

$$5 \times 2 = 10$$

তলৰ যিকোনো দুটা প্ৰশ্নৰ উত্তৰ দিয়া :

(a) Write a program in HTML for the following output :

তলৰ আউটপুটৰ বাবে HTML প্ৰগ্ৰাম লিখা :

1. Fruits

(i) Mango

(ii) Apple

2. Vegetable

(i) Cabbage

(ii) Capsicum

(b) Explain <frame>tag with its attributes.

<frame> টেগতো ইয়াৰ attribute সহ বৰ্ণনা কৰা।

(c) Explain the basic table tags with the different attributes.

বিভিন্ন attributeৰ সৈতে table ত ব্যৱহাৰ হোৱা টেগসমূহ বৰ্ণনা কৰা।

(d) Briefly explain about different types of lists available in HTML.

HTML ত উপলব্ধ বিভিন্ন তালিকাসমূহৰ চমু বৰ্ণনা দিয়া।

4. Answer **any three** of the following questions :  $10 \times 3 = 30$

তলৰ যিকোনো তিনিটা প্ৰশ্নৰ উত্তৰ দিয়া :

(a) Briefly explain the structure of HTML document with an example.

উদাহৰণসহ HTML document এটাৰ গঠন চমুকৈ বৰ্ণনা কৰা।

(b) Write an HTML program to create your semester examination schedule ?

ষাণ্মাসিক পৰীক্ষাৰ সময়সূচী তৈয়াৰ কৰিবৰ বাবে এটা HTML প্ৰগ্ৰাম লিখা।



- (c) Write a HTML program to design a form which should allow to enter your personal data.

তোমাৰ ব্যক্তিগত তথ্য সংগ্ৰহ কৰিবৰ বাবে HTML ৰ সহায়ত এখন প্ৰপত্ৰ তৈয়াৰ কৰা।

(Hint : make use of text field, password field, e-mail, lists, radio buttons, checkboxes, submit button)

(ইঙ্গিত : text field, password field, e-mail, lists, radio buttons, checkboxes, submit button ব্যৱহাৰ কৰিবা)

- (d) Explain the use of the following tags in HTML

নিম্নোক্ত HTML টেগসমূহ বৰ্ণনা কৰা।

(i) <br>

(ii) <sub>

(iii) <textarea>

(iv) <ul>

(v) <input>

- (e) Write an HTML program to display the following HTML table :

তলৰ টেবুলখন প্ৰদৰ্শিত কৰিবৰ বাবে HTML প্ৰগ্ৰাম লিখা :

Name of Students	Marks		Subjects
	In No	In Words	

- (f) What are internal and external links and how they are used in HTML? Briefly explain with an example.

আভ্যন্তৰীণ আৰু বাহ্যিক লিংকসমূহ কি আৰু এই লিংকসমূহ HTML ত কিদৰে ব্যৱহাৰ কৰা হয়? উদাহৰণসহ চমু বৰ্ণনা দিয়া।



### OPTION - C

#### (System Administration and Maintenance)

Paper : CSC-SE-4034/TCA-SE-4014/TIT-SE-4024

1. Answer the following questions :  $1 \times 4 = 4$

- (a) What is swap partition ?
- (b) What is NETBIOS ?
- (c) What is the full form of BIOS ?
- (d) What is loopback IP address ?

2. Answer the following questions :  $2 \times 3 = 6$

- (a) Write the differences between Linux/Unix and Windows operating systems.
- (b) What is GUI ? Write the advantages of GUIs over CLIs.
- (c) Write the salient features of Linux Operating Systems.

3. Answer the following questions : **(any two)**

$5 \times 2 = 10$

- (a) Write *five* main keys of Windows registry.
- (b) Explain the architecture of Linux/Unix Operating Systems.
- (c) What is the difference between workgroup and domain ? Explain.
- (d) What is Linux Shell and environment variable ? Explain with example.

4. Answer the following questions : **(any three)**

$10 \times 3 = 30$

- (a) Explain KDE and GNOME working environments of Linux Operating systems.
- (b) What do you mean by Static IP allocation and Dynamic IP allocation ? How DHCP is configured in Linux Operating systems ?  $5 + 5 = 10$
- (c) What are the major functions of Linux Kernel ? Explain monolithic and Micro Kernel.



- (d) Write the syntax and function of the given linux commands :

*man, echo, rm, kill, ps, rmdir*

- (e) Write short notes on :

(i) Windows server 2003/2008

(ii) Device drivers

- (f) What is firewall? What do you mean by hardware and software firewall? Explain with examples.

\_\_\_\_\_

## OPTION - D

### (Android Programming)

Paper : CSC-SE-4044

1. Answer the following questions : 1×4=4

(a) \_\_\_\_\_ is the first mobile phone that ran on Android OS. *(Fill up the blank)*

(b) What is the purpose of the Android Manifest file?

(i) To define the layout of an activity

(ii) To declare the components of an app

(iii) To handle user interactions

(iv) To store data for the app  
*(Choose the correct answer)*

(c) \_\_\_\_\_ is the current owner of Android.  
*(Fill up the blank)*

(d) Which of the following is the primary layout file for an Android activity?

(i) activity.xml

(ii) layout.xml

(iii) main.xml

(iv) view.xml



2. Answer the following questions :  $2 \times 3 = 6$

- (a) Write *any two* features of Android OS.
- (b) What is OHA ?
- (c) Define the term AAPT.

3. Answer the following questions : **(any two)**  
 $5 \times 2 = 10$

- (a) What are APK files ? Write the process to deploying APK files.
- (b) Briefly explain Android menu system.
- (c) What is emulator ? How does emulator work ?
- (d) Explain the working of SQLite ?

4. Answer the following questions : **(any three)**  
 $10 \times 3 = 30$

- (a) Discuss the history of Android OS.
- (b) Explain Android architecture briefly with a diagram.
- (c) Write Android code to create an application with static Broadcast Receiver features. When an SMS comes, it displays an alert message.

- (d) Write Android code to create a database, read and display its values using a suitable example.
- (e) Describe activity lifecycle with diagram.
- (f) Write Android code to create a scientific calculator with layout.



**OPTION - E**

**(PHP Programming)**

Paper : CSC-SE-4054

1. Answer the following questions as directed :  
1×4=4

তলত দিয়া প্রশ্নবোৰৰ নিৰ্দেশানুযায়ী উত্তৰ লিখা :

- (a) Variable name in PHP starts with \_\_\_\_\_.  
(Fill in the blank)

PHP ত variable ৰ নাম লিখিবলৈ প্ৰথমতে \_\_\_\_\_  
ব্যৱহাৰ কৰা হয়। (খালী ঠাই পূৰণ কৰা)

- (b) Which of the following is used to display the output in PHP?

PHP ত output দেখাবলৈ তলত দিয়া কোনটো উত্তৰ শুদ্ধ

(i) echo

(ii) write

(iii) print

(iv) both (i) and (ii)

(Choose the correct answer)

(শুদ্ধ উত্তৰটো বাছি উলিওৱা)

- (c) Which operator is used for concatenation in PHP?

PHP ত concatenationৰ কাৰণে কি operator ব্যৱহাৰ কৰা হয়?

- (d) Which operator is used to end a statement in PHP?

PHP ত কোনটো operator এটা statementৰ শেষ বুজায়?

2. Define the following terms : 2×3=6

তলত দিয়া পদবোৰৰ সংজ্ঞা লিখা :

(a) Comments in PHP

(b) Web server

(c) Cookies in PHP

3. Answer **any two** of the following : 5×2=10

যিকোনো দুটা প্রশ্নৰ উত্তৰ লিখা :

- (a) Write the difference between GET and POST methods in PHP with example.

PHP ত থকা GET আৰু POST পদ্ধতিৰ পাৰ্থক্যবোৰ উদাহৰণ সৈতে লিখা।

- (b) What are the types of variables present in PHP?

PHP ৰ বিভিন্ন ধৰণৰ variables বোৰ কি কি?



- (c) What are the differences between for and foreach loop.

for আৰু foreach loop ৰ পাৰ্থক্যসমূহ লিখা।

- (d) What are the differences between require ( ) and require\_once ( ) ?

require ( ) আৰু require\_onceৰ পাৰ্থক্যসমূহ লিখা।

4. Answer **any three** of the following questions :

$$10 \times 3 = 30$$

তলত দিয়া প্ৰশ্নবোৰৰ যিকোনো তিনিটাৰ উত্তৰ লিখা :

- (a) Write a PHP program to check whether a number is armstrong or not.

সংখ্যা এটা armstrong হয় নে নহয় পৰীক্ষা কৰিবলৈ এটা PHP প্ৰগ্ৰাম লিখা।

- (b) Write a PHP program to check that emails are valid.

emailৰ বৈধতা পৰীক্ষা কৰিবলৈ এটা PHP প্ৰগ্ৰাম লিখা।

- (c) Write a PHP program to print the factorial of a number using recursion.

Recursion ব্যৱহাৰ কৰি এটা সংখ্যাৰ factorial পৰীক্ষা কৰিবলৈ এটা প্ৰগ্ৰাম লিখা।

- (d) Write a brief note on regular expression. Explain some important functions with suitable example.

Regular expression ৰ বিষয়ে চমুকৈ লিখা। কেইটামান আবশ্যকীয় ফাংচনবোৰৰ উপযুক্ত উদাহৰণ সৈতে বৰ্ণনা কৰা।

- (e) Explain the following functions with suitable example :  $5 \times 2 = 10$

তলত দিয়া function বোৰৰ উপযুক্ত উদাহৰণ সৈতে বৰ্ণনা কৰা :

(i) strlen ( )

(ii) trim ( )

(iii) chop ( )

(iv) str\_split ( )

(v) ucwords ( )

- (f) Write a program to check whether the given number is perfect or not ?

সংখ্যা এটা perfect হয় নে নহয় পৰীক্ষা কৰিবলৈ এটা প্ৰগ্ৰাম লিখা।



**OPTION - E**

**(ICT Hardware)**

Paper : TCA-SE-4024

1. Answer the following questions as directed :

1×4=4

তলত দিয়া প্ৰশ্নবোৰৰ নিৰ্দেশানুযায়ী উত্তৰ লিখা :

- (a) Full form of NTFS is \_\_\_\_\_.  
(Fill in the blank)

NTFSৰ পূৰ্ণৰূপ \_\_\_\_\_ হয়। (খালী স্থান পূৰ্ণ কৰা)

- (b) Cable limit of SATA interface is 1 meter.  
(State True or False)

SATA interface ৰ cable সীমা 1 মিটাৰ।  
(শুদ্ধ নে অশুদ্ধ লিখা)

- (c) Full form of USB is \_\_\_\_\_.  
(Fill in the blank)

USBৰ পূৰ্ণৰূপ \_\_\_\_\_ হয়। (খালী স্থান পূৰ্ণ কৰা)

- (d) Twisting of wires in twisted pair cable helps to increase the data speed.  
(State True or False)

Twisted pair cableৰ পাকবোৰে তথ্য গতি বঢ়াই।  
(শুদ্ধ নে অশুদ্ধ লিখা)

2. Define the following terms : 2×3=6

তলত দিয়া পদবোৰৰ সংজ্ঞা লিখা :

- (a) Defragmentation  
(b) Cache memory  
(c) Patch cord

3. Answer **any two** of the following questions :  
5×2=10

যিকোনো দুটা প্ৰশ্নৰ উত্তৰ লিখা :

- (a) Write in brief about personal computer hardware.

Personal computer hardwareৰ চমু বৰ্ণনা দিয়া।

- (b) Differentiate between FAT and NTFS.  
FAT আৰু NTFSৰ পাৰ্থক্যবোৰ লিখা।

- (c) What is BIOS ? What are the functions of BIOS ?

BIOS কি? BIOSৰ কাৰ্য্যবোৰ কি?

- (d) Write in brief about different kinds of motherboards.

বিভিন্ন প্ৰকাৰৰ motherboard বোৰৰ বিষয়ে লিখা।



4. Answer **any three** of the following questions :

$$10 \times 3 = 30$$

যিকোনো তিনিটা প্রশ্নৰ উত্তৰ লিখা :

- (a) Explain logical structure and file system of hard disk drive.

Hard disk drive ৰ logical গাঠনি আৰু file systemৰ বিষয়ে বৰ্ণনা কৰা।

- (b) Write in brief about Intel processor family.

Intel processor family ৰ চমু বৰ্ণনা দিয়া।

- (c) Prepare a list of components to assemble a computer. Write down the steps of assembling process.

কম্পিউটাৰ এটা একত্ৰিত কৰিবলৈ প্ৰয়োজনীয় অংশবোৰৰ তালিকা প্ৰস্তুত কৰা আৰু assembling processৰ পদক্ষেপবোৰ লিখা।

- (d) What is SMPS? Describe pin-out, cables and connectors of standard ATX power supplies.

SMPS কি? Standard ATX power supplyৰ pin-out, cables আৰু connector বোৰৰ বৰ্ণনা দিয়া।

- (e) What is RJ45 connector? How to crimp RJ45?

RJ45 connector কি? RJ45 কেনেকৈ crimp কৰিব লাগে?

- (f) What is an IP address? What are IPV4 and IPV6? Explain.

IP address কি? IPV4 আৰু IPV6 কি? বৰ্ণনা কৰা।



**OPTION - E**

**(E-Commerce Technology)**

Paper : TIT-SE-4014

1. Answer the following questions : 1×4=4

তলৰ প্ৰশ্নসমূহৰ উত্তৰ লিখা :

(a) \_\_\_\_\_ mainly deals with buying and selling, especially on a large scale.

\_\_\_\_\_ বিশেষকৈ বহুলভিত্তিক, কিনা আৰু বিক্ৰীৰ কৰাত ব্যৱহাৰ হয়।

(i) Commerce / বাণিজ্য

(ii) Shopping / শ্বপিং

(iii) Retailing / খুচৰা বিক্ৰী

(iv) Distribution / বিতৰণ

(b) The world wide web (www) was introduced in the year \_\_\_\_\_.

www প্ৰৱৰ্তন কৰা বছৰটো \_\_\_\_\_ আছিল।

(i) 1996

(ii) 1994

(iii) 1991

(iv) 1989

(c) The concept of online marketing and selling and services through the internet is \_\_\_\_\_.

Internet ৰ দ্বাৰা product আৰু সেৱা online বজাৰ কৰা আৰু বিক্ৰীৰ কৰা ধাৰণাটো \_\_\_\_\_ হয়।

(i) B2B

(ii) B2G

(iii) B2C

(iv) B2E

(d) \_\_\_\_\_ is an example of an Internet portal.

\_\_\_\_\_ এটা Internet portal ৰ উদাহৰণ হয়।

(i) e-bay

(ii) yahoo

(iii) Amazon

(iv) Facebook

2. Answer the following questions : 2×3=6

তলৰ প্ৰশ্নসমূহৰ উত্তৰ লিখা :

(a) Define Extranet.

Extranetৰ সংজ্ঞা দিয়া।

(b) Define URL.

URLৰ সংজ্ঞা দিয়া।

(c) Define EFT.

EFT ৰ সংজ্ঞা দিয়া।



3. Answer the following questions : **(any two)**

5×2=10

তলৰ প্রশ্নসমূহৰ উত্তৰ লিখা : (যিকোনো দুটা)

- (a) Write down the advantages of E-commerce over traditional commerce. পৰম্পৰাগত ব্যৱসায়িক উপৰি E-commerce ৰ সুবিধাবোৰ লিখা।
- (b) Explain different types of E-commerce. Give example. E-Commerce ৰ বিভিন্ন প্ৰকাৰবোৰ বৰ্ণনা কৰা। উদাহৰণ দিয়া।
- (c) Explain various electronic payment systems. Electronic পৰিশোধ প্ৰণালীৰ বিভিন্ন প্ৰকাৰবোৰ বৰ্ণনা কৰা।
- (d) Explain the scope of E-Commerce. E-commerceৰ পৰিসৰ বৰ্ণনা কৰা।

4. Answer the following questions : **(any three)**

10×3=30

তলৰ প্রশ্নসমূহৰ উত্তৰ লিখা : (যিকোনো তিনিটা)

- (a) What are the differences between Internet and Intranet? What are the services and benefits of Internet towards business? Internet আৰু Intranetৰ মাজৰ পাৰ্থক্যসমূহ কি? ব্যৱসায়ত ব্যৱহাৰ কৰা Internetৰ সেৱা আৰু সুবিধাসমূহ কি?

(b) What is meant by E-marketing? Explain how it is playing a vital role in the success of electronic business?

E-marketing মানে কি বুজা? E-business ত সফল হ'বলৈ E-marketing য়ে কেনে ধৰণৰ মূল ভূমিকা লয়?

(c) What are the applications of EDI? Explain the costs and benefits of EDI. EDI ই application বোৰ কি? EDIই costs আৰু সুবিধাবোৰ বৰ্ণনা কৰা।

(d) Explain the major functions of E-commerce. How do they contribute to an economy?

E-commerce ৰ মূল functionবোৰ বৰ্ণনা কৰা। ই কেনেদৰে এটা অৰ্থনীতিত বৰঙনি যোগাই?

(e) What are the technologies requirements for an organization to run an electronic business regarding hardware and software?

কেনেদৰে এটা অনুষ্ঠানত E-Commerce গঠি কৰিবলৈ ব্যৱহাৰহোৱা hardware আৰু software প্ৰযুক্তিসমূহ কি?

(f) Write short notes on : 5×2=10

চমু টোকা লিখা :

(i) Types of Network

(ii) Internet Service Provider