

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2079 Jestha

| Exam. | Back | | |
|-------------|---------|------------|--------|
| Level | BE | Full Marks | 80 |
| Programme | BCT | Pass Marks | 32 |
| Year / Part | IV / II | Time | 3 hrs. |

Subject: - Information Systems (CT 751)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. What is an information system? Explain the different types of information system that support business operations and managerial decision making. [2+4]
2. Why do we need to Secure Information System? What is Layered Security and its types?
3. What are the stages of design and development of an organization information system? [5]
4. What are the major challenges within Strategic IS implementation? [4]
5. What are the auditing techniques for information system? What is SQL injection Attack? [1]
6. Explain the Enterprise Resource Planning. Supply Chain Management (SCM) is a top strategic objective for many organizations, explain it. [2+4]
7. What do you mean by Critical Success Factors (CSF)? Why change management is crucial for any modern organization? [2+4]
8. What is Enterprises Engineering? Why do you think that we have to use Enterprise Engineering in organization? [2+4]
9. What is Data Mining? Explain the relationship between OLAP and OLTP with figure. [1+4]
10. What do you mean by cold start problem in collaborative filtering? Explain with example. [4]
11. Define the cloud computing and how is it important in MIS? Illustrate types of cloud technology. [1+2+3]
12. Write short notes on: (Any five) [5×4]
 - a) Balanced Scorecard
 - b) Big-Data processing with Map Reduce
 - c) Security Triad
 - d) Collective Intelligence through social-network
 - e) Knowledge Management System
 - f) Hadoop System

TRIBHUVAN UNIVERSITY
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Examination Control Division
2079 Shrawan

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1. Define and classify Information System (IS). Differentiate IS and IT. [2+4+]
2. Explain Layered Security with a proper diagram? Is Defense in Depth and Layered Security the same? Explain.se [4+]
3. You have an organization which contains highly data. Which type of validation will be suitable for your organization and why? [1]
4. Describe the phases of decision making and explain the types of decisions we face in the corporate organization in daily bases. [6+]
5. Differentiate OLAP and OLTP. Discuss GDSS in short. [4+]
6. Mention IS planning. Describe important factors to be considered in three levels of IS planning. [2+]
7. Change can be a painful process for an organization if not managed properly. Explain some negative response of change by Employee that the organization can face. [1]
8. Describe about the concept of cloud computing and explain the process of information retrieval from cloud computing systems in detail. [1]
9. What is AI based recommendation system? Briefly explain the problem and solution of major recommendation system. [2+]
10. Explain the types of WEB mining and its challenges. [4+2+]
11. List common service models and deployment models used in cloud computing. Also, present the different threats that are posed in to cloud, and some major solutions to reduce the security issue that exist on the internet in the cloud computing. [3+3+]

TRIBHUVAN UNIVERSITY
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2078 Chaitra

| Exam. | Regular | |
|-------------|---------|-----------------|
| Level | BE | Full Marks : 80 |
| Programme | BCT | Pass Marks : 32 |
| Year / Part | IV / II | Time : 3 hrs. |

Subject: - Information Systems (CT 751)

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1. "Balanced Scorecard is the management system that focuses on big-picture strategic goals and helps organizations to choose the right things to measures so that they can reach those goals". How balanced scorecard benefits organization to reach their goal? Explain this by taking examples of any organization (Eg. Nokia, Samsung, Apple or any organization of your wish). Also explain the four perspective of balanced scorecard. [6+2]
2. Describe CIA of security. Explain consumer and enterprise layered security strategies. [2+3+3]
3. Explain about the Supply chain Management (SCM), Business Value of SCM, Benefits of SCM and the Causes of SCM failures in detail. [6]
4. What are the benefits of Customer relationship management? Differentiate horizontal integration and vertical integration. [5+3]
5. Define Intelligent Agent. What is an inference engine? With a neat diagram explain the system architecture of Expert System? [1+2+5]
6. Describe the role of planning and business models in the development of business/IT strategies, architectures and applications. [4+2]
7. Describe critical success factors and its importance for change management. [2+6]
8. Explain the basic concept behind Google's Page rank algorithm. Explain the Bow-Tie model of web structure. Briefly explain any one area in which a recommender system is used. [4+3+3]
9. Why is data management important in the cloud? What are the best practices for managing data in the cloud? Explain any two of them. [4+2+4]
10. Write short notes on: (Any Two) [2×4]
 - a) Policy based encryption
 - b) Group decision support system
 - c) Blockchain

TRIBHUVAN UNIVERSITY
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Subject: - Information Systems (CT 751)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
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1. What are the different types of resources that you have to manage as an Information System (IS) professional in your organisation? What are the quality parameters of any IS? Justify with appropriate examples and analogies. [3+3]
2. Why information security breach is considered as cyber crime? Why security becomes topmost criteria to be considered on eCommerce or mCommerce setup? Explain. [2+4]
3. What are the business models of Pathao (or Foodmandu) in Kathmandu? Whether supply chain or customer relationship should bear the higher importance in such setup? Assume that you are hired as an IS professional in these companies, then present the overall ideal enterprise management system of these businesses. [3+5]
4. Why data warehouse is required for data mining purpose? Explain any three, but different types of typical applications of data mining in business domain? What are the OLAP operations, explain with illustration. [2+6+2]
5. What is CSF and why it is important? While implementing IS applications, what are the typical CSFs? [3+3]
6. What is the fundamental distinction between stand alone IS and Web based IS? In web based IS, whether link analysis and session (uses) analysis are either complementary or distinct ones? In any cases justify your arguments with suitable example applications. [2+4]
7. What are the requirements of IS, which are better served with cloud computing framework based architecture? Explain briefly. Prepare a short but comparative note on MapReduce and Hadoop systems. [3+3]
8. What is collective intelligence? Is collaborate filtering, a typical manifestation of collective intelligence derivation? Demonstrate with the example and step by step execution for such derivation. [2+3]
9. Differentiate between the followings: [5×3]
 - a) Overall security controlling vs security auditing of Information system
 - b) Expert system vs Decision support system
 - c) Scalable infrastructure vs fixed infrastructure based IS
10. Write short notes on: [4×3]
 - a) EV-SSL certificate in eCommerce
 - b) Change Management
 - c) Tactical Information System
 - d) Virtual reality

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1. What is Information System? What are the differences between IT and IS? Write at least any four types of IS, with brief explanation of each type. [1+3+4]
2. Mention any three levels of securities that could be implemented while building any IS with brief explanation. Is 'Security Policy' same as 'Security Method'? Justify your argument with appropriate example of IS implementation scenario. [4+4]
3. What is the hierarchical relationship among data, information and knowledge (DIK)? Establish DIK linkages associating with domain and system knowledges. Illustrate all in single diagram. [3+3+2]
4. Why change management is required? What are the key principles of change management? Write briefly within IS context. [3+3]
5. What is a recommender system? How does a collaborative filtering method generate potential recommendations? Explain in brief with sample example. [2+4]
6. Define cloud computing. Why cloud computing knowledge is becoming as an essential for any seasoned IS designing professional? Justify. [2+4]
7. What is CRM? How closely CRM is associated with SCM? Why SCM and CRM are becoming important in e-commerce in comparison to regular brick-and-mortar commerce? [1+2+3]
8. Compare and contrast the followings: [4×5]
 - a) Fully integrated vs Loosely integrated enterprises
 - b) CSF vs KPI
 - c) Web content mining vs Web uses mining
 - d) MapReduce vs Hadoop system
9. Write short notes on the followings: [4×3]
 - a) ERP System in large organization
 - b) CIA Triangle
 - c) Collective intelligence through social network
 - d) Big- Data processing with MapReduce

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Subject: - Information Systems (CT751)

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1. Some people say, 'Information is always costlier than hardware'. Do you agree or disagree? In any case justify your argument, providing some relevant example too. [8]
2. What do you mean by extended validation? How can you recognize websites using EV and SSL certificates? [3+5]
3. What are typical characteristics that a systems designer has to look for in any Enterprise management system? Write in detail with the three different system references of ERP, SCM and CRM. [8]
4. What do you mean by data mining? How it is related to dataware house? Differentiate OLAP and OLTP. [2+2+4]
5. The famous bank in town, Chuchche Bank, has DSS built onto the FMS, which automatically estimates the cash amount required for next day to get from central treasury for every branch of the bank, during the end-of-day processing. Present the design and DFDs of such DDS in detail. Clearly state the assumptions that you are going to make on the availability of data and other constraints, first. [10]
6. Explain Change Management. What are different change management tactics that is to be applied during execution of change management? [3+5]
7. Prepare a brief note on 'cloud computing' with clear statements on associated technologies, their types and various issues. [6]
8. Discuss about Tactical operational Information Systems and Strategic. [8]
9. Write short notes on the followings: [4×4]
 - a) Big-data processing using Hadoop system
 - b) Collective intelligence through social-network
 - c) Link analysis as web structure mining
 - d) Critical success factors of IS

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1. What is an Information System? Explain the different types of information system that support business operations and managerial decision making. [2+6]
2. Describe the role of security audit for information system. What are the necessary protocols to ensure the stringent security for modern information system? [4+4]
3. Explain in detail about Enterprise management system (EMS) with practical example. What are the benefit using EMS? [6+2]
4. Differentiate between OLTP and OLAP. Explain the use of Intelligent Agents for Contemporary Information System. [4+4]
5. What are the elements of IS planning? Explain with example if the strategic IS planning of an organization. [3+5]
6. What is critical success factors? Explain with example. What are the factor one needs to take for successful change management in an organization? [4+4]
7. Explain the importance of web mining and its types. [5]
8. What do you mean by cold start problem in collaborative filtering? Explain with example. [5]
9. Explain link analysis for the web based environment with example. [6]
10. Differentiate between Map reduce and Hadoop systems. Explain the process of Information Retrival in detail with example. [4+4]
11. Explain about cloud computing and its associated technologies. Discuss different types of cloud computing. [4+4]

| Exam. | New Back (2066 & Later Batch) | | |
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1. Explain Information System Architecture. List different types of Information System? [3+3]
2. What do you mean by security? Why do we need a layered approach to managing security? Is it desirable / possible to have less secured system and still have high throughput and performance? Explain. [2+2+4]
3. Suppose you are assigned for the customer relationship management job of an online shop that does not have any physical store. What will be your plans to convert and retain your customers? [8]
4. Prepare a note on intelligent agents with listing of minimum requirement versus the specific requirements to be called in as intelligent agent for any software code piece. Justify your answer with sample example. [5+5]
5. What is change management in the context of any IS implementation? How closely it is associated and CMMI concepts and with Configuration Management Database (CMDB) functionalities? [8]
6. What is recommender system? What specifics are required to transform a generic recommender system into a personalized recommender system? Illustrate with specific examples. [5+5]
7. Why Information Retrieval (IR) is considered as important in cloud unlike less important in other standalone and local IS? Justify your answer with IR scopes and significance in within these two types of settings. [5+5]
8. Compare the followings. [2×4]
 - a) General collaborative filtering Vs One-class Collaborative filtering
 - b) GFS Vs HDFS and their corresponding architecture
9. Write short notes on: [3×4]
 - a) Link Analysis
 - b) GDSS
 - c) SCM

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1. Why do we need Information Systems? Explain the relationship between balanced scorecard and Information System. [3+3]
2. What do you mean by the Information Systems audit? Explain the purpose of various Computer Assisted Auditing Techniques and Tools. [10]
3. Please explain about the Enterprise Resource Planning (ERP), Business Value of ERP, Benefits of ERP and the Causes of ERP Failures in detail. [6]
4. What is knowledge management (KM)? Illustrate KM significance with data-knowledge hierarchy triangle and associated components. [5+5]
5. What are the critical success factors of an IS implementation and operation? Relate your answer with any IS exposure that you have, OR you would like to see in any lousy processing currently you are facing these days! [8]
6. What is collaborative filtering? What specifics are there in one class versus multi-class collaborative filtering? Explain with specific examples. [5+5]
7. What makes the Map Reduce as the defacto standard of scalable filing system? How closely Map Reduce is associated with GFS and HDFS? Explain in brief. [5+5]
8. Compare the followings: [2×4]
 - a) Text mining Vs Web uses mining
 - b) Link analysis in web Vs Link analysis in cloud
9. Write short notes on: [3×4]
 - a) Enterprise Resource Planning
 - b) Differentiate OLTP and OLAP
 - c) Next Generation Balanced Scorecard

Examination Control Division
2071 Bhadra

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1.
 - a. Define Information System. What are different quality requirements that an information system should possess? [4]
 - b. Discuss different classification of information system with regard to different level of management? Provide suitable examples to support your answer. [4]
2.
 - a. Define physical and logical security that can be applied in information systems. What are key threats and vulnerabilities against with any information systems should be protected? What are different controls/measures that can be applied to protect information system against such threats? [2+4+4]
 - b. How do you define cyber crime and theft of intellectual property rights? Discuss with suitable cases. [4]
3.
 - a. What do you understand by an Enterprise Systems? Discuss the architecture of Enterprise systems. What reason do you think that organizations are motivated to establish enterprise systems? [4]
 - b. What is the use of CRM systems in enterprise? Discuss key feature and functionality of a CRM system. [4]
4.
 - a. How do you differentiate between MIS and DSS systems with respect to the information they present to users and the way information are processed? [4]
 - b. What do you mean by a Data Warehouse? Why is it required? Discuss how Data Warehouse is related to Data Mining with a suitable diagram. [4]
 - c. Discuss four different areas of information systems that use artificial intelligence and related techniques. [4]
5.
 - a. What do you mean by a strategic information system? What are different benefits of using strategic information systems? [5]
 - b. What do you understand by balanced score card (BSC) approach? Discuss the importance of BSC for managing IS implementations. [5]
6.
 - a. What is a web? How is it organized? Discuss the working method of search engine with respect to the structure of the web? [5]
 - b. What do you mean by a collaborative filtering? Discuss the concept of collaborative filtering with suitable practical example. [5]
 - c. What do you understand by a web mining? Discuss web mining with regard to content, usage and structure mining. [4]
7.
 - a. What are different issues that should be taken into consideration while choosing cloud as information system platform? [5]
 - b. What are different techniques and methods developed to handle voluminous data? Discuss two of such techniques [5]
 - c. What are the key challenges in handling the voluminous data in the cloud architecture? [4]

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1. Define Information System. Explain the types of IS used in an organization. [2+6]
2. Explain SSL Certificates for client server connections over the web. What do you mean by Extended Validation? [6+4]
3. What is an Information Audit? What benefits will you obtain after going through Information Audit? [1+3]
4. What do you understand by Enterprise Systems? Discuss the architecture of Enterprise Systems. For what reason do you think that organizations are motivated to establish enterprise systems? [2+3+3]
5. Describe the role of Analytical Modeling in DSS. What are the differences between Management Information System (MIS) and Executive Support System (ESS)? [5+3]
6. Differentiate between OLTP and OLAP. [4]
7. Why IS planning is needed for an organization. Explain Strategic Information System. [3+2]
8. Why change management is considered as important activity during Information Systems implementation? Discuss different change management practices which should be practiced during implementations. [5]
9. Describe Link Analysis for the web based environment. What is PageRank? What do you mean by cold start problem in Collaborative Filtering? [4+3+3]
10. What do you mean by Collective Intelligence? [4]
11. Discuss cloud computing technology and their types. [8]
12. Differentiate between Mapredure and Hadoop Systems. [6]

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- 1) What is an information system? How is it different from Information technology?
Discuss different components of information system? [2+2+2]
- 2) Discuss standard user interface in terms of parts of information system? What are different considerations while designing user interface for an information system. [3+3]
- 3) Feasibility analysis is termed as an important activity during information system selection. Discuss different 'tests' that has to be taken care of during feasibility analysis. Explain the tests using an example situation of information system selection [3+3]
- 4) Why do you think that selection of computer hardware for any kind of information system is an important decision for any organization? Discuss different factors that an organization should consider during hardware selection for information system. [3+3]
- 5) What is meant by conceptual design of Information System? Discuss various steps involved in the conceptual design of a system. [2+4]
- 6) What do you understand by system implementation? Discuss different steps in system implementation along with different approaches in system conversion. [3+3]
- 7) Discuss the characteristics of a Geographic Information System (GIS)? Discuss at least five different uses of (GIS) for scientific/business purpose. [3+3]
- 8) What are different types of information systems? Differentiate the characteristics of a Management Information System (MIS) and Decision support system (DSS). [4+2]
- 9) What do you mean by Data Mining? How is it related to Data Ware house? Discuss the process of generating business knowledge using data mining techniques [2+2+2]
- 10) Discuss how of Internet, Intranet and Extranet technologies are being massively used by the organizations in the 21st century to operate their business and gain competitive edge in terms of managing their customers, employees and partners. Provide suitable example. [6]
- 11) Plan an information system for a marketing company that has one head office and ten branches. Discuss different information system components required for the setup (hardware, system software, communication network, outsources services and any third party software). Provide the detail specification for each of the Information System components required for the setup. Also make a top level diagram of the entire setup. [12]
- 12) Write short notes on any Four [2×4]
 - a. System operations and maintenance stage
 - b. Human Resource Information System
 - c. Check List methodology for system design
 - d. Structured design

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1. What are the things to be considered while implementing information system? Explain. [10]
2. Explain multi protocol networks with its special features. [10]
3. Enumerate constraints faced during conceptual and detailed design. [10]
4. Discuss various implementation alternatives and how do you evaluate the implemented system. [10]
5. Differentiate between MIS and Expert system with example. [10]
6. Explain the application generator with suitable diagram. [10]
7. Write short notes on: [5×4]
 - a) Email
 - b) Checklist oriented methodology
 - c) ISP
 - d) Decision support system

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1. Where are the various analysis to be carried out while executive feasibility analysis in information system. At what stages these exercises are carried out?
 2. Why geographical information system (GIS) is necessary? Explain different components of GIS. Explain with some case studies.
 3. Describe work group, Executive support system and Decision Support System. Briefly explain how internet based enterprise and global electronic commerce systems are revolutionizing the operation and management of today's business enterprises.
 4. Write short notes on:
 - a) Multi Protocol Networks
 - b) IS for Marketing
 - c) Process Oriented Methodology
 5. Describe internet and intranet. Give examples of several ways in which companies are using the internet and intranet for business applications.

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1. Identify and give examples of several major ways that enterprises are using internet and intranet for business applications? List power of GIS and example of powerful applications of GIS.
 2. What is transaction processing system? What is the difference between management information system and expert system?
 3. Explain expert system and its use in solving business applications. Explain how data warehousing and data mining tools are used in expert system for business applications.
 4. Describe the details, which need to be addressed for effective communication between human and computer while designing standard use interfaces.
 5. Explain multi protocol techniques. What are the features of multi protocol? What are the issues to be focused on communication media for any organization?
 6. Write short notes on: (any four)
 - a) Multi protocol network
 - b) GIS application in business
 - c) IS for marketing
 - d) IS for inventory control
 - e) Process oriented methodology

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1. Describe intranet. Identify and give examples of several major ways tat comprises are using the Internet and Intranet for business applications? [11]
2. Explain groupware tools for electronic communications, conferencing and work group management. Give examples of how they can enhance the collaborations of teams and work group in a business enterprise. [11]
3. Explain Decision Support System (DSS). How it differs from Management Information System? Explain how Data Warehousing and Data Mining tools can be used for DSS applications. [11]
4. Briefly describe all activities to be carried in problem definition and feasibility analysis. Also explain why it is important to carry out such analysis. What should be the back ground of the experts who carry out such analysis? [11]
5. What is Transaction Process system? What is the basic difference between Management Information System and Expert System? [11]
6. What do you understand by documentation? Why it is an essential part of the system specially from the angle of Software Quality Control process. [11]
7. Write notes on following (any four): [3.5×4]
 - a) Multi Protocol Networks
 - b) GIS Application in Business
 - c) IS for Marketing
 - d) IS for Inventory Control
 - e) Process Oriented Methodology
