



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2022 – 3rd Year Examination – Semester 6

IT6506 – e-Business Technologies
Structured Question Paper

(TWO HOURS)

To be completed by the candidate

BIT Examination Index No:

Important Instructions:

- The duration of the paper is **2 (Two) hours**.
- The medium of instruction and questions is English.
- This paper has **4 questions** and **12 pages**.
- **Answer all questions.** All questions carry **equal** marks.
- **Write your answers** in English using the space provided **in this question paper**.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.
If a page is not printed, please inform the supervisor immediately.
- All kinds of electronic devices, including calculators are **not** allowed.
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Questions Answered

Indicate by a cross (x), (e.g. ☐) the numbers of the questions answered.

To be completed by the candidate by marking a cross (x).	Question numbers			
	1	2	3	4
To be completed by the examiners:				

- 1) Read the following case study and answer the questions given below.

After the Covid 19 Pandemic and the lockdowns from time to time, stress and anxiety associated with young people have increased over the years in the world as well as in Sri Lanka. Research has shown that suicides and stress related illnesses such as depression have increased to an alarming state in the country. Youth have been identified as the main group who are mostly affected. An IT department of a state sector university has decided to use electronic technologies to find an eCounselling solution to help the counsellors to address student issues and to increase the number of students discussing their matters with the counsellors.

100% of their undergraduates have access to a computer and Internet within the university premises. Over 70% have access to computers in their homes/boarding places. Almost all students use at least basic mobile phones, and around 80% use smart phones. Students are used to social networking through these devices, although they do not use them to discuss problems openly due to privacy, confidentiality, and social and ethical issues.

Students have problems related to health, boarding, finances, domestic issues, relationships, academic matters, social matters, personal matters, friends' matters, exam stress, etc. Some issues need to be addressed immediately with urgency, whereas some need to be taken up at an official meeting for collective decision-making. Records of the progress of problems need to be maintained in a confidential manner, without breaking the privacy of the cases.

Trust needs to be built between the students, the counsellors, the student union, the academics, and the administration. At the same time, students should be motivated towards positive thinking and getting involved in social and charity services to help each other and those in need in their own university as well as the society. This forum should also support activities such as helping schools in deprived areas. The alumni association of the university is interested in helping out the undergrads in need of financial and professional assistance.

The objective of the eCounselling service is to provide convenient, accessible, and confidential mental health support to individuals who may face barriers to traditional in-person counselling, such as geographical limitations, time constraints, or personal preferences.

- (a) Carry Out a Situational Analysis to identify the Strengths, Weaknesses, Opportunities, and Threats of the proposed eCounseling Solution for the above described situation. Provide your answer in point form.

(10 marks)

ANSWER IN THIS BOX

Strengths

- Availability of a Counsellor 24/7
- Students used to online forums/discussions. So, eCounseling is a positive path.
- Having access to a Laptop (70%) and Smartphone (80%) or a normal phone
- Social Networking being a normal mechanism for youth now.

- Resolving common issues related to relationships, health, boarding facilities, immediately
- Can Encourage Positive thinking via messages and quotes
- Convenient and Accessible solution for students at any time
- No geographic limitations for students to access counselling

Weaknesses

- Increased Stress and Anxiety and an adult not being there physically like a mom
- No face to face contact with the student and the counsellor at the initial stage
- Online discussion of personal problems which we are not used to
- Trust issues with the eCounseling system
- Confidentiality to be strictly maintained with proper access rights
- Privacy, Confidentiality and Ethical issues on having sensitive data in a database is vulnerable

Opportunities

- Connecting all counselling related services
- Connecting Student Union, Counsellors, Academics, Administration, Psychologists, etc to address more common problems
- Promoting feel-good activities in remote areas
- Getting an Active support from the Alumni to resolve financial issues of students

Threats

- Increasing rate of suicide which may have a threat on eCounseling
- Finding good counsellors to work on a Roster 24/7
- Hacking in to the system where the privacy issues are violated and confidentiality is breached
- Maintaining privacy and confidentiality when many counsellors and persons have access to the system where most confidential and sensitive information is stored.

[20 factors * 1/2 mark = 10 Marks]

- (b) Briefly discuss the advantages and disadvantages of using an eBusiness Solution or an Internet-based solution for the above situation. In addition, Write down eight (8) important features/functionalities to be included in the system.

(10 Marks)

ANSWER IN THIS BOX

Advantages

- **Accessibility:** It eliminates geographical barriers, allowing individuals to receive counselling services from anywhere, regardless of their location
- **Convenience and Flexibility:** eCounselling provides convenience and flexibility in scheduling eCounseling sessions
- **Anonymity and Reduced Stigma:** Some people may feel more comfortable seeking counseling online due to the anonymity it provides
- **Cost-Effective:** eCounseling is more cost-effective compared to in-person counseling.
- **Continuity of Care:** eCounseling systems can facilitate better continuity of care.
- **Crisis Support and Immediate Assistance:** In situations where immediate assistance is required, eCounseling systems can offer crisis support through chat or video calls.

Disadvantages

- **Technical Issues and Connectivity:** eCounseling relies heavily on technology and internet connectivity.
- **Lack of Non-Verbal Cues:** In online counseling, non-verbal cues, such as body language and facial expressions, may be less visible
- **Limited Physical Presence and Touch:** In certain therapeutic modalities, physical presence and touch may be important elements of the counseling
- **Security and Privacy Concerns:** While eCounseling platforms prioritize data security and confidentiality, there is always a potential risk
- **Ethical and Legal Considerations:** eCounseling brings unique ethical and legal considerations, such as jurisdictional issues, etc.

Important Features/Functionalities

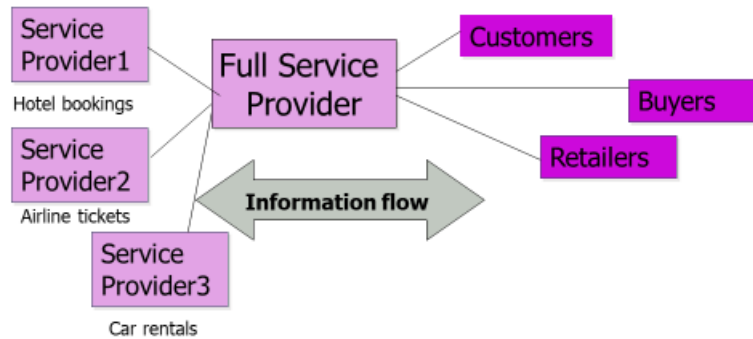
- Secure Communication Channels
- Appointment Scheduling
- Video Conferencing
- Text-based Messaging
- File Sharing and Document Management
- Secure Data Storage
- Payment Processing for Counsellors
- Self-Help Resources
- Progress Tracking and Reporting
- Mobile Accessibility
- Self -Assessment of Stress

[Advantages & Disadvantages - 6 factors * 1 mark = 6 Marks]

Features/Functionalities - 8 factors * 1/2 mark = 4 Marks]

- (c) Propose the most suitable eBusiness model for this eCounselling solution. Illustrate and justify your answer.

(5 Marks)

ANSWER IN THIS BOX**5.3 Full-Service Provider eBusiness Model**

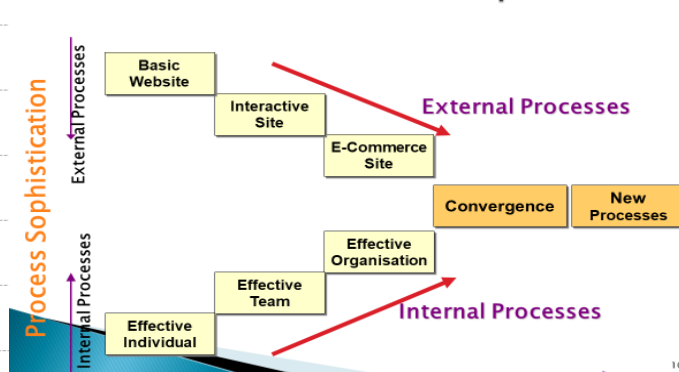
Connecting the following entities and services to provide a full service to the students who are stressed

- Student Union
- Counsellors
- Academics
- Administration
- Psychologists
- Donors
- Boarding Places
- Loan Facility providers, etc

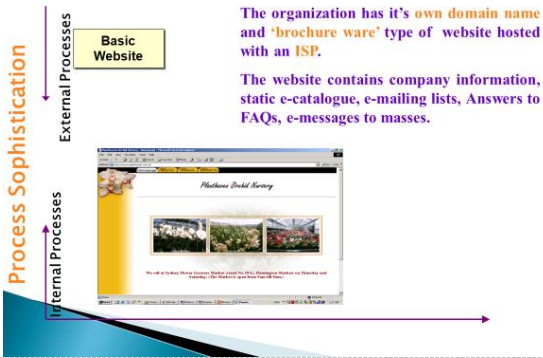
[Illustration- 3 Marks + Justification - 2 Marks = 5 Marks]

- 2) (a) An organisation has to go through a proper step by step process to transform in to an eBusiness. Illustrate and briefly explain the eBusiness Roadmap and the stages.

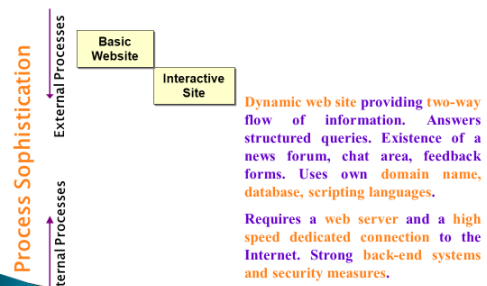
(12 marks)

ANSWER IN THIS BOX**E-Business Road Map**

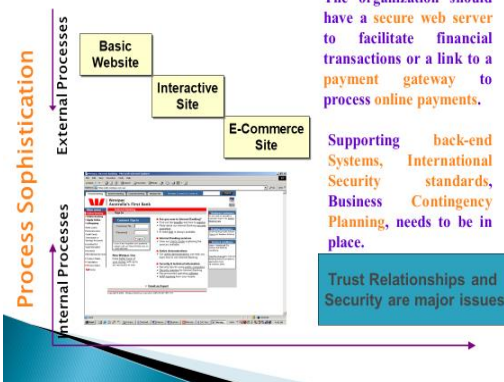
Basic Web Site



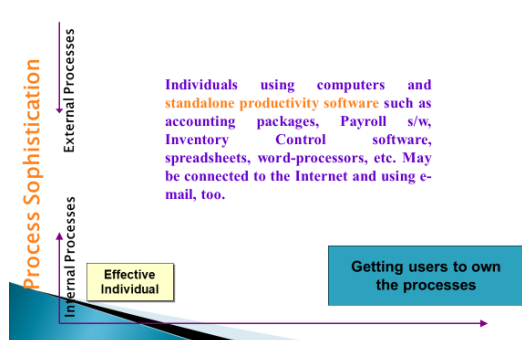
Interactive Site



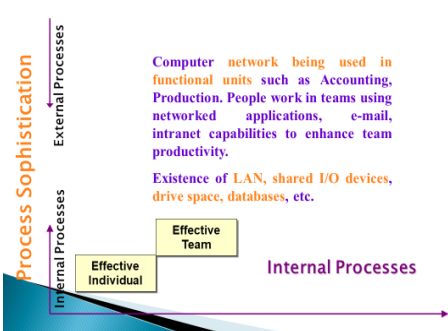
eCommerce Site



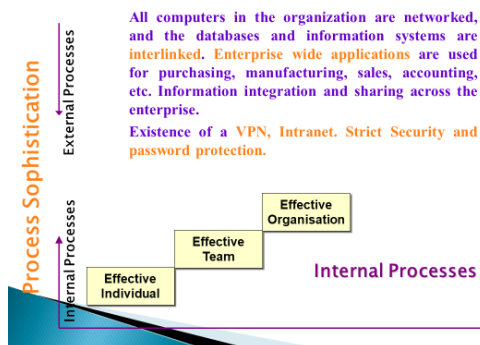
Effective Individual



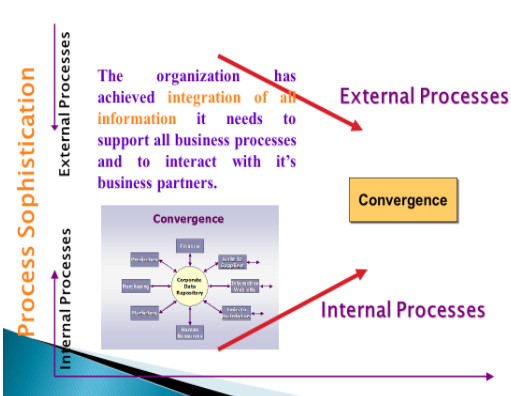
Effective Team



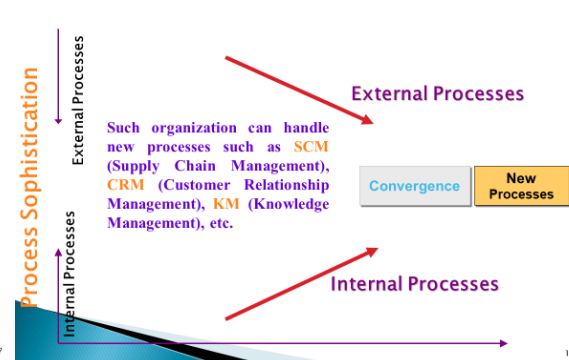
Effective Organisation



Convergence



New Processes



[Illustration- 4 Marks + Each Stage – 8 Marks = 12 Marks]

- b) Product digitization has made a revolutionary change in eBusiness. Briefly explain five (5) products that can be digitized to bring revenue to the business and five (5) products or services that cannot be digitized.

(5 Marks)

ANSWER IN THIS BOX

Can be Digitised	Cannot be Digitised
<ul style="list-style-type: none"> • Photography – Digital photoes • Money – eBanking and eTransactions • Music in electronic form • Newspapers in the form or ePapers • Education online • Buying and selling online <p>Many more of these.....</p>	<ul style="list-style-type: none"> • Swimming • Embalming • Makeup artistry • Hair Cutting • Physical Travelling • Real Musical shows • Sports and Athletic activities • Ballerina and dancing <p>Many more of these.....</p>

[10 factors of both – 10 * 1/2 Marks = 5 Marks]

- (c) Are the following statements TRUE or FALSE? Justify each of your answers using an example.

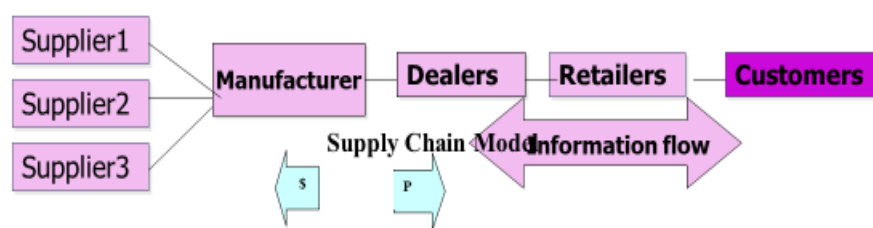
- When the 'Bargaining power of Suppliers' are high in an industry, a company could use the 'Supply Chain eBusiness Model' to help the company to negate the force.
- When the 'New Entrants to the industry' are high and the 'Rivalry among competitors' are also high, a company can easily use the 'digital value hub eBusiness Model' to lower the industry competition.

(8 Marks)

ANSWER IN THIS BOX(i) **TRUE**

When there is high bargaining power, to negate that force, they get the suppliers also involved in their mainstream value chain.

5.2 Supply Chain eBusiness Model



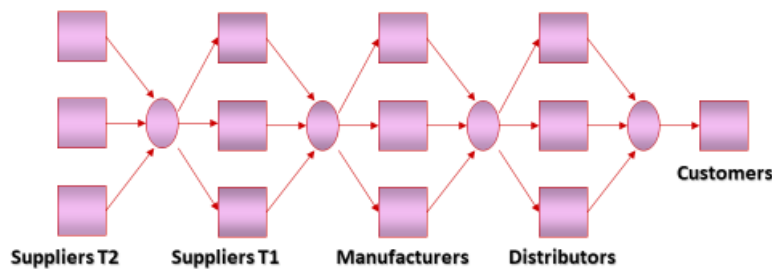
Some benefits are as follows:

- Virtual Value Chain - Information flow across the supply chain
- All parties have a strong electronic bond and backend systems
- Some companies do/don't own any part of the value chain
- Access to information about all from supplier/manufacturer to the customer
- Improved supply chain visibility, agility, and responsiveness
- Enhanced efficiency and accuracy in order processing and fulfillment
- Streamlined procurement processes

(ii) **FALSE**

When the rivalry among competitors are high, the Digital Value Hub eBusiness model cannot be used as it needs a lot of TRUST and less rivalry.

5.5 Digital Value Hub - eRegion



Some issues and benefits are as follows:

- Strong Trust among the collaborative companies which is not there when there is high rivalry among them.
- Strong B2B partnerships and collaborations between nodes in the supply chain
- The industry competitor's willingness to work together is not present when there is rivalry.
- Trust relationships among the competitors in an industry
- A strong force against foreign competition
- Increased collaboration and knowledge sharing within the ecosystem.
- Accelerated innovation and co-creation of new products, services, and business models.

[2 answers of TRUE/FALSE with justifications - 2 * 4 Marks = 8 Marks]

3)

- (a) Referring to Uber application, briefly describe what “Surge Pricing” is.

(4 marks)

ANSWER IN THIS BOX

An algorithm to equilibrate supply and demand. The algorithm calculates and assigns a “multiplier” that multiplies the standard fare to derive the “surged” fare

[2 marks * 2]

- (b) During COVID 19 pandemic, most of the educational institutes had to switch to online teaching. List and briefly explain three (3) advantages of online education.

(6 marks)

ANSWER IN THIS BOX

The flexibility of the schedules -Students can view materials at any time convenient for them

Low cost compared to traditional learning -Costs like textbooks, commuting, and accommodation are reduced

The learning environment is flexible and more comfortable -Students can learn from their homes, coffee shops, co-working places, etc.

Geographic flexibility - Students can enroll in a course offered by an institute in a different region/country.

[(List 1 mark + explain 1 mark) *3 = 6 marks]

- (c) Twitter supports several types of advertisements (ads). Describe the following ad types that are found on Twitter.

- i. Follower Ads
- ii. Twitter Amplify
- iii. Twitter Takeover

(6 marks)

ANSWER IN THIS BOX

Follower Ads -Designed to increase visibility. Can be used to promote an account to a targeted audience. Used to build awareness and increase followers

Twitter Amplify - Allows advertisers to show their ads with video content. There are 2 types of “amplify ads”. Amplify Pre-roll which allows advertisers to select the content categories where their video ad will appear and Amplify Sponsorships which allows advertisers a 1 to 1 pairing with a single publisher

Twitter Takeover - Places ads at the top of Timeline or Explore tabs. Most suitable for mass-reach campaigns There are two types. Timeline Takeover which Places the ad as the first ad of the day at the top. Trend Takeover / Trend

Takeover+ which Places the ad alongside what is trending

[2 marks x 3 = 6 marks]

Continued...

- (d) Social Influence theory explains how individuals' thoughts, feelings, and behaviours are influenced by other people. Describe how you can leverage the following principles in Social Influence Theory in digital marketing with three (3) examples per each.

- i. Commitment and Consistency
- ii. Liking
- iii. Scarcity

(9 marks)

ANSWER IN THIS BOX**Commitment and consistency**

- **Opt-in and subscription-based marketing** - When the users are voluntarily involved with the product they are more likely to remain loyal
- **Interactive content and quizzes** - When the users interact with the content, they commit to the brand
- **Loyalty programs and rewards** - By rewarding the users' commitment, they'll be more likely to stay consistent with the brand

Liking

- **Collaborate with influencers** - Influencers are already liked by people
- **Share behind-the-scenes content** - It will make the content creation process more relatable to the customers
- **Use relatable and likable brand ambassadors** - Appoint well-liked people (actors/actresses/athletes) as brand ambassadors

Scarcity

- **Limited stock or availability** - Highlight the limited quantity of a product or service to create a sense of scarcity.
- **Countdown timers or limited-time offers** - Use countdown timers or time-limited offers to create a sense of urgency.
- **Pre-orders or waiting lists** - Allow customers to pre-order products or join waiting lists to create anticipation

*[9 examples * 1 mark]*

- 4)
(a) Briefly describe what supply chain management is.

(4 marks)

ANSWER IN THIS BOX

- Supply chain management is the process of planning, organizing, implementing, and controlling the operations of the supply chain as efficiently as possible.
- Supply chain management involves the coordination of all supply activities of an organization from its suppliers and delivery of products to its customers.
- Supply chain management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management activities.

*[4 marks for a complete explanation]**Continued...*

- (b) 5Ms is a framework that can be used by a company to review the implementation of its social CRM. List and briefly describe the 5Ms.

(5 marks)

ANSWER IN THIS BOX

- **Monitoring**
 - Reviewing the method of social listening and deriving insights from these.
- **Mapping**
 - Finding relationships between individual customers or grouped segments using different social platforms
- **Management**
 - Processes for implementing and reviewing strategy. More report detail on campaign management would be helpful here.
- **Middleware.**
 - The software tools and APIs are used to monitor and gather insight.
- **Measurement**
 - The measures used to assess social marketing effectiveness and ROI.

*[(List 0.5 marks + Explain 0.5 marks) *5]*

- (c) Briefly describe what is SEO and how you can use the following to increase the SEO score of your site.

- i. Keyword Density
- ii. Meta- tags

(6 marks)

ANSWER IN THIS BOX

Search Engine Optimization is a structured approach used to improve the position of a company or its products in search engine natural or organic results listings for selected key phrases.

Keyword Density

The number of times the key phrase is repeated in the text of the web page is a key factor in determining the position of the site for a key phrase. A page with higher keyword density will normally rank higher in a search result. Therefore you can increase the number of times the key word is used. Use it as a heading. Use it on the beginning of the text. Use it as an anchor text.

Continued...

Meta Tags

Meta-tags are snippets of code embedded in the HTML source file of a webpage, added by web page creators. Search engine spiders or robots read these meta-tags, even though they are hidden from users, as part of indexing the webpage. You can set these meta tags, specially keywords meta tag and description meta tag to increase your SEO

[2 Marks * 3]

- (d) Fiverr is a popular marketplace for digital services. Describe three (3) advantages and two (2) disadvantages of Fiverr marketplace for freelancers.

(10 marks)

ANSWER IN THIS BOX**Advantages of Fiverr for freelancers**

Global Exposure -As Fiverr is used by clients around the world, freelancers will be able to showcase their services to a global audience

Diverse Range of Clients -Fiverr is used by clients world wide with different requirements and budgets.

Flexibility and Control -Freelancers will be able to set their own prices and customized gig packages. They can define their own schedule.

Portfolio Building - When a service is delivered, the freelancer has the opportunity add the final product to their portfolio.

Disadvantages of Fiverr for Freelancers

High Competition - Due to huge number of freelancers providing similar services the competition in the market is high and it's difficult to acquire clients as a new freelance

Low Pricing Expectations - Due to high competition, freelancers tend to keep the prices low to attract clients. Therefore, clients expect low price from all the freelancers.

Service Oversaturation -Some services are provided by large number of freelancers. The demand is lower than the supply.

[2 marks each for describing 3 advantages = 6 marks]

[2 marks each for describing 2 disadvantages = 4 marks]

[Total 10 Marks]
