## Christian Brothers' High School, Lewisham

**NAME:**_____

**TEACHER:**_____

| Section | |
|---|---|
| A | /20 |
| B | /30 |
| C | /156 |
| Total | /206 |

# Year 12
# Half Yearly Exam

# 2001

# Information Processes & Technology

*Time allowed: 2 Periods*

***206 Marks***

**20% Assessment**

***Directions:***

- Attempt all questions.
- Write only in blue or black pen.
- Answer questions in the spaces provided.
- Calculators MAY be used.

**Syllabus Outcomes**:

H1.1, H1.2, H2.1, H2.2, H3.1, H3.2, H4.1, H5.1, H5.2, H6.1, H6.2, H7.1, H7.2

# Part A: Multiple Choice [20 marks]

*Read the following statements and select the most appropriate answer by circling the corresponding letter.*

1. A storyboard layout that has no structure is called:

   a) linear
   b) hierarchical
   c) non-linear
   d) combination

2. A school library's circulation desk computer has a password to protect confidential student details from unauthorised retrieval. A second password, used only by the librarian, allows access to information about Internet sites visited by students and teachers. What issues does this set-up involve?

   a) Data security, ethics and privacy
   b) Ethics, computer crime and copyright
   c) The changing nature of work, power and control, and ethics
   d) The changing nature of work, power and control, and privacy

3. A system designed to make participants' work as effective and as satisfying as possible is called:

   a) equity system
   b) human-centred system
   c) participant system
   d) ethical system.

4. A company has decided that its information system is inadequate for its future needs. The participants in the system are uncertain of their requirements for the new system. What would be the best approach to help solve this problem?

   a) Construct a project plan for developing the new system.
   b) Tell the participants what their requirements are.
   c) Construct a prototype of an improved information system.
   d) Interview the participants, using active listening skills.

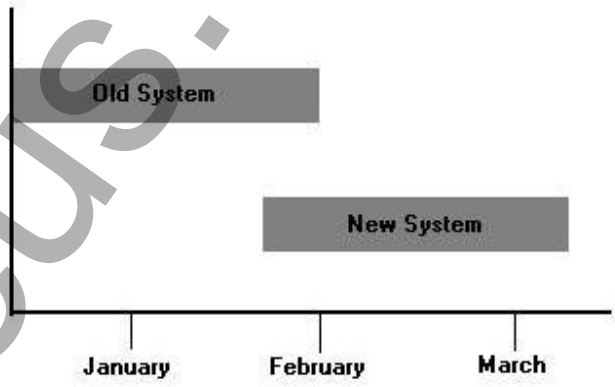
5. The main advantages of a computer-based database compared to a paper filing system for retrieving information is that the:

   a) data can be searched more efficiently
   b) data is very accurate
   c) storage medium is a hard disk
   d) data is organised into data structures

6. Which of the following is an example of metadata in a relational database system?

   a) The result of a query
   b) A database record
   c) Data unnecessarily duplicated
   d) A schema showing relationships between files

7. As part of a project, a student has included the diagram below that illustrates the conversion of an old system to a new system. What is this type of diagram called?




   a) Decision table
   b) Gantt chart
   c) Schematic diagram
   d) System flowchart

8. Metadata is contained in a:

   a) data dictionary
   b) data record
   c) hyperlink
   d) primary key

9. A Web-based mail-order company is investigating the most appropriate way for employees to conduct internal communication. What is the most likely reason for the company to reject a paper-based system?

   a) It is not economically feasible.
   b) It is not technically feasible.
   c) It does not fit the company's objectives.
   d) It is not a feasible solution in the available time frame.

10. An organisation has decided to systematically replace each employee's desk-top computer with a laptop computer over a three-year period. When each desk-top reaches a certain age, it is replaced with a new laptop. What name is given to this type of conversion method?

a) Pilot
b) Direct
c) Parallel
d) Phased

11. The video staff wish to retrieve information from the membership file about borrowers whose first name is 'Ann' with a post code of '2176' who borrowed movies starring 'Cary Grant'. Which SQL statement is the most appropriate:

a) FirstName = "Ann" OR PostCode = "2176" OR Mainstars = "Cary Grant"
b) FirstName ="Ann" AND PostCode = "2176" OR Mainstars = "Cary Grant"
c) FirstName = "Ann" OR PostCode = "2176" AND Mainstars = "Cary Grant"
d) FirstName = "Ann" AND PostCode = "2176" AND Mainstars = "Cary Grant"

12. At what point in the development of a project would the details of the time frame, and the identification of participants and data be first considered?

a) Feasibility study
b) Operation manual
c) Project plan
d) Project prototype

13. A customer file contains an identification number that is linked to a transaction file. This is an example of a:

a) hypertext link
b) record
c) key
d) column

14. What is the best way for a university to organise data about students and the courses in which they are enrolled?

a) On a course website
b) In a relational database
c) In a flat-file database
d) As hypermedia

15. In which stage of the system development cycle is a decision tree used?

a) testing, evaluating and maintaining
b) understanding the problem
c) implementing
d) designing solutions

16. A query uses a wildcard to search a database in the form FirstName = "M?c*". Which of the following would NOT be retrieved?

a) Michael
b) Mick
c) Mac
d) Mitchell

17. The reliability of the data in a database is called:

a) data security
b) data redundancy
c) data integrity
d) data validation

18. In a data flow diagram, a person who receives data would be represented by a:

a) external entity
b) data flow
c) process
d) online output

19. What is the specific thing about which information is collected and stored in a relational database?

a) file
b) record
c) entity
d) schema

20. In a feasibility study, the project leader focuses on:

a) the appropriateness of a solution
b) the cost of the new system
c) designing a system to meet the participants' needs
d) how the existing system works.

# Part B: Terminology [30 marks]

**The tables below contain a number of Project Work and Information Systems & Databases terms. Match the terms with its meaning by writing the number that corresponds to the correct meaning in the space provided.**

## Chapter 1 : Project Work

| Term | | | Meaning |
|---|---|---|---|
| Operation Manual | (…….) | (1) | Assist in the development of a new system. |
| Maintenance | (…….) | (2) | A square or rectangle used to represent any person or organisation that sends data to or receives data from the system. |
| Decision Tree | (…….) | (3) | A working model of an information system built in order to understand the requirements of the system. |
| Design Tools | (…….) | (4) | A document containing detailed procedures for participants to follow when using a new system. |
| Data Store | (…….) | (5) | Concerns equals rights for all. |
| External Entity | (…….) | (6) | An open rectangle used to represent the location where data is stored. |
| Project Plan | (…….) | (7) | The relationship between people and their work environment. |
| Constraint | (…….) | (8) | The modifications of the system by making minor improvements. |
| Prototype | (…….) | (9) | Develops schedules, checks work and resolves conflicts. |
| Equity | (…….) | (10) | A summary of a project that specifies who, what, how and when. |
| Ethics | (…….) | (11) | A set of beliefs we hold about what is right and wrong. |
| Ergonomics | (…….) | (12) | Result of the project if it is successful. |
| Project Leader | (…….) | (13) | A diagrammatic way of representing all possible combinations of decisions and their resulting actions. It represents the decisions made within a system as the branches of a tree. |
| Project Goal | (…….) | (14) | The timing of major tasks and who will do the work. |
| Schedule | (…….) | (15) | A factor that affects an information system and prevents it from achieving the objectives. |

## Chapter 2: Information Systems & Databases

| Term | | | Meaning |
|---|---|---|---|
| Information System | (…….) | (1) | A graphical tool to help define a database and develop a schema. |
| Relationship | (…….) | (2) | A database that organizes data using a series of related tables. |
| Attribute | (…….) | (3) | The way entities are related to each other in a relational database. |
| Tuple | (…….) | (4) | Part of the DBMS used to maintain consistency across a distributed database. |
| Data Modelling | (…….) | (5) | A system that allows documents to be cross-linked in such a way that the user can move from one document to another by clicking on a link. |
| Schematic Diagrams | (…….) | (6) | An ethical issue related to who owns and controls data about an individual collected by another individual or organisation. |
| Hypertext | (…….) | (7) | An information system that provides people with effective ways to complete administrative tasks in an organisation. |
| HTML | (…….) | (8) | A defined property of an entity in a relational database. |
| Relational Database | (…….) | (9) | A set of special instructions (called tags) that indicate how parts of a document on the Web will be displayed and navigated. |
| Two-phase commit | (…….) | (10) | A row in a table of a relational database. |
| Ownership | (…….) | (11) | A process that finds relationships and patterns in the data stored in a database. |
| Data Mining | (…….) | (12) | A graphical method of identifying the entities in a relational database and showing the relationships between them. |
| Office Automation Systems | (…….) | (13) | A specific thing in a relational database about which information is collected and stored. |
| Entity | (…….) | (14) | The process of identifying entities, the relationships between those entities and the attributes of those entities in a relational database. |
| Entity-relationship diagram | (…….) | (15) | Perform a set of information processes requiring participants, data/information and information technology. |

# Part C: Short Answer [156 marks]

1. The traditional system development cycle has five broad stages. List and describe these stages [10 marks]

2. Define the term **project management**. [1 mark]

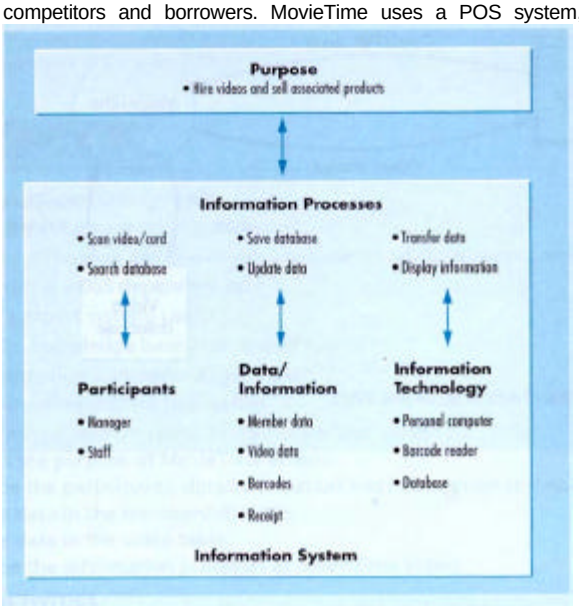
3. The types of information systems and their purposes are changing with developments in information technology. Name and briefly describe the five (5) main types of information systems. [10 marks]

4. List and describe at least four (4) advantages that Computer-based databases have over non-computer databases. [8 marks]

5. What is a **project plan**? [1 mark]

6. Read the following Case Study on the **MovieTime Video** store and answer the questions that follow.

MovieTime Video is a store that uses a database information system. The store's purpose is to hire videos and sell associated products. The environment is not only the contents of the store but such factors as location, communications, suppliers, competitors and borrowers. MovieTime uses a POS system, and electronic funds transfer at point of sales (EFTPOS) is available. MovieTime Video performs a set of information processes that requires participants, data/information and information technology.




A database is used to store membership data, video data and all video transactions. When new customers come into the store, they fill out a membership form containing personal details. The membership data consists of their last name, first name, address, home phone number, date of birth, and work phone number. The data is entered into a membership table. New customers select a personal identification number (PIN) and receive a membership card with a barcode. When the store buys a new video, data is entered into the video table. The video data consists of an identity number, title, main stars, rating and an entertainment category. The videos are also barcoded for efficient processing. When a customer borrows a video, the membership and video barcodes are both scanned. This data is automatically inserted into the membership and video tables.

The participants at MovieTime Video are continually carrying out the information processes. These processes are not completed in any order. The staff can move from collecting the data to displaying the information.

a) List and describe the seven (7) **information processes** that are occurring in the MovieTime Video system. [14 marks]

b) In the space provided below draw a **DFD** of the MovieTime Video system. [7 marks]

7. What is a **Gantt chart**? [1 mark]

8. Project plans are constructed and managed using information management software and project management software. Describe the function of these two management software packages. [2 marks]

9. Good communication facilitates the sharing of information and genuine understanding. List and describe the five (5) strategies for effective communication. [10 marks]

10. Describe the role of a systems analyst. [1 mark]

11. It is understood that when talking about databases that **keys** are fields that are used to sort and retrieve information and that they hold a unique item that applies to only one record. Name and describe the 5 (five) type of keys that can be used. [10 marks]

12. What is meant by the term **normalization**? Name and describe the two forms of normalization. [5 marks]

13. Define the term **hypermedia**. [1 mark]

14. When formatting a report in Microsoft Access, the user needs to adopt good design principles. List the principles required for good report design. [7 marks]

15. Explain the difference between a database and a DBMS. [2 marks]

16. Encryption is the process of encoding data. Name and describe the two (2) main types of encryption. [4 marks]

17. What is a **system** flowchart? [1 mark]

18. What is the difference between **direct access** and **sequential access**? [2 marks]

19. Describe a schema. [1 mark]

20. Using the space below, draw a decision tree for searching the Internet. [9 marks]

21. Describe the three (3) parts of a URL. [3 marks]

22. List and describe the three (3) ways in which entities can be related. [6 marks]

23. List at least four (4) factors for creating an easy-to-use operation manual. [4 marks]

24. Using your Group Information System Project as a frame of reference, name and describe at least one method of conversion your group used. Provide an example to explain this. [3 marks]

25. Use the Case Study in Question 6 to answer the following:

a) What is the purpose of MovieTime Video? [1 mark]

b) List the data in the membership table. [6 marks]

26. The storage of data in an Information System can be in one of two forms. Name and describe these two (2) forms of storing data. [4 marks]

27. SQL statements contain keywords that are used to perform a particular task. Complete the table below regarding the keywords used in a simple SQL select statement. [12 marks]

| Keyword | Values | Description | Example |
|---|---|---|---|
| | | The data to be displayed | |
| | | | FROM Students |
| | Search criteria(s) | | |
| ORDER BY | | | |

28. Describe the process of retrieving data using a search engine. [4 marks]

29. A retail organisation keeps data about its employees in a database:

- **Employee**: EmployeeID, LastName, FirstName, Address, Suburb, PostCode and Department
- **Wage**: EmployeeID, WeeklyPay, PayDate and WeeklyTax

a) Describe the results of this SQL QUERY: [2 marks]

```
SELECT FirstName, LastName
FROM Employee, Wage
WHERE Employee.Department = “Sport” AND Wage.WeeklyPay > 1000
ORDER BY LastName
```

b) Construct a SQL query that could be used to retrieve the name of all employees who work in the office and live at either Ryde or Hunters Hill. [4 marks]

**Good Luck!**
☺