



# The University of Fiji



## Undergraduate Programme

**Department of Computer Science and Information Technology**

**Semester 1 Year 2016**

## **FINAL COURSE EXAMINATION PAPER**

### **ITC103: INFORMATION SYSTEMS IN ORGANIZATIONS**

#### **Important Instructions to Students:**

1. Read the questions, instructions carefully and answer the questions.
2. You are allowed an **extra 10 minutes reading time** (during this time, you are not allowed to write with pen) and **180 minutes (3 Hours) to complete this paper**.
3. Silent, non-programmable calculators are allowed, but not supplied.
4. Write all your answers in the answer booklet provided. If you need extra sheets, please ask from the supervisor. Write your name, course code and student identification number in the answer booklet and in the attendance sheet.
5. **This Final Course Examination Paper is worth 100 marks contributes 50% of the total course assessments.**
6. This paper contains two (2) sections A and B. All questions are compulsory to answer.
7. Write all your answers legibly. The marker has the right to award zero for answers that are not legible.
8. This is a **Closed Book Examination**. The University views plagiarism, cheating and dishonest practice as serious offences and if found, offenders are penalized.

#### **Examination Paper Content (Format):**

| <b><u>Section</u></b> | <b><u>Question</u></b> | <b><u>Content</u></b>  | <b><u>Marks</u></b> | <b><u>Suggested Time</u></b> |
|-----------------------|------------------------|------------------------|---------------------|------------------------------|
| A                     | 1-30                   | Multiple Choice        | 30                  | 54 minutes                   |
| B                     | 1-5                    | Short Answer Questions | 70                  | 126 minutes                  |
|                       |                        |                        |                     |                              |
|                       |                        | <b>TOTAL</b>           | <b>100</b>          | <b>180 Minutes</b>           |

## Section A. Multiple Choice Questions

[30 marks]

1. What are the standards that specify the format of data as well as the rules to be followed during transmission?
  - A. Protocol
  - B. Internet
  - C. World Wide Web
  - D. Hypertext transport protocol
2. What is the digital divide?
  - A. A global public network of computer networks that pass information from one to another using common computer protocols
  - B. Refers to the depth and breadth of information transferred between customers and businesses
  - C. Refers to the number of people a business can communicate with, on a global basis
  - D. Occurs when those with access to technology have great advantages over those without access to technology
3. What is a business that operates on the Internet only without a physical store?
  - A. Pure play
  - B. Intermediaries
  - C. Content provider
  - D. Reintermediation
4. What is an ISP?
  - A. The B2B purchase and sale of supplies and services over the Internet
  - B. Involves buying through prenegotiated contracts with qualified suppliers
  - C. Buying commodity-like products which is transaction-oriented, and rarely involves a long-term or ongoing relationship between buyers and sellers
  - D. A company that provides individuals and other companies access to the Internet along with additional related services, such as Web site building
5. What is mass customization?
  - A. A box running across a Web page that is often used to contain advertisements
  - B. Allows businesses to generate commissions or royalties from an Internet site
  - C. A technique that induces Web sites or users to pass on a marketing message to other Web sites or users
  - D. The ability of an organization to give its customers the opportunity to tailor products or services to customer's specifications

6. Why do relational databases use primary keys and foreign keys?

- A. To create a database
- B. To create physical relationships
- C. To create logical relationships
- D. All of the above

7. What is information redundancy?

- A. Duplication of information
- B. Storing the same information in multiple places
- C. Storing duplicate information in multiple places
- D. All of the above

8. What is data mining?

- A. The common term for the representation of multidimensional information
- B. Process of analysing data to extract information not offered by the raw data alone
- C. A particular attribute of information
- D. Uses a variety of techniques to find patterns and relationships in large volumes of information and infer rules from them that predict future behaviour and guide decision making

9. What are Web services?

- A. Contains a collection of Web-based data and procedural resources that use shared protocols and standards permitting different applications to share data and services
- B. The capability of two or more computer systems to share data and resources, even though they are made by different manufacturers
- C. A broad, general term that describes nonproprietary IT hardware and software made available by the standards and procedures by which their products work, making it easier to integrate them
- D. A computer system designed that in the event a component fails, a backup component or procedure can immediately take its place with no loss of service

10. Which of the following statements about the potential impact of IT on non-managerial workers is true?

- A. IT will create more jobs than it eliminates
- B. Employees will feel a higher degree of loyalty towards their company
- C. IT could cause employees to experience a loss of identity
- D. The flexibility of IT can minimize stress on the job

11. Which of the following is a type of transaction processing system?

- A. Order processing
- B. Sales
- C. Manufacturing
- D. Transportation

12. What allows users to receive the information they want (customized information) when they want it, without having to surf thousands of web sites?

- A. Wikis
- B. MySpace
- C. Really Simple Syndication
- D. Blog

13. To communicate wirelessly, mobile devices typically have a built-in \_\_\_\_\_.

- A. NIC
- B. 802.11
- C. Hotspot
- D. WNIC

14. What is business process reengineering?

- A. The analysis and redesign of workflow within and between enterprises
- B. A standardized set of activities that accomplish a specific task, such as processing a customer's order
- C. Integrates all departments and functions throughout an organization into a single TI system so that employees can make decisions by viewing enterprisewide information on all business operations
- D. None of the above

15. The \_\_\_\_\_ a satellite orbits the larger its footprint.

- A. Higher
- B. Lower
- C. Slower
- D. None of the choices is correct

16. Which of the following satellites is used to power a GPS system?

- A. GEO
- B. MEO
- C. REO
- D. LEO

17. Wi-Fi Direct has a \_\_\_\_\_ range than Bluetooth and transfers data \_\_\_\_\_.
- A. greater; slower
  - B. greater; faster
  - C. lesser; faster
  - D. lesser; at the same speed
18. Why are public wireless mesh programs failing in most countries?
- A. These networks are restricted to military use
  - B. Establishing these networks is expensive
  - C. The networks require human readers to monitor the cable usage
  - D. Wireless Mesh Networks have a high transmission lag
19. WiMAX is what kind of wireless transmission system?
- A. short-range
  - B. medium- range
  - C. wide-range
  - D. It is not a wireless trans mission system
20. \_\_\_\_\_ is the wireless transmission and receipt of data gathered from remote sensors.
- A. A voice portal
  - B. A mobile portal
  - C. Telemetry
  - D. L-commerce
21. Charles walked around his neighborhood using a Wi-Fi detector to find local WLANs and access the internet. He is guilty of \_\_\_\_\_.
- A. eavesdropping
  - B. war driving
  - C. RF jamming
  - D. hotspotting
22. In \_\_\_\_\_ auctions there are typically many buyers while in \_\_\_\_\_ auctions there is typically only one buyer.
- A. forward; reverse
  - B. reverse; forward
  - C. physical; online
  - D. online; physical
23. \_\_\_\_\_ store your tracking history on your personal computer's hard drive.
- A. Crackers
  - B. Cookies
  - C. Trackers
  - D. Domain names

24. In comparing Web 1.0 and Web 2.0 which if the following statements is not true?

- A. Web 2.0 facilitates more collaboration.
- B. Web 2.0 is a newer generation of technology.
- C. Users have more interaction with Web 2.0 sites.
- D. All the choices are true.

25. The reliability of the content in Wikipedia, the online encyclopedia, is questionable because

- A. All of the administrators are volunteers.
- B. No author has to identify himself or herself.
- C. The content is updated all the time.
- D. It is difficult to test the authenticity of the content due to the fact that anyone can contribute content.

26. Which of the following statements about social networking sites is not true?

- A. Social networking sites facilitate collaboration.
- B. Social networking sites unite like-minded people.
- C. Social networking sites are tools for individual rather than business use.
- D. Social networking sites promote interactive communications.

27. What is a form in MS Access?

- A. It is a printed page where users will write their data to fill it up
- B. It is an input screen designed to make the viewing and entering data easier
- C. This is an important part of database used by analysts to draw conclusions
- D. All of above

28. Two tables can be linked with relationship so that the data integrity can be enforced. Where can you find Relationship command?

- A. File menu
- B. View Menu
- C. Database Menu
- D. Tools Menu

29. When should you use path along with file name of picture in IMG tag?

- A. path is optional and not necessary
- B. when the location of image file and html file are different
- C. when image file and html file both are on same location
- D. path is always necessary when inserting image

30. Which of the following statement is true

- A. Reports can be used to retrieve data from tables and calculate
- B. Queries can include calculated fields that do not exist in table
- C. Queries can be printed in well formatted manner and presented as the information
- D. Reports and forms are similar but forms are used to print but reports to display on screen only

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**Open Ended Question**

**[70 marks]**

**Question 1**

**[10 marks]**

- a. Explain the evolution of web from 1.0 to 5.0. **[2 marks]**
- b. In the context of networks, a protocol refers to a set of rules for efficiently transmitting data from one network node to another. List two network functions that protocols perform. **[2 marks]**
- c. Describe the four major threats to the security of wireless networks. **[2 marks]**
- d. Explain the impact that networks have had on business and everyday life for each of the six major categories of network applications. **[4 marks]**

**Question 2**

**[10 marks]**

- a. Identify and discuss the serious data redundancy problems exhibited by the file structure shown below. **[1 mark]**

| PROJ_NUM | PROJ_NAME | EMP_NUM | EMP_NAME           | JOB_CODE | JOB_CHG_HOUR | PROJ_HOURS | EMP_PHONE    |
|----------|-----------|---------|--------------------|----------|--------------|------------|--------------|
| 1        | Hurricane | 101     | John D. Newson     | EE       | 85.00        | 13.3       | 653-234-3245 |
| 1        | Hurricane | 105     | David F. Schwann   | CT       | 60.00        | 16.2       | 653-234-1123 |
| 1        | Hurricane | 110     | Anne R. Ramoras    | CT       | 60.00        | 14.3       | 615-233-5568 |
| 2        | Coast     | 101     | John D. Newson     | EE       | 85.00        | 19.8       | 653-234-3254 |
| 2        | Coast     | 108     | June H. Sattlemeir | EE       | 85.00        | 17.5       | 905-554-7812 |
| 3        | Satellite | 110     | Anne R. Ramoras    | CT       | 62.00        | 11.6       | 615-233-5568 |
| 3        | Satellite | 105     | David F. Schwann   | CT       | 26.00        | 23.4       | 653-234-1123 |
| 3        | Satellite | 123     | Mary D. Chen       | EE       | 85.00        | 19.1       | 615-233-5432 |
| 3        | Satellite | 112     | Allecia R. Smith   | BE       | 85.00        | 20.7       | 615-678-6879 |

- b. What new files should you create to help eliminate the data redundancies found in the file above? **[2 marks]**
- c. Elaborate on data warehouse. **[0.5 mark]**
- d. From a business perspective, database information offers many advantages. Discuss at least four advantages of relational database. **[4 marks]**

e. Use the image shown below to answer the questions i) to iii) that follow.

| Employee ID | Month | Regular Hours | Overtime Hours | Hourly Rate | Overtime Rate | Tax% | Gross Salary | Tax Deduction | Net Salary  |
|-------------|-------|---------------|----------------|-------------|---------------|------|--------------|---------------|-------------|
| E001        | Jan   | 152           | 0              | \$ 30.00    | 0             | 30%  | \$ 4,560.00  | \$ 1,368.00   | \$ 3,192.00 |
| E002        | Jan   | 160           | 0              | \$ 4.00     | 1.5           | 4%   | ??           | ??            | ??          |
| E003        | Jan   | 144           | 0              | \$ 5.00     | 1.5           | 5%   | \$ 720.00    | \$ 36.00      | \$ 684.00   |
| E001        | Feb   | 160           | 0              | \$ 30.00    | 0             | 30%  | \$ 4,800.00  | \$ 1,440.00   | \$ 3,360.00 |
| E002        | Feb   | 136           | 2              | \$ 4.00     | 1.5           | 4%   | \$ 556.00    | \$ 22.24      | \$ 533.76   |
| E003        | Feb   | 144           | 4              | \$ 5.00     | 1.5           | 5%   | \$ 750.00    | \$ 37.50      | \$ 712.50   |
| E004        | Feb   | 160           | 0              | \$ 20.00    | 0             | 20%  | \$ 3,200.00  | \$ 640.00     | \$ 2,560.00 |
| E001        | Mar   | 160           | 0              | \$ 30.00    | 0             | 30%  | \$ 4,800.00  | \$ 1,440.00   | \$ 3,360.00 |
| E002        | Mar   | 144           | 2              | \$ 4.00     | 1.5           | 4%   | \$ 588.00    | \$ 23.52      | \$ 564.48   |
| E003        | Mar   | 120           | 0              | \$ 5.00     | 1.5           | 5%   | \$ 600.00    | \$ 30.00      | \$ 570.00   |
| E004        | Mar   | 160           | 0              | \$ 20.00    | 0             | 20%  | \$ 3,200.00  | \$ 640.00     | \$ 2,560.00 |
| E001        | Apr   | 144           | 0              | \$ 30.00    | 0             | 30%  | \$ 4,320.00  | \$ 1,296.00   | \$ 3,024.00 |
| E002        | Apr   | 144           | 0              | \$ 4.00     | 1.5           | 4%   | \$ 576.00    | \$ 23.04      | \$ 552.96   |
| E003        | Apr   | 160           | 0              | \$ 5.00     | 1.5           | 5%   | \$ 800.00    | \$ 40.00      | \$ 760.00   |
| E004        | Apr   | 136           | 0              | \$ 20.00    | 0             | 20%  | \$ 2,720.00  | \$ 544.00     | \$ 2,176.00 |
| E001        | May   | 136           | 0              | \$ 30.00    | 0             | 30%  | \$ 4,080.00  | \$ 1,224.00   | \$ 2,856.00 |
| E002        | May   | 136           | 6              | \$ 4.00     | 1.5           | 4%   | \$ 580.00    | \$ 23.20      | \$ 556.80   |
| E003        | May   | 160           | 0              | \$ 5.00     | 1.5           | 5%   | \$ 800.00    | \$ 40.00      | \$ 760.00   |
| E004        | May   | 144           | 0              | \$ 20.00    | 0             | 20%  | \$ 2,880.00  | \$ 576.00     | \$ 2,304.00 |
| E005        | May   | 136           | 4              | \$ 5.00     | 1.5           | 5%   | \$ 710.00    | \$ 35.50      | \$ 674.50   |
| E001        | Jun   | 160           | 0              | \$ 30.00    | 0             | 30%  | \$ 4,800.00  | \$ 1,440.00   | \$ 3,360.00 |
| E002        | Jun   | 160           | 0              | \$ 4.00     | 1.5           | 4%   | \$ 640.00    | \$ 25.60      | \$ 614.40   |
| E003        | Jun   | 136           | 2              | \$ 5.00     | 1.5           | 5%   | \$ 695.00    | \$ 34.75      | \$ 660.25   |
| E004        | Jun   | 160           | 0              | \$ 20.00    | 0             | 20%  | \$ 3,200.00  | \$ 640.00     | \$ 2,560.00 |
| E005        | Jun   | 160           | 0              | \$ 5.00     | 1.5           | 5%   | \$ 800.00    | \$ 40.00      | \$ 760.00   |
| E006        | Jun   | 152           | 0              | \$ 30.00    | 0             | 30%  | \$ 4,560.00  | \$ 1,368.00   | \$ 3,192.00 |

- Column L contains the gross salary which is calculated based on rates for regular hours and overtime hours. What is the formula and value of Cell L5? [1 mark]
- Column M shows the tax deducted. Write the formula and value for cell M5? [1 mark]
- What is the formula and value of Cell N5? [0.5 mark]

### Question 3

[10 marks]

- Write the general structure of a HTML document. [1 mark]
- Write the HTML tag to insert an image (abc.jpeg) into a webpage. [0.5 mark]
- Write the HTML tag to create a link to [www.google.com](http://www.google.com) website. [0.5 mark]
- Differentiate between onshore, nearshore and offshore outsourcing. [1.5 marks]
- Explain four advantages of outsourcing. [2 marks]

- f. Explain four challenges faced while outsourcing. [2 marks]
- g. Discuss at least three business decisions that companies must make when they acquire new applications. [2.5 marks]

**Question 4** [20 marks]

- a. Contrast and compare the characteristics of Transaction Processing Systems (TPS), Management Information Systems (MIS), Decision Support Systems (DSS), and Expert Systems (ES). Explain the function of each and elaborate on its end users [4 marks]
- b. Application testing is the process of trying out various sequences of input values and checking the results to verify that the application works correctly. Application testing is performed in three ways: unit testing, integration testing, and system testing. Briefly describe unit testing, integration testing and system testing. [1.5 marks]
- c. Explain four issues in global IOS design. [2 marks]
- d. Define pervasive computing and describe two technologies underlying this technology. [2.5 marks]
- e. Elaborate the four factors that drive development of m-commerce. [4 marks]
- f. Explain five common characteristics of high quality information. [2.5marks]
- g. There are a number of different software development methodologies. Explain the scrum software development methodology. [1 mark]
- h. Explain five reasons why projects fail. [2.5 marks]

**Question 5** [20 marks]

- a. Compare and contrast tacit knowledge and explicit knowledge, and provide examples of each type. [1 mark]
- b. When beginning to learn about information technology it is important to understand about Data, information, and business intelligence. Discuss the relationship between Data, information and business intelligence in any organization. [2 marks]
- c. Porter's Five Forces Model helps determine the relative attractiveness of an industry. Discuss the five forces which help organizations evaluate business segments. [5 marks]
- d. Discuss at least five reasons for the growth of the World Wide Web. [2.5 marks]
- e. Differentiate between E-shop and E-mail. [1 mark]

- f. An e-business model is an approach to conducting electronic business on the internet. Explain the four e-business models in detail. [4 marks]
- g. Discuss at least six types of deliberate attacks. [3 marks]
- h. Define the three risk mitigation strategies, and provide an example of each one in the context of owning a home. [1.5 marks]

**End of Exam**