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FBISE · 2026 · 100%AUTHENTIC

COMPUTER SCIENCE

HSSC —II

GUESS PAPER 2026

★★★★★

Chapters:1 · 2 · 3 · 4 · 5 · 6 · 7 · 8

Short Questions | Long Questions | Key Topics Highlighted

Computer Systems · Algorithms · Programming · Data Analysis · Cybersecurity

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For Educational Purposes Only

CH — 01 COMPUTER SYSTEMS

◆ SHORT QUESTIONS ◆

Q1. What are the key aspects of usability?

Q2. Provide an example of how user feedback led to a design change?

Q3. What are the key components of usability in HCI?

Q4. Differentiate between moderated and unmoderated usability testing?

Q5. How error handling is important?

Q6. Explain any three trade-offs between security and usability?

Q7. What are the key aspects of security?

Q8. What are the components of 'CIA Triad' in computer security?

Q9. How 'User Centered Design' can be more effective in HCI?

Q10. Identify two potential dangers associated with using a password manager — suggest a solution?

Q11. What is the concept of 'Accessibility' in computer systems and how can it be improved for visually impaired users?

◆ LONG QUESTIONS ◆

L1. Discuss the trade-offs between usability and security in computing systems. Provide examples of how these trade-offs might manifest in real-world applications?

L2. Explain any Five principles of usability?

L3. Briefly explain Human Computer Interaction (HCI) in terms of: a) Usability b) Common Problems c) Methods for improvement d) Ethical and Social impacts e) Economic and Environmental implications — with relevant examples for each aspect.

L4. Define accessibility. Explain four principles of accessibility with a related example.

CH — 02 COMPUTATIONAL THINKING & ALGORITHMS

◆ SHORT QUESTIONS ◆

Q1. What is the difference between stack and queue based on their structure and primary operators?

Q2. What is the difference between single and double linked list?

Q3. Explain the difference between O(n) and $O(n^2)$?

Q4. What is stack and which rule is followed in stack?

◆ LONG QUESTIONS ◆

L1. Explain the importance of tree traversal techniques. Compare inorder, preorder & postorder traversal with examples and their use cases?

CH — 03 PROGRAMMING FUNDAMENTALS

◆ SHORT QUESTIONS ◆

Q1. Differentiate between list & tuples?

Q2. What is disk I/O and why is it important for system performance?

Q3. What is data normalization and why is it used in database management?

Q4. What is debugging and why is it important in software development?

Q5. Evaluate the advantages & disadvantages of Object-Oriented Programming (OOP)?

◆ LONG QUESTIONS ◆

L1. Design a library book management system using OOP in Python: a) Create a Book class with attributes: title, author, ISBN, number of pages b) Implement a constructor to initialize these attributes. Add methods to update pages and display book details. c) Create two book objects, update their page count, and display their details.

L2. What is nested list and how is a matrix printed in nested list? Explain with example?

L3. Create a Python dictionary to store student names as keysand their grades as values. Write a program to add new students, update existing grades, and remove students from the dictionary.

L4. Write a Python function that calculates the factorial of a given number. Test the function with 5 different inputs.

L5. Write a Python function that counts the number of occurrences of each letter in a text file and prints the results?

L6. Develop a Python program that calculates and prints the transpose of a 3×3 matrix represented using a nested list?

L7. Explain unit testing and its importance in Python programming. How does it help in catching errors early? Include an example of a unit test for a simple Python function?

CH — 04 DATA AND ANALYSIS

◆ SHORT QUESTIONS ◆

Q1. What are the key steps involved in building a machine learning model?

Q2. What is the difference between machine learning & rule-based algorithm?

Q3. How can the accuracy of a model be observed?

Q4. What is the difference between 'Over-fitting & Under-fitting' in machine learning?

Q5. How is training data and test data used while making a model?

Q6. How is data visualization used in Python?

Q7. How is data shared with the help of data storytelling?

Q8. What are the two main types of hypothesis used in hypothesis testing?

Q9. Differentiate between structured and unstructured data?

Q10. Explain the 'p-value' in the context of significance testing. How does a low p-value affect the null hypothesis?

◆ LONG QUESTIONS ◆

L1. A researcher is studying the effect of a new study technique on student performance: a) Define Null Hypothesis and Alternative Hypothesis b) Explain the role of p-values in hypothesis testing c) Communicate findings using data visuals.

L2. Compare and contrast 'Predictive Models' and 'Causal Models', discussing their uses and limitations?

CH — 05 APPLICATIONS OF COMPUTER SCIENCE

◆ SHORT QUESTIONS ◆

Q1. Suggest any IoT-based application to solve water storage issues in Pakistan?

Q2. How can cloud computing help students in rural areas of Pakistan?

Q3. What is data privacy conflict? Give an example.

Q4. Define forward and backward propagation?

Q5. What are the benefits of using cloud computing in business sectors?

Q6. Briefly describe the applications of deep larning?

Q7. Differentiate between neural network and deep learning?

Q8. Differentiate between data anonymization and data minimisation with examples?

◆ LONG QUESTIONS ◆

L1. What is Blockchain technology? Explain the concept of distributed ledger, blocks, and cryptography in Blockchain. How does Blockchain reduce vulnerability to cyber-attacks and ensure data security?

L2. What is the Internet of Things (IoT)? Explain how IoT technology improves productivity and efficiency in homes, offices, and industries in Pakistan. Also discuss the importance of implementing IoT in Pakistan?

L3. Discuss the application of IoT in Agriculture in Pakistan. What are the benefits of smart agriculture? How do sensors, drones, and IoT devices help in making farming more efficient and productive?

CH — 06 IMPACT OF COMPUTING

◆ SHORT QUESTIONS ◆

Q1. Differentiate between ransomware and phishing in the context of cybersecurity?

Q2. Why are security protocols important for data protection?

Q3. Evaluate the Advantages & Disadvantages of Biometric verification?

Q4. Describe Caesar Cipher in brief?

Q5. Why is two-factor authentication (2FA) considered more secure than a simple password? What happens if one factor is compromised?

Q6. What are security protocols? State any three reasons why they are important for data protection?

Q7. What is the key difference between symmetric and asymmetric cryptography? When would you prefer asymmetric cryptography and why?

Q8. Compare TLS/SSL and HTTPS. Is one built on the other? Explain the relationship between them?

Q9. What is cryptography? Explain the difference between plaintext and ciphertext with a suitable example.

Q10. A company stores its customer data online. Explain how data backups and recovery can protect the company from a ransomware attack?

◆ LONG QUESTIONS ◆

L1. How do different types of cyber-attacks such as DDoS, Ransomware, Spyware, Viruses & Phishing threaten the security & privacy of individuals & organizations?

L2. Why are security methods important for protecting data? Explain the role of: a) Two-factor authentication (2FA) b) Biometric verification c) Cryptography

CH — 07 DIGITAL LITERACY

◆ SHORT QUESTIONS ◆

Q1. What is research? Define its importance in daily life?

Q2. What does 'None of these words' field do in Google Advanced Search? Give one example.

Q3. What is 'site or domain' operator in advanced search? Write one example.

Q4. What is the use of 'Filetype' operator in Google search? Give one example.

Q5. What is the use of 'Language and Region' filter in Google Advanced Search?

Q6. What should a proper result/conclusion section of a digital artifact include?

Q7. What is the role of visuals (graphs, charts and infographics) in a digital artifact?

Q8. What are credible sources? Give three examples of credible source domains.

Q9. What are citation management tools? Name two examples.

Q10. How would you search for an exact phrase using Advanced Google Search?

◆ LONG QUESTIONS ◆

L1. What is a digital artefact? Describe the complete step-by-step process of creating a research artefact, from identifying the initial problem to evaluating the final artefact, with reference to the process diagram?

L2. How can digital tools be used to communicate research results and conclusions? Discuss different categories of digital tools — text-based, presentation, data visualization, multimedia, and collaboration tools — with suitable examples of each?

CH — 08 ENTREPRENEURSHIP IN DIGITAL AGE

◆ SHORT QUESTIONS ◆

Q1. What is the role of user feedback in improving an MVP?

Q2. How does continuous improvement relate to MVP development?

Q3. List any three key features of a successful MVP.

Q4. What is meant by 'Scaling' a product after MVP success?

Q5. What is the primary purpose of MVP in the lean startup process?

Q6. Why is entrepreneurship considered a viable career path after learning MVP principles?

Q7. Differentiate between beta testing and soft launch in the context of launching an MVP?

Q8. Why is feature validation important to avoid wasting development resources?

Q9. How does an iterative cycle result in frequent product updates?

◆ LONG QUESTIONS ◆

L1. Explain the concept of Minimum Viable Product (MVP) and its role in business validation with an example.

L2. How does user feedback contribute to the iterative development process?

L3. How can customer feedback be effectively collcted and used during the MVP phase?

L4. Describe the process of scaling and expanding an MVP after success. Highlight factors like user feedback, feature expansion, performance optimization, and market fit?

■ **NOTE:** All chapters carry equal weight. Short Questions are in **Purple rows**; Long Questions in **Gold/Pale rows**. Prepare all Python programs thoroughly — coding questions are highly likely. **Best of Luck! — Study Bees Official** ■