

TRIBHUVAN UNIVERSITY  
 INSTITUTE OF ENGINEERING  
**Examination Control Division**  
 2080 Chaitra

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

**Subject:** - Information System (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. Explain the classification of Information Systems in detail. Differentiate IS (Information System) and IT (Information Technology). [6+2]
2. What is Policy Based Encryption? Is Defense in Depth different from layered security? How? Explain OV, DV and EV level certificate. [1+2+6]
3. Describe CIA triad. Explain Security Issues in E-Commerce Transactions. [3+5]
4. Suppose you are assigned for the customer relationship management job of an online system that does not have any physical store. What will be your plans to convert and retain your customer? [8]
5. What is Data Mining? Explain Steps of Knowledge Discovery in Databases (KDD) process .Discuss GDSS in short. [2+3+2]
6. Why IS planning is needed for an organization. Explain Strategic Information System. [3+2]
7. Explain the basic concept behind Google's Page Rank algorithm. Explain the Bow-Tie Structure of the web. [4+3]
8. Can you discuss any organization using the Recommender System (such as Youtube, Netflix or any other organization) and the type of recommender system used. Discuss about the cold start problem in the Recommender system. [6+2]
9. Explain the various types of services in Cloud Computing. With a proper diagram explain the process of Data Management in Cloud. [4+6]
10. Write short note on:
  - a) Audit of Information System
  - b) Types of Web Mining

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TRIBHUVAN UNIVERSITY  
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**Examination Control Division**  
 2079 Chaitra

| Exam.       | Regular  |            |        |
|-------------|----------|------------|--------|
| Level       | BE       | Full Marks | 80     |
| Programme   | BCT, BEI | 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.
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1. Explain the classification of Information systems in detail. Also discuss the four perspectives of a Balanced Scorecard. [6+2]
2. Explain SSL certificates for client server connection over the web. What do you mean by Extended Validation? Why do we need a layered approach in managing security? [4+2+2]
3. Explain the Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) is a top strategic objective for many organizations. [3+3]
4. Describe about the cyber-crime and intellectual property rights in detail with suitable examples. [4+4]
5. Discuss the difference between Structured and Unstructured Decision. With a proper diagram explain the architecture of Neural Network. [2+6]
6. Explain Lewin's Change Model. Discuss about an organization that has implemented changes and also mention whether that change was beneficial for that organization or not. [2+8]
7. Why is planning necessary in organization? How does proper operational planning reduce organizational cost? [3+3]
8. Explain the concept of collaborative filtering and its applications in recommender systems. How does it differ from content-based filtering and what are its limitations? [3+3]
9. What do you mean by a web mining? Explain web usage mining and web content mining with example. [2+4]
10. What is cloud management? How does cloud management work? [2+4]
11. Write short notes on: (Any Four) [4×2]
  - a) OLTP and OLAP
  - b) Next generation Balance Scorecard
  - c) Supply Chain Management (SCP)
  - d) Collaborative filtering
  - e) Critical Success Factors (CSFs)

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TRIBHUVAN UNIVERSITY  
 INSTITUTE OF ENGINEERING  
**Examination Control Division**  
**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

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TRIBHUVAN UNIVERSITY  
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**2077 Chaitra**

| Exam.       | Regular |            |        |
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| 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 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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TRIBHUVAN UNIVERSITY  
 INSTITUTE OF ENGINEERING  
**Examination Control Division**  
 2076 Bhadra

| Exam.       |         | Regular / 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.
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- ✓ Assume suitable data if necessary.

1. Information System is evolving a lot with contemporary technologies. Explain. Why do organizations need Information Systems? What are the differences between an Information System and a typical Database Management System? [4+4]
2. Why do we need to Secure Information Systems? What is Layered Security and it's types? [6]
3. How can you justify the huge expenditures on implementation of Enterprise Management Systems? Explain with an example. [6]
4. What is Information System Planning? Discuss Key Elements of IS planning? [3+3]
5. What do you mean by Critical Success Factors (CSF)? Why change management is crucial for any modern organization? [6]
6. Differentiate between the following systems: [5×5]
  - a) SCM versus CRM systems
  - b) OLTP versus OLAP systems
  - c) Map reduce versus Hadoop system
  - d) Expert system versus DSS
  - e) Recommender system versus IR (Search) systems.
7. Why is IS planning necessary in organisation? How does proper operational planning reduce organizational cost? [6]
8. Describe cloud computing and its associated technologies. Has the hype of cloud lived up to the expectations? Give your opinion. [5+3]
9. Write short notes on: [3×3]
  - i) Remote access authentication
  - ii) Deep learning through ANN
  - iii) Building Collective Intelligence

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| Exam.       |         | Regular    |        |
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| Level       | BE      | Full Marks | 80     |
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| Year / Part | IV / II | Time       | 3 hrs. |

***Subject: - Information Systems (CT751)***

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
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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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**Subject:** - Information Systems (CT751)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
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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 Retrieval in detail with example. [4+4]
11. Explain about cloud computing and its associated technologies. Discuss different types of cloud computing. [4+4]

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

**Subject:** - Information System (CT751)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
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1. Why do organizations need Information System? Differentiate between Information System and typical database management system. [4+4]
2. What do you understand by Information System security? Describe both technology and human based safeguards for Information Systems. [2+4]
3. Explain the process of developing and I.S. security plan. [4]
4. How can you justify the huge expenditures an implementation of Enterprise Management Systems? Explain with practical example. Explain the push-pull view of Supply Chain Management System (SCM). [5+3]
5. Explain about Enterprise and Executive decision support systems (DSS) with examples. [4]
6. Differentiate between knowledge management (KM) and knowledge based expert systems. [4]
7. Explain the role of planning in the development of business / IT strategies architectures and application. What do you mean by Operational Information Systems? [5+3]
8. Explain the critical success factor (CSFs) while implementing information system applications and explain the sources of CSFs. [6]
9. What are the pros and cons of collective intelligence? Give some examples. [5+3]
10. Describe the characteristics for the design of the typical recommender system. Explain the different types of recommender systems? [4+4]
11. Explain the working mechanisms of Map Reduce for big data with example. [8]
12. Mention the types of cloud computing. Explain about Data Management in the cloud. [4+4]

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***Subject: - Information Systems (CT751)***

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
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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 scalabale 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

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| New Back (2066 & Later Batch) |         |            |        |
|-------------------------------|---------|------------|--------|
| Exam.                         | BE      | Full Marks | 80     |
| Programme                     | BCT     | Pass Marks | 32     |
| Year / Part                   | IV / II | Time       | 3 hrs. |

**Subject:** - Information Systems (CT751)

- ✓ 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. 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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**Subject:** - Information System (CT751)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
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1. a) Define Information System. Discuss different information system components? What are different quality requirements that an information system should possess. [5]
- b) What are different types of information systems? Explain them in brief. [5]
2. What are the different security threats while deploying Information System over extranet of a business firm? What are the technologies for mitigating the security risks in Information Systems? [4+4]
3. What are the differences between traditional Information Systems and Enterprise Systems? Explain with examples. [8]
4. a) Define and explain DSS systems with suitable diagram. Discuss key characteristics of GDSS systems. [5]
- b) What is a Data Warehouse? Why do you require data warehouse along with operational databases? How is it related with data mining? [5]
- c) Discuss four different areas of information systems that use data analytics and related techniques. [5]
5. Why do you think change management is important during IS implementation? What are different change management tactics that is to be applied during execution of change management? [5]
6. Define Collective Intelligence. How does it help refinement of Knowledge Management System (KMS) of an organization? Explain with a suitable example. [2+4]
7. a) What is a recommender system? How does it work? Discuss different examples of recommender systems. [5]
- b) What do you understand by web mining? Discuss web mining with regard to structure mining. [5]
8. What is distributed system? Describe Hadoop systems. How voluminous data are handled? [2+2+4]
9. Write short notes on: [5×3]
  - a) OLTP and OLAP
  - b) Collaborative filtering
  - c) Data mining and data ware housing

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**Examination Control Division**  
**2072 Magh**

| Exam.       | New Back (2066 & Later Batch) |            |        |
|-------------|-------------------------------|------------|--------|
| Level       | BE                            | Full Marks | 80     |
| Programme   | BCT                           | Pass Marks | 32     |
| Year / Part | IV / II                       | Time       | 3 hrs. |

**Subject:** - Information System (CT751)

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1. "An Information System supports managers in decision making". Illustrate it with your thoughts. What are different quality requirements that an information system should possess? [5+3]
2. a) What are different threats to Information System in terms of security? Discuss different controls and security measures (including physical and logical) that are to be applied to protect information systems? [2+5]
  - b) What is a multi layer security strategy? Discuss how multi layer security strategy can be applied to protect e-commerce systems. [5]
3. a) What do you understand by Electronic Organization (digital firm)? Discuss the concept of Enterprise management systems? [5]
  - b) What is the use of ERP systems in enterprise? Discuss key feature and functionality of an ERP software system. [5]
4. Describe Group Decision Support Systems (GDSS) for modern organizations. How do they help organizational learning? [6+2]
5. What do you mean by strategic information system? What are different benefits of using strategic information systems? [6]
6. State Link Analysis in Web Search. How does a Search Engine Work? Discuss its architecture. [3+4]
7. What do you mean by cloud computing? Illustrate what type of cloud technologies would you recommend for a small business firm with high level of accuracy and security required for business transactions? [3+5]
8. Explain Big Data. How is it processed? [2+4]
9. Write short notes on:
  - a) ERP, CRM, SCM
  - b) OLTP and OLAP
  - c) Next Generation Balanced ScoreCard

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**Subject:** - Information Systems (CT751)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
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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 which 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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**Subject:** - Information Systems (CT751)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
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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 Mapreduce and Hadoop Systems. [6]

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**Subject: - Information System (EG781CT)**

- ✓ Candidates are required to give their answers in their own words as far as practicable.
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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 21<sup>st</sup> 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