



FACULTY OF SCIENCE

ACADEMY OF COMPUTER SCIENCE AND SOFTWARE ENGINEERING

MODULE	IFM02B2/IFM2B10 INFORMATICS 2B
CAMPUS	AUCKLAND PARK CAMPUS (APK)
EXAM	SSA EXAM 2021

DATE: 2021-11-30

SESSION: 15:00

ASSESOR(S):

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INTERNAL MODERATOR:

W.S. LEUNG

DURATION: 120 MINUTES

MARKS: 100

Please read the following instructions carefully:

1. An additional 60 minutes submission time will be allowed.
2. Answer **all** questions.
3. Answer each question in its entirety before moving on to the next.
4. **Submit** your answers in a **single PDF document**.
5. This paper consists of 5 pages, excluding this cover page.

QUESTION 1

You have just been hired for your first job at a grocery store that wants to focus more on deliveries to increase sales. In this job, you are required to analyse the company's business processes and help plan their e-commerce strategy.

Using the knowledge gained during this module, answer the following questions:

- (a) List two activities and two transactions that employees would regularly do at a grocery store. Clearly state which are transactions. [4]
- (b) What category of e-commerce would this company fall under? [1]
- (c) **Merchandising** is an important part of many businesses sales' strategy, however, it can be difficult to apply to online stores. [5]
 - i. Define merchandising.
 - ii. How do brick and mortar grocery stores use merchandising to increase sales?
 - iii. How can a grocery store achieve the same effect on their Web site?
- (d) Do groceries have an attractive **shipping profile**? Motivate your answer. [2]
- (e) Are groceries well suited electronic commerce, traditional commerce or a combination of the two? Motivate your answer. [2]

Total: 14

QUESTION 2

- (a) The figure below shows assessment data marked up using HTML tags. Mark up the data using XML instead. [8]

```
1 <html>
2   <head>
3     <title>Assessments</title>
4   </head>
5   <body>
6     <h1>Assessments</h1>
7
8     <h2>AssessmentName</h2>
9     <h3>Date</h3>
10    <h4>Scope</h4>
11    <h5>TotalMarks</h5>
12
13    <h2>Semester Test 1</h2>
14    <h3>2021-08-26</h3>
15    <h4>Chapter 1-4</h4>
16    <h5>75</h5>
17
18    <h2>Semester Test 2</h2>
19    <h3>2021-09-09</h3>
20    <h4>All practical content</h4>
21    <h5>75</h5>
22
23    <h2>Examination</h2>
24    <h3>2021-11-02</h3>
25    <h4>All chapters</h4>
26    <h5>100</h5>
```

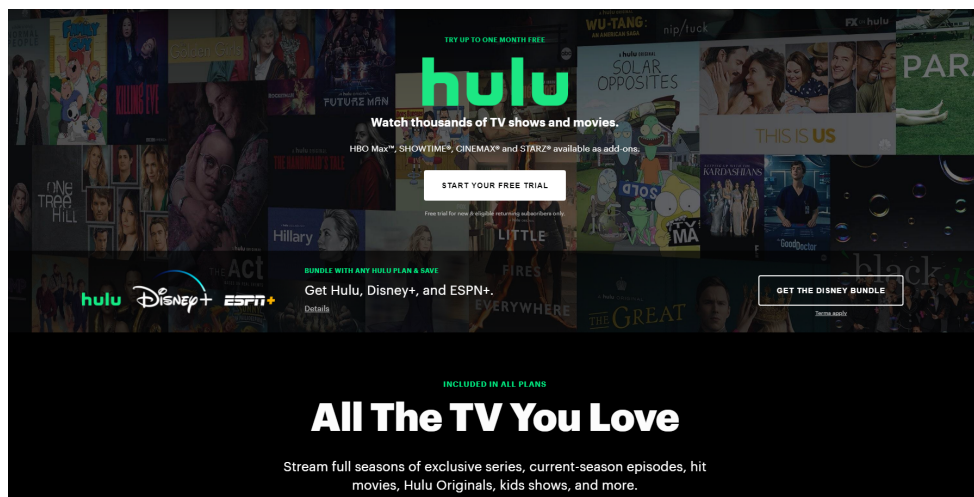
```
27 </body>
28 </html>
```

- (b) Give two Internet connection option that would be suitable for a small business located in a rural area. [2]
- (c) A business spends R100 000 on an advertising campaign to attract customers to its new Web site. The advertisement is viewed by 50 000 people, 2000 of whom visit the Web site. 1000 make a purchase, and 200 become repeat shoppers. Calculate the following metrics: [6]
- i. Acquisition cost
 - ii. Conversion rate
 - iii. Retention rate

Total: 16

QUESTION 3

- (a) Consider the Web site in the figure below. Determine the revenue model used and provide reasons for your answer. [2]



- (b) Discuss the revenue model chosen in (a). [4]
- (c) Name **two forms of economic organisation** that the a video streaming platform could implement for content creation (i.e. creating tv shows and movies). Briefly discuss how they would implement each option. [6]
- (d) Describe the three parts of an HTTP request message. [3]

Total: 15

QUESTION 4

- (a) What is a backdoor, and why do programmers build them? [2]
- (b) Give an example of an integrity violation. [2]
- (c) Use the risk management model to decide on the appropriate action for the following threats to a car. [4]
- i. Theft
 - ii. Accident
 - iii. Equipment failure
 - iv. Wear and tear
- (d) Establish a security policy for a grocery store. [6]
- (e) The value of Bitcoin has fluctuated widely since its inception. Discuss the reasons why a cryptocurrency might fluctuate more than most other currencies. [3]
- (f) Explain how a phishing attack could be used to perpetrate identity theft. [3]

Total: 20

QUESTION 5

SimplyTech is a software development company in Johannesburg made up of 50 employees (including developers, designers, analysts and project managers). The company provides its services at relatively lower costs than its competitors and promises to deliver work of higher quality than some of its competition in the industry. They started a marketing campaign to promote their services to small-to-medium enterprises in the city. LetsShopMzansi (LSM), a Start-Up online retail company, decided to seek the services of SimplyTech. LSM approached SimplyTech to develop their entire group-shopping website. Among many requirements, the website maintained a large product catalogue, had to record personal information of its clients (e.g. full names, ID numbers, phone numbers, email addresses, physical addresses, credit card details, purchase information, etc.) and process financial transactions when clients pay for the items they would like to get from LSM. SimplyTech would be in charge of developing the entire system and would thus have access to all of LSM's data and business model.

In order to convince LSM that SimplyTech would deliver on all their expectations and go beyond the call of duty, the project manager promised LSM's IT Manager that the system would be completed within 30 working days, that it would have a unique design, would be absolutely secure and reliable to LSM's clients.

After having made all of these promises, the project manager called you (the lead developer at SimplyTech) to discuss the development of the system. After having told you of all of the promises, the project manager ordered you to make sure the system gets developed quickly and that to save time you should do the following:

- Copy the design of a similar company based in the United States,
- Not use any data encryption techniques to keep personal information secure since that would take so much time,

- Not get accredited security digital certificates for the website as that would reduce the amount of profit that SimplyTech will make on the project,
- Hard code any part of the system just so it is much faster to deliver to the client,
- Not place any comments in the code to force LSM to always go back to SimplyTech if ever they need an update, and
- Leave backdoors on the system's server just so SimplyTech keeps access rights to the system after having sold it to LSM.

The project manager's reasoning was that the marketing campaign was very successful, and he had already committed to the same promises to 50 other clients, so you as the lead developer had no choice but to do it.

- (a) As an IT professional, would you carry out your boss's instructions? Justify your answer by referring to any professional code of ethics that you have learned during the semester. Include in your discussion if you think IT professionals need to have a code of ethics and the reasons for your choice. [10]

Total: 10

QUESTION 6

- (a) Name three (3) ways of maintaining state in an ASP.Net Web Application. [3]
- (b) Define business intelligence and why it is an important part of running a business, along with examples of where it would apply. [4]
- (c) Explain in detail how you would implement a persistent shopping cart in a ASP.Net Web Application. [5]
- (d) Name the two (2) page extensions that make up a webpage in an ASP.Net Web Application. [2]
- (e) Find and correct the errors in the following code. [11]

```

1
2 CREATE TABLE [dbo].[SystemUser] (
3     [RevId]      INT          IDENTITY (1, 1) NOT NULL,
4     [UserId]     INT          NOT NULL,
5     [ProdId]     INT          NOT NULL,
6     [RevDate]    DATE         NOT NULL,
7     [RevStars]   INT          NOT NULL,
8     [Review]     VARCHAR (MAX) NOT NULL,
9     PRIMARY KEY CLUSTERED ([RevId] ASC)
10 );
11
12 public bool EditReview(Review rev)
13 {
14     var Rev = (from r in db.ProdReview
15                 where r.RevId.Equals(rev.Review) &&
16                       r.Active.Equals(rev.Active)
17                 select r).FirstOrDefault();
18
19     foreach (Review r in Rev)
20     {
21         Rev.UserId = rev.UserId,

```

```
22     Rev.ProdId = rev.ProdId ,
23     Rev.RevDate = rev.RevDate ,
24     Rev.RevStars = rev.RevStars ,
25     Rev.Review = rev.Review ,
26 }
27
28 db.ProdReviews.InsertOnSubmit(Rev);
29 Try
30 {
31     db.SubmitChanges();
32     return Rev;
33 }
34 catch (IndexOutOfRangeException ex)
35 {
36     ex.GetBaseException();
37     return null;
38 }
39 }
```

Total: 25

— End of paper —