

**INSTITUTE OF CHARTERED
ACCOUNTANTS (GHANA)**



**NOVEMBER 2010 EXAMINATIONS
(PROFESSIONAL)**

PART 1

**BUSINESS INFORMATION SYSTEMS
(Paper 1.4)**

TIME ALLOWED:

Reading & Planning	-	15 Minutes
Working	-	3 Hours

SECTION A: COMPULSORY

READ THE FOLLOWING SCENARIO CAREFULLY AND ANSWER THE QUESTION BASED ON THE SCENARIO

SCENARIO

Veetec Institute is an educational institution that has a number of campuses in four (4) cities in the country. Besides the regular students, Veetec Institute also has a substantial number of students who are provided with distance education. These are referred to as off-campus students.

In order to satisfy its students' need for modernity, the Institute has set up two (2) large computer laboratories on each campus. On each campus, all the computers are networked, using the Internet Protocol, and students are able to do their research and other activities using the computers in their labs or their own laptops which, for a token amount of technology fee, are provided with Internet access capabilities.

In addition to the usual study manuals provided, Veetec also subscribes to a number of e-books on-line that students may avail themselves of.

Traditionally, end-of-semester examination questions for Veetec are submitted in soft-copy form by the individual lecturers and stored on the Examination Director's PC, which is also on the network at the main campus.

Veetec has a standing hardware contract with ACL Ltd, under which regular monthly preventive maintenance is carried out on all the computers and accessories.

Things have been moving in the right direction for quite some time but in the last quarter, there have been reports on hardware malfunction, hardware and media pilfering and leakage of examination questions. A high-powered committee set up to investigate these issues has come up with the following findings:

Hardware Malfunction

First, it was discovered that the monthly maintenance had not been thorough, and had not covered all the computers in every lab, after all.

Secondly, students were in the habit of eating in the labs and leaving food particles and other droppings overnight.

Hardware Pilfering

There were occasions when the laboratories were left open and proper supervision was lacking.

Leakage of Education Questions

It was not evident that question papers had been changing hands and so the suspicion was that certain lecturers were either communicating questions to some students in various forms or the Examinations Director's System was being hacked.

QUESTION 1

- (a) On the problem of hardware malfunction, the Committee made certain findings. Explain any **four (4)** measures that could have been taken to prevent or minimise the problems caused by the issues identified.
(16 marks)
- (b) State any **two (2)** other maintenance activities that could have been applied by Veetec Institute.
(4 marks)

(Total: 20 marks)

QUESTION 2

- (a) On the issue of hardware and media pilfering, explain any **three (3)** solutions that could have been applied.
(12 marks)
- (b) Leakage of examination questions is a very serious issue in any system of examinations. Explain any **two (2)** ways by which this could be avoided or minimised.
(8 marks)

(Total: 20 marks)

SECTION B

ANSWER ANY THREE (3) QUESTIONS FROM THIS SECTION

QUESTION 3

(a) Explain the general systems theory.

(12 marks)

(b) In the context of coupling of systems, explain the term 'synergy'.

(8 marks)

(Total: 20 marks)

QUESTION 4

(a) In the context of computer software, explain:

(i) Worm

(ii) Trojan

(8 marks)

(b) Explain any **four (4)** qualities of a good computer program.

(12 marks)

(Total: 20 marks)

QUESTION 5

(a) What is meant by the term 'expert system'?

(4 marks)

(b) With the aid of a suitable diagram, explain how an expert system on taxation may be developed for the Ghana environment.

(16 marks)

(Total: 20 marks)

QUESTION 6

- (a) What is meant by the overlay method of file updating on magnetic disc? (2 marks)
- (b) In the context of a database, explain the terms:
- (i) Secondary Key
 - (ii) Foreign Key
- (6 marks)
- (c) Describe any **four (4)** of the components of a Database Management System (DBMS). (12 marks)
- (Total: 20 marks)

QUESTION 7

Recruitment.com is a recruitment agency that selects suitable applicants using two methods, A and B. Method A costs the agency GHS100 per applicant and method B GHS150 per applicant.

Using method A, there is a 0.4 chance of successfully taking the applicant through any of two training programmes, T1 and T2.

While T1 costs the agency GHS400 per trainee T2 cost GHS300 per trainee. There is a 0.7 chance of candidate success with T1 and 0.5 with T2.

Candidates who are successful under program T1 are then available for release unto the job market, each fetching the agency GHS5,000. The equivalent fee for a successful candidate under programme T2 is GHS4,000.

Selecting method B ensures a 0.3 chance of successfully taking the applicant through the training programmes T1, and T2.

There is a 0.8 chance of candidates on programme T1 being successfully prepared for the job market, where they will fetch the agency GHS6,000 per person. There is a 0.4 chance of candidate success on T2. Successful candidates fetch the agency GHS5,000 per person.

Under either training programme, the unsuccessful candidates are released onto the job market, and offered for GHS3,000 per person.

Required:

Using a decision tree, determine which selection method Recruitment.com should adopt and, for the method, which training programme should be embarked upon.

20 marks