Tribhuvan University
Institute of Science and Technology
Model Question, 2079

Bachelor Level/ Third Year/ Fifth Semester/Science **Full Marks: 60**
Information Technology (BIT301) **Pass Marks: 24**
(Web Technology II) **Time: 3 hours**

Section A

Attempt any two questions. (2 × 10 = 20)

1. What is a function? How can you define and call a function in PHP? Write a PHP program to implement a function with parameters and return value. [4+6]
2. How can you retrieve form data? Write a PHP program to create a form data that will take a Fahrenheit value as input and displays equivalent Celsius value on submit. The Celsius = (5/9)*(Farenheit-32). [4+6]
3. What are casting operators? Differentiate for from foreach statement. Write PHP program to illustrate use of for and foreach. [2+3+5]

Section B

Attempt any eight questions. (8 × 5 = 40)

4. Write a PHP program to parse a CSV file. [5]
5. Define error handling, error reporting and error suppression. [5]
6. What is session? Write a PHP program for maintaining user data with sessions. [5]
7. Write a PHP program to connect database and retrieve data from a table and display in a page. [5]
8. How can you define class and object in PHP. Illustrate with example. [5]
9. Write a PHP program that will read two input strings in variables fname and lname and display concatenation of fname and lname. [5]
10. How can you define variable in PHP. Illustrate with example. [5]
11. How conversion between array and variables is done? [5]
12. Write a PHP program to illustrate string patterns using regular expression. [5]

Tribhuvan University
Institute of Science and Technology
Model Question, 2079

Bachelor Level/ Second Year/ Fifth Semester/Science **Full Marks: 60**
Information Technology (BIT302) **Pass Marks: 24**
(Software Engineering) **Time: 3 hours**

Section A

Attempt any two questions. (2 × 10 = 20)

1. Explain requirement engineering process? What are the advantages and disadvantages model? [6+4]
2. Briefly explain layered architecture, repository architecture, pipe and filter architecture. [10]
3. Explain data driven modeling and event driven modeling with an example of your own. [10]

Section B

Attempt any eight questions. (8 × 5 = 40)

4. Highlight on ACM/IEEE software engineering ethics. [5]
5. Differentiate between black box testing and white box testing. Explain the importance of white box testing. [5]
6. Explain the process of software quality process. [5]
7. Highlight on the process of release management with respect to software configuration management. [5]
8. Draw a class diagram for online movie management system where the customer after registering in the system can book the ticket according to the date, hall number, seat number and movie name. The payment has to be made online. Customer will get e-ticket after payment. The customer can also rank the movie after watching in the system. [5]
9. Differentiate between functional and non functional requirement with two examples in each. [5]
10. Briefly explain Agile software development. [5]
11. List different types of testing. Explain component testing and integration testing. [5]

12. Write short notes on [2*2.5=5]

a. COCOMO
b. Design Pattern

Tribhuvan University
Institute of Science and Technology
Model Question, 2079

Bachelor Level/ Third Year/ Fifth Semester/Science **Full Marks: 60**
Information Technology (BIT303) **Pass Marks: 24**
(Information Security) **Time: 3 hours**

Section A

Attempt any two questions. (2 × 10 = 20)

1. How encryption decryption is done in RSA? In RSA system, consider the public key of a given user is (3, 55). [4+3+3]

   What is the private key d?

   What is the cipher text C, if message M= hi?

2. Consider a system having users U1, U2, U3 and files F1, F2 and F3 and F4. User U1 can read and write files F2 and F3. User U2 can read all the files but can perform write operation on F2. The user U3 can perform read operation on F3 and append on file F4. Now prepare access control matrix, access control matrix and capability list. [10]
3. What are properties of hash function? In a hash function SHA-1, how padded message is computed before hash function computation? Using elongated message blocks from W_0 to W_{79} how can you compute the final hash value? For the 160 bit hash value represented by 5 words A, B, C, D, E, write the expressions for A_{79}, B_{79}, C79 after the last pass of the algorithm? [10]

Section B

Attempt any eight questions. (8 × 5 = 40)

4. What is attack tree? Construct an attack tree for internet banking authentication. [5]
5. Write an algorithm for Extended Euclidean Algorithm. Illustrate the algorithm for a=84 and b=320. [2+3]
6. What is digital signature? How it can be used for message authentication? [2+3]
7. Define authentication system with its components. How challenge-response system can be used as an authentication system? [5]

8.	Discuss about different trust frameworks.	[5]
9.	Define zombies, bots and rootkits.	[5]
10.	How copyright is different from patent?	[5]
11.	Describe security auditing architecture.	[5]
12.	What is risk? How security risk analysis is done?	[1.5+3.5]

Tribhuvan University
Institute of Science and Technology
Model Question, 2079

Bachelor Level/ Third Year/ Fifth Semester/Science **Full Marks: 60**
Information Technology (BIT304) **Pass Marks: 24**
(Computer Graphics) **Time: 3 hours**

Section A

Attempt any TWO questions. (2 × 10 = 20)

1. Define Hermite interpolation in defining a curve. Draw a line with end points (2, 3) and (12, 8) using DDA. [3+7]
2. Differentiate between ambient light and diffuse reflection. Write algorithm for Phong Shading. [4+6]
3. Obtain perspective projection co-ordinates for the pyramid with vertices of base (15, 15, 10), (20, 20, 10), (25, 15, 10), (20, 10, 10) and apex (20, 15, 2), given that Zprp = 20 and Zvp = 0. [10]

Section B

Attempt any EIGHT questions. (8 × 5 = 40)

4. How much time is spent scanning across each row of pixels during screen refresh on a raster system with resolution 1024*768 and refresh rate of 60 frames per second? [5]
5. What are the dis advantages of flat shading? How they can be eliminated? [5]
6. Write mid point circle drawing algorithm. [5]
7. Derive the Bresenham's decision parameter to draw a line with negative slope. [5]
8. What are the conditions for error free generation of polygon table? [5]
9. Differentiate between parallel and perspective projection. [5]
10. Differentiate between vector and raster scan systems. [5]
11. Prove that successive rotation is equal to addition of angles. [5]
12. Write short notes on [2*2.5=5]
    a. Vertex table
    b. Key frame

Tribhuvan University
Institute of Science and Technology
Model Question, 2079

Bachelor Level/ Second Year/ Fifth Semester/Science **Full Marks: 60**
Information Technology (ENG305) **Pass Marks: 24**
(Technical Writing) **Time: 3 hours**

Section A

Attempt any two questions. (2 × 10 = 20)

1. What is technical writing? Discuss its attributes. [10]
2. What are the characteristics of technical paragraphs? Briefly write about the guidelines for constructing effective paragraphs. [10]
3. What is intercultural communication? How can you overcome intercultural miscommunication? [10]

Section B

Attempt any eight questions. (8 × 5 = 40)

4. What is a report? List the parts of a formal report. [5]
5. Write a short trip report on the Installation of Internet Service at a client's office. [5]
6. Write instructions for a trainee to turn on the computer, write an email and send it to the manager of a bank. [5]
7. Write a letter to the Mayor of your municipality, asking for some funds to organize an awareness raising program on collecting biodegradable and non-biodegradable. [5]
8. Write a memo informing the decisions of a board meeting of your company. [5]
9. Write a functional resume highlighting your skills for a job in your field. [5]
10. Revise the following email so that it is grammatically and logically parallel. If some items don't fit logically, take them out of the list and find a new place for them. [5]

    Hi Dev,

    When you return from Birgunj, please bring the following for our meeting.

    The City of Birgunj Waste Management Manual (July 2022)

    The City of Birgunj Landfill site Construction 2022.

    Parks Development Guidelines, Province of Madhesh 2022;

Read the minutes from the last meeting. Some important stuff there.

See if you can collect the responses of the locals of the proposed landfill

construction site.

Have fun on the red eye. Looking forward to seeing you at the meeting at

2 p. m., sharp.

11. Edit the sentences in the following exercises to make them as clear and concise as possible, without changing their meaning. [5]

    In many instances the lead engineer failed to submit the personnel evaluations in a timely manner.

    A decreasing number of students are studying the sciences, while an increasing number of students are studying business and economics.

12. Write short notes on [2*2.5=5]

    a. Netiquette
    b. Ethics in the Professions