Tribhuvan University

Faculty of Humanities & Social Sciences

OFFICE OF THE DEAN

2024

Bachelor in Computer Applications
Course Title: English I **Full Marks: 60**
Code No: CAEN 103 **Pass Marks: 24**
Semester: I **Time: 3 hours**

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions. **[6×5 = 30]**

2. Explain the role and impact of computers in education. Include examples of software or applications that enhance learning.
3. Write a paragraph about virtual reality. It should include a topic sentence with main idea, major details, and minor details.
4. Discuss the advancements and challenges associated with machine translation. Provide examples where possible.
5. Data storage and management in computers in medicine is discussed. Elaborate on the types of data stored, methods of storage, and associated privacy concerns.
6. Describe the various computer networks and configurations. Provide real-world examples for each type of network configuration mentioned.
7. Write comparative and superlative forms of the following adjectives/ adverbs:

   little, well, quiet, awful, similar

8. How have computer graphics evolved over the years and their applications in various industries? Explain with a discussion on both 2D and 3D graphics technologies.

Group C

Attempt any TWO questions. **[2×10 = 20]**

9. Suppose you are running a computer dealer in Kathmandu. Write a letter to Samsung Company, 22 Floor, Lotter Towel, Seoul, South Korea expressing your intent of working as a country dealer of Samsung Galaxy Book 2.
10. Software purchasers pay a lot of money for package software. Do you think software purchasers are getting what they order for or what they need? In what conditions they do not get the particular software they order for? What factors affect in this? How do you feel from the perspectives of both the software purchaser and the developer? What are the things both the purchaser and the developer should consider before the contract to make a package of software is produced?
11. Discuss the evolution and impact of machine translation (MT) systems in artificial intelligence, focusing on the different approaches used in MT from rule-based systems to neural networks. How have expert systems contributed to the development and accuracy of machine translation? Provide examples to illustrate your points.

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2024

Bachelor in Computer Applications
Course Title: Computer Fundamentals and Applications
Code No: CACS 101
Semester: I

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions. **[6×5 = 30]**

2. Utility software helps to maintain proper and smooth functioning of a computer system. Justify it with proper examples. [5]
3. What is primary memory? Differentiate between static and dynamic RAM. [1+4]
4. Define CLI and GUI based operating systems. Also explain type of operating system. [2+3]
5. What is internet protocol? Explain two different e-mail protocols. [1+4]
6. Why do we need to use DBMS? How does relational model represent both data and relationship among those data? Explain. [2+3]
7. What is DNS? Differentiate between intranet and extranet. [1+4]
8. What is e-commerce? Explain the benefits of e-commerce. [5]

Group C

Attempt any TWO questions. **[2×10 = 20]**

9. a) What are the uses of word processing software? List and explain the major controls available in Layout tab of MS-word. [1+4]

   b) Write DOS commands for the following tasks: [5]

   i. To create two folders Folder1 and Folder2 at the current prompt directory
   ii. To create files file1.txt in Folder1 and file2.txt in Folder2 directories
   iii. To copy the content of file1.txt to file2.txt
   iv. To rename the file File2.txt as CopiedFile.txt
   v. To locate the IP address of your network

10. a) What is computer virus? List the symptoms of a computer virus in a computer system. Also explain the prevention techniques. [1+2+2]

    b) What is the use of mask in Photoshop? Explain different controls available in Photoshop for editing an image. [1+4]

11. Why do we need to use protocols while transmitting data on the network? Will it be secure to transfer data through the network? Explain OSI model in detail. [2+2+6]

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2024

Bachelor in Computer Applications
Course Title: Digital Logic
Code No: CACS 105
Semester: I

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions. **[6×5 = 30]**

2. Define Digital computer. Subtract: 1010101.101 – 1000100.001 using both 1's and 2's complement. [1 + 2 + 2]
3. What do you mean by K-map? Explain the K-map with three variables. Simplify F(p,q,r,s) = ∑(3,4,7,8,14) which has the don't care conditions d(p,q,r,s) = ∑(1,6,9,13) and design the logic circuit using minimum number of NAND gates. [1+2+2]
4. Differentiate between combinational logic circuit and sequential logic circuit. Implement a full adder circuit using decoder and two OR gates. [2 + 3]
5. Define priority encoder. Explain 8 to 3 priority encoder in detail. [1 + 4]
6. Explain the duality theorem with example. Draw a logic gates that implement following expression. [2+1.5+1.5]

   F = AB + CB D' + B' C

   F = (A + B) (B' + C) + A (C' + D + E)
7. How flip flop differs from latch. Explain clocked SR flip flop with logic diagram, truth table, characteristic table and excitation table. [1+4]
8. Write short notes on: (any two) [2.5+2.5]

   a) State reduction table b) Multiplexer c) Synchronous and Asynchronous counter

Group C

Attempt any TWO questions. **[2×10 = 20]**

9. Differentiate between PAL and PLA. Design a combinational circuit with four inputs that represent a decimal digit in BCD and four output lines that generate the 2's complement of the input binary patterns with circuit diagram, truth table and block diagram. [4 + 6]
10. Explain shift register with parallel load. Design a synchronous Mod-10 counter to count in the sequence 0,2,4,5,6,8 using T flip-flop. [5+5]
11. Explain how race condition in JK flipflop can be resolved? A sequential circuit with two D Flip-Flops, A and B; two inputs, x and y; and one output, z, is specified by the following next-state and output equations: [4+6]

    A(t+1) = xy' + xB

    B(t+1) = x'B + xA

    z = A

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2024

Bachelor in Computer Applications
Course Title: Mathematics
Code No: CAMT 104
Semester: I

Full Marks: 60
Pass Marks: 24
Time: 3 hours

55

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions. **[6×5 = 30]**

2. Solve the inequality $3 + 2x - x^2 \geq 0$.
3. Find the domain and range of the function $f(x) = \sqrt{6 - x - x^2}$.
4. If a, b, c, and d are in G.P. prove that $a^2 - b^2, b^2 - c^2, c^2 - d^2$ are also in G.P.
5. Prove that $\begin{bmatrix} 1+x & 1 & 1 \\ 1 & 1+y & 1 \\ 1 & 1 & 1+z \end{bmatrix} = xyz\left(\frac{1}{x} + \frac{1}{y} + \frac{1}{z} + 1\right)$
6. Find the equation of the ellipse whose latus rectum is 5 and the eccentricity is $\frac{1}{\sqrt{2}}$.
7. If $\vec{a}, \vec{b} = \sqrt{3}$ and $\vec{a} \times \vec{b} = (1, 2, 2)$ find the angle between $\vec{a}$ and $\vec{b}$.
8. How many numbers of three different digits less than 500 can be formed from the integers 1, 2, 3, 4, 5, and 6?

Group C

Attempt any TWO questions. **[2×10 = 20]**

20

9. a) Prove that $\frac{3+4i}{1-i} + \frac{3-4i}{1+i}$ is a real number.

   b) If $x^2 + y^2 = 11xy$, prove that $\log\left(\frac{x-y}{3}\right) = \frac{1}{2}(\log x + \log y)$.

10. a) Find the Maclourin series of the function $f(x) = cosx$.

    b) Take any matrix of order 3×3 and express it as a sum of symmetric and skew-symmetric matrix.

11. a) Find the equation of a hyperbola in standard form having focus (-2,0) and Diretrix $x = -\frac{1}{2}$.

    b) In an examination paper on mathematics, 20 questions are set. In how many different ways you can choose 18 questions to answer?

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2024

Bachelor in Computer Applications
Course Title: Society and Technology
Code No: CASO 102
Semester: I

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

Group B

Attempt any SIX questions. **[6×5 = 30]**

2. Why social norms are important for the society?
3. How primary group is different than secondary?
4. Describe conflict as a social process.
5. How cyber crimes can be controlled? Explain.
6. Point out the mediums by which inventions are spread to its users.
7. Differentiate between survey and case study method.
8. What is questionnaire? Explain its benefit in the data collection.

Group C

Attempt any TWO questions. **[2×10 = 20]**

9. How sociological knowledge helped to computer professionals? Explain.
10. How advancement in technology brings change in society. Illustrate with suitable examples.
11. Describe main components of a good research proposal.

(1) identification of the problem...