

**MILITARY COLLEGE OF SIGNALS**  
**FINAL EXAMS**  
**COURSE: BESE-12**  
**WEB ENGINEERING**

FM: Dr. Awais Majeed

Marks: 50

Time: 150 minutes

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**Instructions:**

1. Attempt all questions.
  2. Read each question carefully. Avoid unnecessary details. Each question has different marks.
  3. For modelling/analysis questions write down your assumptions clearly.
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**Question # 1 [10]**

**Give brief and to the point answers to the following questions [2 marks each]**

- a) Why Integration testing is performed?
- b) What rules should be followed when designing newsletters?
- c) What is hypertext and hypermedia?
- d) Which rules should be followed in text layout to enhance usability?
- e) Define the currency of the content?

**Question # 2 [5+3]**

**Part (a)**

**5**

Consider you are part of an IT department of a fashion retailer which offers affordable & trendy clothes to the consumers. Your company also sells its product through its online shop. Fashion industry is very dynamic & pace of change is very fast. Designers at the company's headquarters in Milan roll out new fashion lines fortnightly. These are ready for shop floors after 6 weeks from its production facilities in Pakistan, China, India & Bangladesh. On average new fashion lines are available after every 6 weeks with special lines for each season i.e., fall/winter collection and spring/summer collection. These changes need to be depicted in the e-Catalogues available on the online shops. Moreover, to promote new product lines, reduce inventory levels and get rid of old stock company sells its products at reduced costs at the start/end of seasons and special occasions.

1. What is the best possible way to reach out to your existing and new customers to inform them of new offers and products available in-store and online?
2. What will be the frequency of your advertising technique?
3. What kind of information will you provide to the customers?

**Part (b)**

**3**

e-Commerce sites tend to provide services to its customers based on their requirements and their shopping trends. What technique can help us to analyse this behaviour? Explain.

### Question # 3 [5+3]

#### Part (a)

5

How can you relate the three dimensions of testing i.e., test objects, quality characteristics and phases of development lifecycle in the context of Web applications? Give a brief description of each dimension.

#### Part (b)

3

Why it is important to perform Link testing? What role can a Hypertext Model play in this regards?

### Question # 4 [3+3+2]

#### Part (a)

3

What techniques can be used to improve the visibility of a web site on search engine results?

#### Part (b)

3

Briefly explain different issues that have to be considered while design Web applications for better usability.

#### Part (c)

2

Visually impaired persons have difficulty in viewing different objects and they can not differentiate between different objects placed very close to each other. How can you support these people to enhance their interaction efficiency?

### Question # 5 [5+3]

#### Part (a)

5

Generate a valid XML document based on the given DTD containing information of 1 person.

```
<!ELEMENT Address_list (Information+)>
<!ELEMENT Information (Full_name, Address*, Telephone+, Nationality?)>
<!ELEMENT Full_name (First_name, Middle_name*, Last_name)>
<!ELEMENT First_name (#PCDATA)>
<!ELEMENT Middle_name (#PCDATA)>
<!ELEMENT Last_name (#PCDATA)>
<!ELEMENT Address (Street+, City, Country)>
    <!ELEMENT Street (#PCDATA)>
    <!ELEMENT City (#PCDATA)>
    <!ELEMENT Country (#PCDATA)>
<!ELEMENT Telephone (#PCDATA)>
<!ATTLIST Telephone
    type (Home|Work|Mobile) #IMPLIED>
<!ELEMENT Nationality (#PCDATA)>
```

### Question 5 Part (b)

3

Discuss various mechanism that can be helpful in session tracking of Web users.

### Question # 6 [4+4]

#### Part (a)

4

Develop a **hypertext access model** for the screenshot of a Web page given below. Underlined text represent hyperlinks.

In the given scenario (lets name it bookstore.html), the links in the left pane categorises the books in to different categories (books on history, arts etc.). Thus each link opens a page showing a list of books (shown as links) in a certain category. From this particular list, a user can then click on a particular link and a new page (bookdetail.html) will open giving full details of the book (price, author, description etc.) which will be displayed in the Main section of the page. Similary, the links given in the "What' new this Week" and "Best Sellers" also open the page bookdetail.html with the information about that particular book. There is an author page as well listing all the books by a particular author.

**Auraq - Online book store**

### What's new this Week

**Departments**

- [History](#)
- [Art](#)
- [Sciences](#)
- [Literature](#)
- [Religion](#)

- [Heirs of the Prophet](#) by [Barnaby Rogerson.](#)
- [Researching Information systems and computing](#) by [Briony J. Oates.](#)

### Best Sellers

- [The laws of software process](#) by [Philip J. Armour.](#)

#### Part (b)

4

Give a description of the challenges faced by Web project manager due to:

- The apparent simplicity of Web applications
- Compatibility issues

\*\*\*\*\* GOOD LUCK ☺ \*\*\*\*\*