



Q1: Choose the correct answer

- [1]. Which of the following activities of a Generic Process framework provides a feedback report?
A) Communication B) Planning C) Modeling & Construction D) Deployment
- [2]. What is the major advantage of using Incremental Model?
A) Customer can respond to each increment
B) Easier to test and debug
C) It is used when there is a need to get a product to the market early
D) Easier to test and debug & It is used when there is a need to get a product to the market early
- [3]. Which one of the following is not a fundamental activity for software processes in software engineering?
A) Software Verification B) Software Validation C) Software design and implementation D) Software evolution
- [4]. Which one of the following is not a step of requirement engineering?
A) elicitation B) design C) analysis D) documentation
- [5]. The user system requirements are the parts of which document?
A) SDD B) SRS C) DDD D) SRD
- [6]. Which is one of the most important stakeholder from the following ?
A) Entry level personnel B) Middle level stakeholder C) Managers D) Users of the software
- [7]. Which one of the following is a functional requirement?
A) Maintainability B) Portability C) Robustness D) None of the mentioned
- [8]. "Consider a system where, a heat sensor detects an intrusion and alerts the security company." What kind of a requirement the system is providing?
A) Functional B) Non-Functional C) Known Requirement D) None of the mentioned
- [9]. What is the first step of requirement elicitation?
A) Identifying Stakeholder B) Listing out Requirements C) Requirements Gathering D) All of the mentioned

- [10]. **Why is Requirements Elicitation a difficult task?**
 A) Problem of scope B) Problem of understanding C) Problem of volatility D) All of the mentioned
- [11]. **Which of the following property does not correspond to a good Software Requirements Specification (SRS)?**
 A) Verifiable B) Ambiguous C) Complete D) Traceable
- [12]. **The Unified Modeling Language (UML) has become an effective standard for software modelling. How many different notations does it have?**
 A) Three B) Four C) Six D) Nine
- [13]. **Which model in system modelling depicts the dynamic behavior of the system?**
 A) Context Model B) Behavioral Model C) Data Model D) Object Model
- [14]. **Which model in system modelling depicts the static nature of the system?**
 A) Behavioral Model B) Context Model C) Data Model D) Structural Model
- [15]. _____ allows us to infer that different members of classes have some common characteristics.
 A) Realization B) Aggregation C) Generalization D) dependency
- [16]. _____ & _____ diagrams of UML represent Interaction modeling.
 A) Use Case, Sequence B) Class, Object C) Activity, State Chart D) All of the mentioned
- [17]. **Software evolution does not comprise:**
 A) Development activities B) Negotiating with client C) Maintenance activities D) Re-engineering activities
- [18]. **Aggregation represents _____.**
 A) is_a relationship B) part_of relationship C) composed_of relationship D) none of the mentioned
- [19]. **The process of developing a software product using software engineering principles and methods is referred to as, _____**
 A) Software myths B) Scientific Product C) Software Evolution D) none of the mentioned
- [20]. **Activities and action taken on the data that are represented by Circle or Round-edged Rectangles are called, _____.**
 A) Process B) Data storage C) Data flow D) Entities
- [21]. **The feature of the object oriented paradigm which helps code reuse is _____.**
 A) Object B) Class C) Inheritance D) Aggregation
- [22]. **In the requirement analysis which model depicts the information domain for the problem?**
 A) Data models B) Class-Oriented models C) Scenario-based models D) Flow-oriented models

- [23]. **Abbreviate the term SRS**
- A) Software Requirement Specification B) Software Refining Solution C) Software Resource Source D) none of the mentioned
- [24]. **The process to gather the software requirements from Client, Analyze and Document is known as _____.**
- A) Requirement engineering process
 B) Requirement elicitation process
 C) User interface requirements
 D) Software system analyst
- [25]. **Which tools are used to represent the system components, data and control flow among various software components and a system structure in a graphical form?**
- A) Process modeling tools B) . Project management tools C) Diagram tools D) Documentation tools
- [26]. **What is the designers may like to have list of all functional and non-functional requirements of GUI that can be taken from user and their existing software solution?**
- A) User analysis B) Task analysis C) GUI requirement gathering D) GUI design & implementation
- [27]. **Software Requirement Specification should come up with following features:**
- A) User Requirements are expressed in natural language.
 B) Technical requirements are expressed in structured language, which is used inside the organization.
 C) Design description should be written in Pseudo code.
 D) All mentioned
- [28]. **System Analysts have which of these following responsibilities?**
- A) Analyzing and understanding requirements of intended software
 B) Understanding how the project will contribute in the organization objectives
 C) Identify sources of requirement
 D) All mentioned
- [29]. **Grouping of all functionally related elements is known as _____.**
- A) Cohesion B) Coupling C) Both A & B D) None of the mentioned
- [30]. **The ability to encourage the technical people to produce their best ability is known as _____.**
- A) Organization B) Motivation C) Ideas or innovation D) None of the mentioned
- [31]. **Which of the following is/are considered stakeholder in the software process?**
- A) Customers B) End-users C) Project managers D) all the mentioned

- [32]. The process to gather the software requirements from Client, Analyze and Document is known as _____.
- A) Requirement engineering process B) Requirement elicitation process C) User interface requirements D) Software system analyst
- [33]. First level of prototype is evaluated by _____.
- A) Developer B) Tester C) User D) System Analyst
- [34]. Which of the items listed below is not one of the software engineering layers?
- A) Process B) Manufacturing C) Methods D) Tools
- [35]. What is the main aim of Software engineering?
- A) Reliable software B) Cost effective software C) Reliable and cost-effective software D) None of the mentioned
- [36]. For the best Software model suitable for the project, in which of the phase the developers decide a roadmap for project plan?
- A) Software Design B) System Analysis C) Coding D) Testing
- [37]. In Software validation, requirements can be checked against following conditions:
- A) If they can be practically implemented
 B) If they are valid and as per functionality and domain of software
 C) If there are any ambiguities
 D) all the mentioned
- [38]. In OOD, the attributes (data variables) and methods(operation on the data) are bundled together is called. _____
- A) Classes B) Objects C) Encapsulation D) Inheritance
- [39]. Which design defines the logical structure of each module and their interfaces that is used to communicate with other modules?
- A) High-level designs B) Architectural designs C) Detailed design D) All mentioned designs
- [40]. Find out which phase is not available in SDLC?
- A) Coding B) Testing C) Maintenance D) Abstraction
- [41]. OOD languages provide a mechanism where methods performing similar tasks but vary in arguments, and that can be assigned to the same name is called _____
- A) Classes B) Object C) Polymorphism D) Encapsulation
- [42]. Which phase is referring to the support phase of software development?
- A) Acceptance Phase. B) Testing C) Maintenance D) None of the mentioned
- [43]. Which model is also called as the classic life cycle or the Waterfall model?
- A) Iterative Development B) Linear Sequential Development C) RAD Model D) Incremental Development

- [44]. Which document is created by system analyst after the requirements are collected from Various stakeholders?
- A) Software requirement specification
 - B) Software requirement validation
 - C) Feasibility study
 - D) Requirement Gathering
- [45]. Which is focused towards the goal of the organization?
- A) Feasibility study
 - B) Requirement gathering
 - C) Software requirement specification
 - D) Software requirement validation
- [46]. Which model is also known as Verification and validation model?
- A) Waterfall model
 - B) Big Bang model
 - C) V-model
 - D) Spiral model
- [47]. Software project management is the process of managing all activities that are involved in software development, such as ____.
- A) Time
 - B) Cost
 - C) Quality
 - D) All mentioned management
- [48]. What is the meaning of requirement elicitation in software engineering?
- A) Gathering of requirement
 - B) Understanding of requirement
 - C) Getting the requirements from client
 - D) All mentioned
- [49]. What is legacy system?
- A) A legacy system refers to newer version of software
 - B) A legacy system refers to outdated application software that is used instead of available upgraded versions
 - C) A legacy system always devolved by advance technology
 - D) None of the mentioned
- [50]. Which software is used to control products and systems for the consumer and industrial markets?
- A) System software
 - B) Artificial intelligence software
 - C) Embedded software
 - D) Engineering and scientific software
- [51]. In which elicitation process the developers discuss with the client and end users and know their expectations from the software?
- A) Requirement gathering
 - B) Organizing requirements
 - C) Negotiation & discussion
 - D) Documentation
- [52]. If requirements are easily understandable and defined then which model is best suited?
- A) Spiral model
 - B) Waterfall model
 - C) Prototyping model
 - D) None of the mentioned

- [53]. **RAD Software process model stands for _____**
- A) Rapid Application Development
 - B) Relative Application Development
 - C) Rapid Application Design
 - D) Recent Application Development
- [54]. **Which of the following is not defined in a good Software Requirement Specification (SRS) document?**
- A) Functional Requirement
 - B) Nonfunctional Requirement
 - C) Goals of implementation
 - D) Algorithm for software implementation
- [55]. **What is the simplest model of software development paradigm?**
- A) Spiral model
 - B) Big Bang model
 - C) V-model
 - D) Waterfall model
- [56]. **Which design identifies the software as a system with many components interacting with each other?**
- A) Architectural design
 - B) High-level design
 - C) Detailed design
 - D) Both B & C
- [57]. **Give the disadvantages of modularization.**
- A) Smaller components are easier to maintain
 - B) Program can be divided based on functional aspects
 - C) Desired level of abstraction can be brought in the program
 - D) None of the mentioned
- [58]. **Mention any two indirect measures of product.**
- A) Quality
 - B) Efficiency
 - C) Accuracy
 - D) Both A and B
- [59]. **Which one of the following models is not suitable for accommodating any change?**
- A) Prototyping Model
 - B) RAD Model
 - C) Build & Fix Model
 - D) Waterfall Model
- [60]. **Usability can be measured in terms of:**
- A) Time required to become moderately efficient in system usage
 - B) Net increase in productivity
 - C) Intellectual skill to learn the system
 - D) All of the mentioned

Q2: True or False

- [1]. **Software costs more to maintain than it does to develop.**
A) True B) False
- [2]. **Component-based Software Engineering allows faster delivery.**
A) True B) False
- [3]. **A Use-case actor is always a person having a role that different people may play.**
A) True B) False
- [4]. **A stakeholder is anyone who will purchase the completed software system under development.**
A) True B) False
- [5]. **Functional requirements capture the intended behavior of the system.**
A) True B) False
- [6]. **Requirements elicitation is a cyclic process**
A) True B) False
- [7]. **Requirements Analysis is an Iterative Process.**
A) True B) False
- [8]. **Requirements should specify 'what' but not 'how'.**
A) True B) False
- [9]. **Activity diagrams are used to model the processing of data.**
A) True B) False
- [10]. **Software is not considered to be collection of executable programming code, associated libraries and documentations.**
A) True B) False
- [11]. **Modelling is a representation of the object-oriented classes and the resultant collaborations will allow a system to function.**
A) True B) False
- [12]. **Application of science, tools and methods to find cost effective solution to the problems is a definition of software engineering.**
A) True B) False
- [13]. **Software design is a process to transform user requirements into some suitable form, that helps the programmer in software coding and implementation.**
A) True B) False
- [14]. **Requirements can be gathered from users via interviews, surveys, task analysis, brainstorming, domain analysis, prototyping, studying existing usable version of software, and by observation.**
A) True B) False

- [15]. **A good design review is not important for good software design and its accuracy and quality.**
A) True B) False
- [16]. **Software components provide interfaces, which can be used to establish communication among different components.**
A) True B) False
- [17]. **Refinement is actually a process of elaboration.**
A) True B) False
- [18]. **Modularization is a technique to divide a software system into multiple discrete and independent modules.**
A) True B) False
- [19]. **SRS is a document created by system developer after the requirements are collected from various stakeholders.**
A) True B) False
- [20]. **Reliability is measured by considering processing speed, response time, resource consumption, throughput, and efficiency.**
A) True B) False
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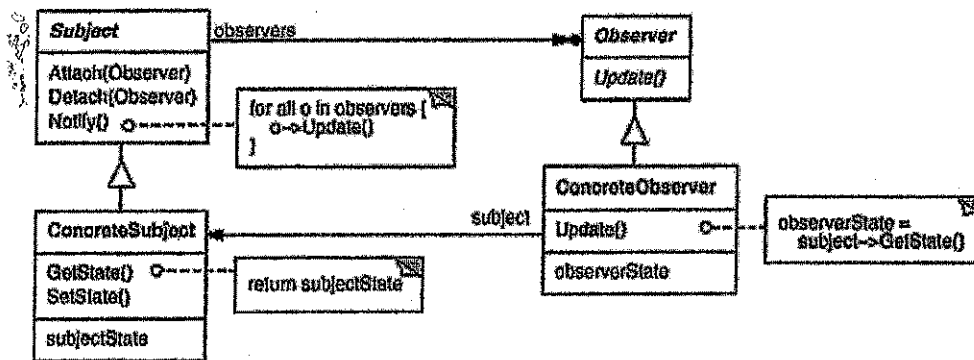
with my best wishes Dr: Reda M. Hussien

QUESTION 1:

- [1.1] list needs to do software development?
- [1.2] Write a short note about eXtreme Programming including fundamental ideas, core values and Basic Activities.
- [1.3] define and explain the term "The Post-Mortem"

QUESTION 2:

- [2.1] Define the term design patterns? List Types of Design Patterns with examples?
- [2.2] In a few sentences, explain the intent and list participants of the Builder pattern. Give an example of its use. show the general structure of the pattern?
- [2.3] Answer the following questions with respect to the following Adapter pattern diagram.



- a) What is the responsibility of the Subject class?
- b) What is the responsibility of Observer class?
- c) How do Subject and Observer collaborate to each other to do the pattern intent?

QUESTION 3:

[3.1] If you want to develop a TO-DO list, for example for a Personal Information Manager application, you might want to have flexibility in how this list is represented and showed to the user - listed items, items with bullets, numbered items, etc. Each task has a description, a due date and a priority (high, medium or low). Additionally, you might want to have some way to modify the basic list functionality and give users the ability to choose between an unordered list, a due date ordered list or a priority based ordered task list. Some possible visualizations of the To-Do list are given below:

A prioritized numbered task list:

1. Buy groceries	Due:2012-11-20	Priority: high
2. Take the TDDB84 exam	Due:2012-11-20	Priority: medium
3. Submit the labs	Due:2012-11-22	Priority: medium
4. Buy movie tickets	Due:2012-11-15	Priority: low

An unordered numbered task list:

1. Take the TDDB84 exam	Due:2012-11-20	Priority: medium
2. Submit the labs	Due:2012-11-22	Priority: medium
3. Buy groceries	Due:2012-11-20	Priority: high
4. Buy movie tickets	Due:2012-11-15	Priority: low

A due date ordered bulleted task list:

* Submit the labs	Due:2012-11-22	Priority: medium
* Take the TDDB84 exam	Due:2012-11-20	Priority: medium
* Buy groceries	Due:2012-11-20	Priority: high
* Buy movie tickets	Due:2012-11-15	Priority: low

(a) Which pattern would you use to implement this functionality? Please motivate your answer by giving a short explanation.

(b) In particular, show an appropriate class diagram(s) and enough code fragments to illustrate your use of the pattern to solve the problem.

[3.2] what is API stands for? Characteristics of good API?

[3.3] What is the difference between language-dependent and language-independent used in APIs?

[3.4] what are differences between API libraries and frameworks?

with my best wishes Dr: Reda M. Hussien



Departments: CS

(28 Marks)

(I) Chose the correct answer for the following sentences, write only the choice:

- (1) is a property specifies text that should appear beside a menu item for a shortcut key, and the text in this property is displayed for the shortcut key.
(a) ShortcutKeys (b) ShowShortcutKeys (c) Text (d) Nothing of them
- (2) is a property specifies the last limit number of items (between 1 and 100) that the drop-down list can display. If the number of items exceeds this last limit of items, a scrollbar appears.
(a) SelectedItem (b) DropDownStyle (c) MaxDropDownItems (d) Nothing of them
- (3) is a property specifies the amount of time (in milliseconds) that a mouse must hover over a control before a tool tip appears.
(a) InitialDelay (b) ReshowDelay (c) AutoPopDelay (d) Nothing of them
- (4) is a property specifies by how much the current number in the control changes when the user clicks the control's up and down arrows.
(a) DecimalPlaces (b) MaximumNumber (c) UpDownAlign (d) Increment
- (5) It is a form's property which takes true value to create MDI form, and the appearance of the form is changed.
(a) MdiParent (b) IsMdiContainer (c) IsMdiChild (d) Nothing of them
- (6) is the property indicates how the ListBox can display, such that vertical scrollbars are eliminated from the display.
(a) Items (b) SelectionMode (c) MultiColumn (d) Nothing of them
- (7) is a property which is enumeration that controls image sizing and positioning. Values are Normal (default), StretchImage, AutoSize, CenterImage, and Zoom.
(a) ImageSize (b) SizeMode (c) Image (d) Nothing of them
- (8) is a property in NumericUpDown control, that specifies by how much the current number changes when user clicks up and down arrows.
(a) DecimalPlaces (b) Maximum (c) UpDownAlign (d) Nothing of them
- (9) is a property specifies which portion of text in the LinkLabel is part of the link.
(a) LinkVisited (b) LinkBehavior (c) LinkArea (d) Nothing of them
- (10) is a property determines the number of items that can be selected and the means through which multiple items can be selected.
(a) SelectedItem (b) SelectionMode (c) MultiColumn (d) SelectedIndex

(II) Put sign(√) at correct and sign(×) at wrong with correction the wrong Sentence:

- (1) *ReadOnly* property of textbox, if it is true, the textbox becomes a password textbox by system char.
- (2) *ShortcutKeys* is a property which indicates whether a shortcut key is shown beside menu item text.
- (3) *IsMdiChild* property returns the MDI children as an array of forms.
- (4) In *AcceptsReturn* property, if true, the textbox has gray background, and its text cannot be edited.
- (5) *ReshowDelay* is a property which determines the amount of time (in milliseconds) that the tool tip appears while the mouse is over a control.



Departments: CS

- (6) *LinkBehavior* property specifies which *portion* of text in the *LinkLabel* is part of the link.
- (7) *TextBox* control displays text that can be *changed/modified* programmatically only.
- (8) *TabCount* property returns the collection of pages within the *TabControl* as a *Collection*.
- (9) *ListBox* is a control which uses *TextBox* features with a drop-down list, usually appears as a *TextBox* with a down arrow to its right.

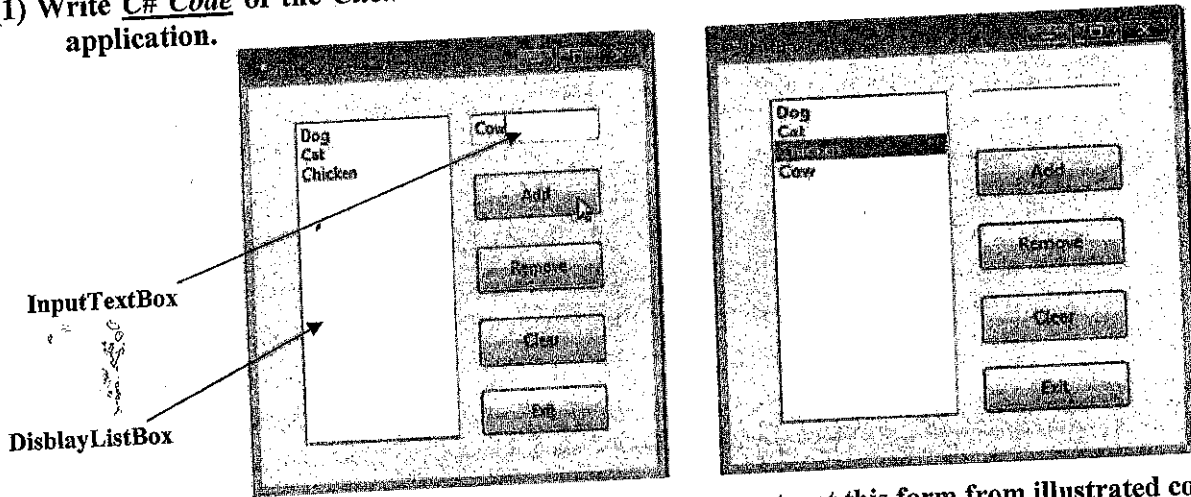
Question 2) Answer the following *sub-questions* as required at each of them: (16 Marks)

- (1) Write about *Menu*, how is it use? and explain some of its properties.
- (2) Write about *MDI* and some of its properties. Also, Write the code to add a new child form to a parent and show this child form.
- (3) Compare between "*ListBox Control*" and "*ComboBox Control*".

Question 3)

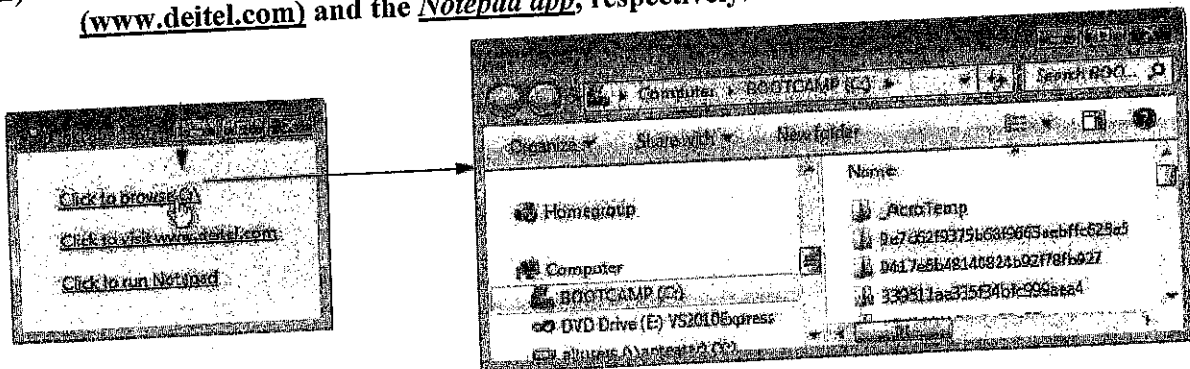
(16 Marks)

- (1) Write *C# Code* of the *Click* event for *Add*, *Remove*, *Clear*, and *Exit* Buttons in the following application.



Also, Explain the content of this form and the *steps* to construct this form from illustrated controls.

- (2) Write a *C# Code* to uses *three LinkLabels* to link to the *C:drive*, the *Deitel website* (www.deitel.com) and the *Notepad app*, respectively.



With best wishes with success;

Dr. Osama M. Abu Zaid

Q1 Choose the correct answer

(24 marks)

1) $\Delta f(x_2 + h) + Ef(x_1 + h) =$

- (a) $-f(x_2)$ (b) $f(x_4)$ (c) $f(x_3)$ (d) None of the above

2) $f[x_0, x_1] =$

- (a) $\frac{f(x_1) - f(x_0)}{x_1 - x_0}$ (b) $f(x_0) - f(x_1)$ (c) $f(x_1) - f(x_0)$ (d) None of the above

3) $E =$

- (a) $(1 - \nabla)^{-1}$ (b) $(1 + \Delta)^{-1}$ (c) $(1 - \nabla)$ (d) $(1 + \Delta)$

4) The value of $f'(2)$ which satisfy a polynomial of the following table by Lagrange's method :-

X	1	3	4
F(x)	-3	1	6

- (a) 3 (b) 0 (c) 2 (d) 1

5) $\nabla_1 f(x_3 + h) - \delta f(x_2 + \frac{1}{2}h) =$

- (a) $f_4 - f_2$ (b) $f_2 - f_4$ (c) $f_4 + f_2$ (d) None of the above

6) The approximate solution by Gaussian method at n=1 of the following :-

$$\begin{cases} -2x_2 + 3x_3 = -1 \\ x_1 - x_2 = 3 \\ x_1 + 2x_2 - 2x_3 = 3 \end{cases}, \quad x^{(0)} = \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}$$

- (a) (1,0,3) (b) (0,0,3) (c) (0,0,0) (d) None of the above

7) $\nabla =$

- (a) $E^{\frac{1}{2}} - E^{-\frac{1}{2}}$ (b) $E - 1$ (c) $\Delta (1 - \Delta)^{-\frac{1}{2}}$ (d) None of the above

8) By three- eight's method at n=3, $\int_0^{1.5} \frac{1}{1+x} dx =$

- a) 0.92 (b) 1.5 (c) 0.092 (d) None of the above

Q2 Put true (✓) or false (x) for the following statements and correct the false :- (8 marks)

- 1) Aitken's method is solving any system of linear equations. ()
- 2) The error of third order Runge - Kutta's method is of $o(h^4)$ ()
- 3) Gauss- Jordan method is solving the ordinary differential problems ()
- 4) $\Delta = (1 - \nabla)^{-1} + 1$ ()

Q3

(12 Marks)

1) Solve the following equation (n=2) :-

$$x^4 - x + 2 = 0, \quad x_0 = 1$$

2) If, $f(x) = u(x) \cdot v(x)$, show that :

$$f[x_0, x_1] = u(x_0) \cdot v[x_0, x_1] + u[x_0, x_1] \cdot v(x_1)$$

Q4

(12 Marks)

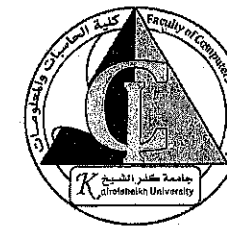
1) Prove that

$$\nabla^n f_p = \delta^n f_{p-\frac{n}{2}}$$

2) Solve the following problem by using fourth order Runge-Kutta 's method:-

$$y' = y^2 - x, \quad y(0) = 1, \quad h = 1 \text{ in } [0, 2]$$

End the exam.
With Best Wishes



Answer the following Questions

Q1. Modeling the problem below and solve it graphically? (20 Marks)

A firm manufactures headache pills in two sizes A and B. Size A contains 4 grains of element X, 7 grains of element Y and 2 grain of element Z; size B contains 2 grain of element X, 10 grains element Y and 8 grains of element Z. It has been found by users that it requires at least 12 grains of element X, 74 grains of element Y and 24 grains of element Z for providing immediate effects. Determine graphically the least number of pills a patient should have to get immediate relief. Formulate the problem as LPP.

Q2. Using simplex method to solve the following? (15 Marks)

$$\text{Max } Z = 12X_1 + 16X_2$$

Subject to

$$10X_1 + 20X_2 \leq 120$$

$$8X_1 + 8X_2 \leq 80$$

$$X_1 \geq 0, X_2 \geq 0$$

Q3. Using Integer Linear Programming to solve the following? (13 Marks)

$$\text{Max } Z = 5X_1 + 6X_2$$

Subject to

$$X_1 + X_2 \leq 5$$

$$4X_1 + 7X_2 \leq 28$$

$$X_1 \geq 0, X_2 \geq 0$$

$$X_1, X_2 \text{ are integer}$$

Q4. (12 Marks)

The computer lab at State University has a help desk to assist students working on computer spreadsheet assignments. The students patiently form a single line in front of the desk to wait for help. Students are served based on a first-come, first-served priority rule. On average, 15 students per hour arrive at the help desk. Student arrivals are best described using a Poisson distribution. The help desk server can help an average of 20 students per hour, with the service rate being described by an exponential distribution. Calculate the following operating characteristics of the service system.

- The average utilization of the help desk server
- The average number of students in the system
- The average number of students waiting in line
- The average time a student spends in the system
- The average time a student spends waiting in line
- The probability of having more than 4 students in the system

With my best wishes;

Dr. Haitham Samy Elwahsh



Answer the following Questions

Q1.

(15 Marks)

- 1- What an algorithm is?
- 2- What is the relationship between data and algorithm?
- 3- What is the characteristics of an algorithm?

Q2.

(20 Marks)

- 1- Explain and write the pseudo-code for insertion – sort algorithm? Explain in details the running – time analysis and time complexity? Explain the best and worst case running time for insertion-sort algorithm?
- 2- Explain and write the pseudo-code for Merge-sort algorithm? Explain in details the running – time analysis and time complexity for Merge-sort algorithm?

Q3.

(15 Marks)

- 1- Consider the problem of adding two n-bit binary integers, stored in two n-element arrays A and B. The sum of the two integers should be stored in binary form in an (n + 1)-element array C. *State the problem formally and write pseudo code for adding the two integers.*
- 2- Using Fibonacci sequence $F_n = F_{n-1} + F_{n-2}$; $F_0 = 0$ and $F_1 = 1$, show Regular Recursion vs Dynamic Programming and explain recursion tree.

Q4.

(10 Marks)

- 1- Write Depth First Search (DFS) pseudo-code (recursive implementation)?
DFS (G, s): //Where G is the graph and s is the source node
- 2- Write Breadth First Search (BFS) pseudo-code (recursive implementation)?
BFS (G, s): //Where G is the graph and s is the source node

With my best wishes;

Dr. Haitham Samy Elwahsh



Departments: CS

(28 Marks)

(I) Chose the correct answer for the following sentences, write only the choice:

- (1) is a property specifies text that should appear beside a menu item for a shortcut key, and the text in this property is displayed for the shortcut key.
(a) ShortcutKeys (b) ShowShortcutKeys (c) Text (d) Nothing of them
- (2) is a property specifies the last limit number of items (between 1 and 100) that the drop-down list can display. If the number of items exceeds this last limit of items, a scrollbar appears.
(a) SelectedItem (b) DropDownStyle (c) MaxDropDownItems (d) Nothing of them
- (3) is a property specifies the amount of time (in milliseconds) that a mouse must hover over a control before a tool tip appears.
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- (4) is a property specifies by how much the current number in the control changes when the user clicks the control's up and down arrows.
(a) DecimalPlaces (b) MaximumNumber (c) UpDownAlign (d) Increment
- (5) It is a form's property which takes true value to create MDI form, and the appearance of the form is changed.
(a) MdiParent (b) IsMdiContainer (c) IsMdiChild (d) Nothing of them
- (6) is the property indicates how the ListBox can display, such that vertical scrollbars are eliminated from the display.
(a) Items (b) SelectionMode (c) MultiColumn (d) Nothing of them
- (7), is a property which is enumeration that controls image sizing and positioning. Values are Normal (default), StretchImage, AutoSize, CenterImage, and Zoom.
(a) ImageSize (b) SizeMode (c) Image (d) Nothing of them
- (8) is a property in NumericUpDown control, that specifies by how much the current number changes when user clicks up and down arrows.
(a) DecimalPlaces (b) Maximum (c) UpDownAlign (d) Nothing of them
- (9) is a property specifies which portion of text in the LinkLabel is part of the link.
(a) LinkVisited (b) LinkBehavior (c) LinkArea (d) Nothing of them
- (10) is a property determines the number of items that can be selected and the means through which multiple items can be selected.
(a) SelectedItem (b) SelectionMode (c) MultiColumn (d) SelectedIndex

(II) Put sign(✓) at correct and sign(×) at wrong with correction the wrong Sentence:

- (1) *ReadOnly* property of textbox, if it is true, the textbox becomes a password textbox by system char.
- (2) *ShortcutKeys* is a property which indicates whether a shortcut key is shown beside menu item text.
- (3) *IsMdiChild* property returns the MDI children as an array of forms.
- (4) In *AcceptsReturn* property, if true, the textbox has gray background, and its text cannot be edited.
- (5) *ReshowDelay* is a property which determines the amount of time (in milliseconds) that the tool tip appears while the mouse is over a control.



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- (6) *LinkBehavior* property specifies which *portion* of text in the *LinkLabel* is part of the link.
- (7) *Textbox* control displays text that can be *changed/modified* programmatically only.
- (8) *TabCount* property returns the collection of pages within the *TabControl* as a Collection.
- (9) *ListBox* is a control which uses *TextBox* features with a drop-down list, usually appears as a *TextBox* with a down arrow to its right.

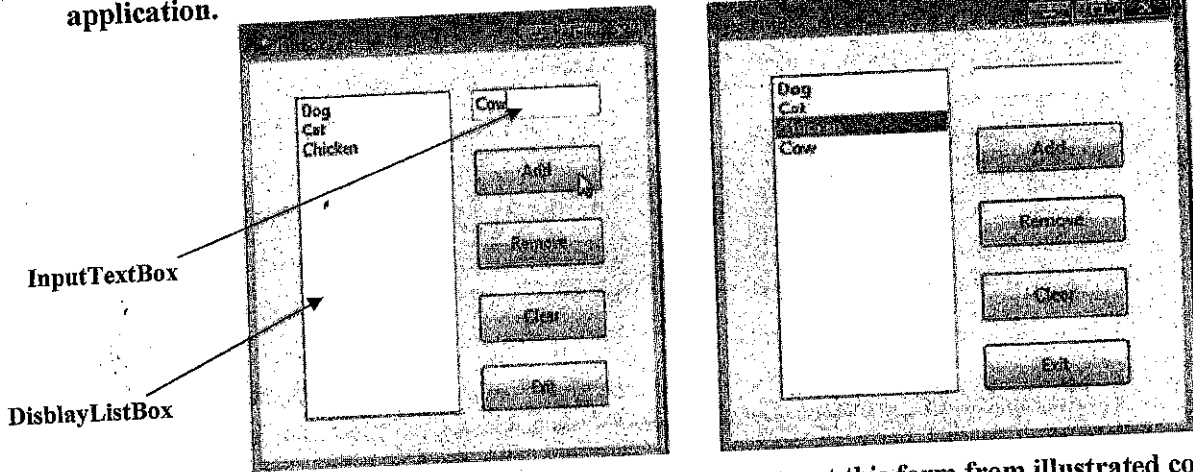
Question 2 Answer the following *sub-questions* as required at each of them: (16 Marks)

- (1) Write about *Menu*, how is it use? and explain some of its properties.
- (2) Write about *MDI* and some of its properties. Also, Write the code to add a new child form to a parent and show this child form.
- (3) Compare between "*ListBox Control*" and "*ComboBox Control*".

Question 3

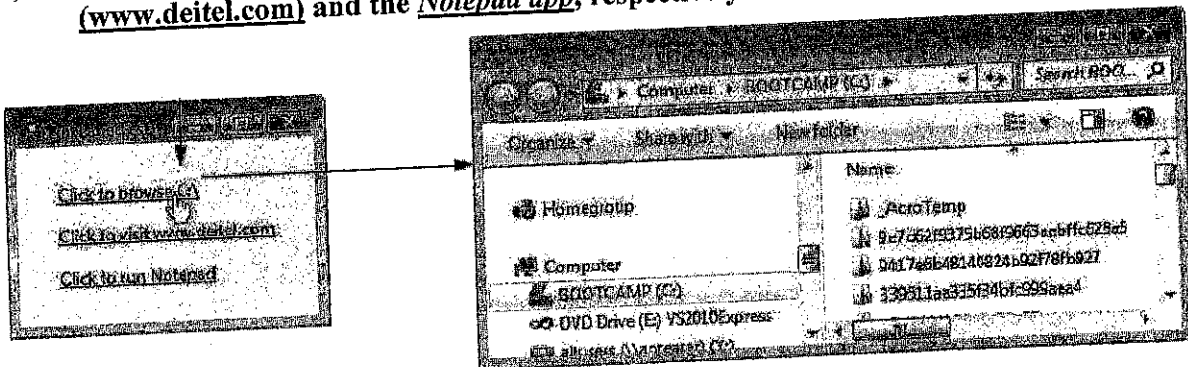
(16 Marks)

- (1) Write *C# Code* of the *Click* event for *Add*, *Remove*, *Clear*, and *Exit* Buttons in the following application.



Also, *Explain* the content of this form and the *steps* to construct this form from illustrated controls.

- (2) Write a *C# Code* to uses *three LinkLabels* to link to the *C:drive*, the *Deitel website (www.deitel.com)* and the *Notepad app*, respectively.



With best wishes with success;

Dr. Osama M. Abu Zaid