

Department of Higher Education
University of Computer Studies, Hinthada
Second Year (B.C.Sc/B.C.Tech)

Final Examination

English

September, 2018

Answer All Questions.

Time Allowed: 3 Hours

I. Read the passage and answer the following questions. (1 – 10)

(20-marks)

Great Inventions

There are some things we use every day. Can you imagine a world without zippers to fasten clothing? Have you ever wondered about the layout of the keyboard of a typewriter, which we see every day on the computer? These are just two of the many inventions which have made our lives easier. Maybe that's why we don't think about them very much!

The Zipper

Whatever did we do before the invention of the zipper?

In 1893 the world's first zipper was produced in Chicago. Although the inventor claimed that it was a reliable fastening for clothing, this was not the case. The Chicago zipper sprang open without warning, or jammed shut, and it swiftly lost popularity. Twenty years later a Swedish-born engineer called Sundback solved the problem. He attached tiny cups to the backs of the interlocking teeth, and this meant that the teeth could be enmeshed more firmly and reliably.

At first zippers were made of metal. They were heavy, and if they got stuck it was difficult to free them. Then came nylon zippers which were lighter and easier to use, and had smaller teeth. The fashion industry liked the new zippers far better because they did not distort the line of the garment or weigh down light fabrics. They were also easier for the machinists to fit into the garment.

Meanwhile a new fastening agent made its appearance at the end of the twentieth century: velcro. Velcro is another product made from nylon. Nylon is a very tough synthetic fibre first developed in the 1930s, and bearing a name to remind the hearer of the two places where it was developed: NY for New York and LON for London. Velcro is made with very small nylon hooks on one side of the fastening which catch tiny looped whiskers on the other side of the fastening. It is strong and durable.

Velcro is used on clothing, luggage and footwear. It is quick and easy to fasten and unfasten, and has taken a large part of the zipper's share of the market. It is also used in ways a zipper cannot be used - for instance as an easily changed fastening on plaster casts, and to hold furnishing fabrics in position.

The Typewriter and the Keyboard

The keyboard of the modern typewriter is laid out in a most odd fashion. Why would anyone place the letters on the left side of the top row of the keyboard in the order Q W E R T Y? The answer is simple: to slow the typist down. But first, let's consider the history of the typewriter itself.

In the 1860's a newspaper editor called Christopher Sholes lived in Milwaukee, USA. Sholes invented the first of the modern typewriters, although there had been patents for typewriter-like machines as early as 1714, when Queen Anne of England granted a patent to a man called Henry Mill for a machine which would make marks on paper "so neat and exact as not to be distinguished from print". In 1829, across the Atlantic in Detroit USA, William Austin Burt took out a patent on a typewriter-like machine, four years before the French inventor Xavier Projean produced his machine designed to record words at a speed comparable to someone writing with a pen.

So the typewriter was not a new idea, although there had not been a successful realisation of the idea before Christopher Sholes' machine. His typewriter became very popular, and soon people learned to type very quickly - so quickly, in fact, that the keys became tangled. On manual typewriters the characters were set on the end of bars which rose to strike the paper when the key was pressed. In the first models, the keys were set alphabetically. When a quick typist tapped out a word like *federal*, it was very likely the adjacent *e* and *d* keys would become entangled.

Sholes therefore set about finding ways to slow the typist down. He looked for the letters which were most often used in English, and then placed them far away from each other. For instance, *q* and *u*, which are almost always used together in English, are separated by five intervening letters. The plan worked, and the typist was slowed down a little.

When computers came into use in the latter part of the twentieth century it was suggested that the keyboard should be rationalised. After all, there was no longer any need to avoid clashing manual typewriter keys. One new board included keys which produced letters which frequently occur together in English, like *ing* and *th* and *ed*, so the word *thing* would take two strokes to write instead of five. Although this made perfect sense, people found it very hard to learn to use a new keyboard, and the idea was dropped. It is unlikely that the keyboard will ever be changed: as we approach the twenty-first century the voice-activated computer, already in an advanced state of development, is becoming more and more accessible. It is very likely that we will soon have machines which take dictation as we speak to them, and the keyboard will be used for corrections.

Questions 1-5

Write the appropriate letters A-D in box on your answer sheet for the following statements 1-5.

You can use your answer more than once.

1. Sundback's zipper
2. the development of nylon
3. the development of velcro
4. the development of the first typewriter-like machine
5. the development of the voice-activated computer

A - before the nineteenth century
B - during the nineteenth century
C - in the first half of the twentieth century
D - at the end of the twentieth century

Questions 6-10

Write on your answer sheet 'TRUE, FALSE or NOT GIVEN' for the following statements.

6. The first zipper was successful as a fastener.
7. Velcro is another product made from nylon.
8. The first typewriter's keyboard was different to the modern keyboard.
9. The keys of Sholes' first machine were likely to jam.
10. New computers will use the rationalised keyboard.

Question II

(A). Complete these sentences with "mustn't" or "don't/ doesn't/ didn't have to". (10-marks)

1. I can stay in bed tomorrow morning because I _____ go to work.
2. Whatever you do, you _____ touch that switch. It's very dangerous.
3. He _____ wear a suit to work but he usually does.
4. Smoking is forbidden in the factory. So you _____ smoke in it.
5. I went to the bank this morning. There was no queue, so I _____ wait.
6. My mother said me, "You _____ be late if you go outside".
7. I _____ make more effort if I study regularly.

8. Don't make so much noise. We _____ wake the baby.
9. You _____ be a good player to enjoy a game of tennis.
10. I don't want anyone to know. You _____ tell anyone.

(B). Rewrite each sentence below **using a phrasal verb from the box in a correct tense**. You have to write each sentence by **changing the objective noun to a pronoun**. **(10-marks)**

give out take on set up keep down make out
--

1. It was hard to see the cruise ship through the fog.
2. Could you help me to distribute some leaflets for the passenger?
3. The manager reduced the number of employees and added working hours.
4. My father started the holiday company in 1967.
5. We'll have to employ extra staff when it's high season.

Question III

(A). Rewrite the sentences using **phrases from the box and making any other necessary changes**. **(10-marks)**

to pull down a building	a bungalow
to move house	a semi-detached house
to rent out a house	a terraced house
to put someone up	a spacious house

1. My aunt is very happy to allow students to have the flat for a reasonable amount.
2. The council is demolishing the old cinema.
3. I live in a house which only has one floor.
4. Her house is connected to another house.
5. John lived in five different houses when he was a child.

(B). Match each word with the appropriate explanations from the box. **(10-marks)**

1. migration
2. elevation
3. settlement
4. emigration
5. disturbance
6. immigration
7. assimilation
8. crash
9. destination
10. interaction

a. becoming similar to a country's native inhabitants b. mutual or reciprocal action or influence c. moving from one country to another d. moving away from one's home country e. an accident involving vehicles f. the act of preventing something from happening g. a place to which a person is going or something is being sent h. making a permanent home in a country i. the state of floating in the air j. moving into another country

Question IV

(A). Answer the following questions in complete sentences with meaningful sense. (10-marks)

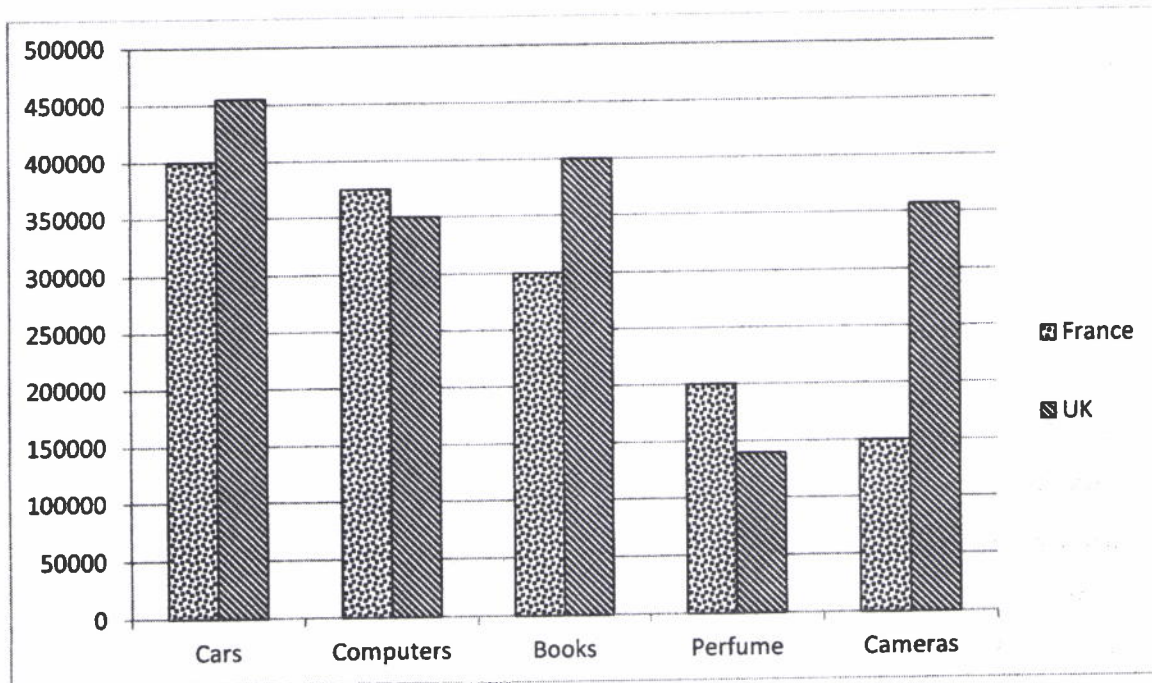
1. What would your ideal room be like?
2. How do you spend your free time?
3. Which types of transportation do people in your country often use to move?
4. What makes a good tourist?
5. What time in the morning would you get up if you could choose?

(B). The chart below shows the expenditure of two countries on consumer goods in 2010. Summarize the information by selecting and reporting the main features and make comparisons where relevant.

Write at least 150 words.

(10-marks)

The Chart below shows the expenditure of two countries on consumer goods in 2010 (pounds sterling)



Question V

Write about the following topic:

(20-marks)

If countries are serious about solving traffic problems, they should tax private cars very heavily and use the money to provide free or very cheap rail travel.

To what extent do you agree with the above?

Write at least 250 words.

----- *End of Questions* -----

Department of Higher Education
University of Computer Studies, Hinthada
Second Year (B.C.Sc./B.C.Tech.)
Final Examination
Advanced Java Programming (CST-201)
September 2018

Answer All Questions.

Time Allowed: 3 Hours

1. Choose the correct answer.

(10 marks)

- (i) Many of Java's networking classes are contained in package -----.
A. java.io B. java.awt C. java.socket D. java.net
- (ii) ----- exception occurs when a host name indicated by a client cannot be resolved to an address.
A. UnknownHostException B. IOException
C. RemoteException D. SocketException
- (iii) EJB stands for
A. Entity Java Bean B. Enterprise Java Bean
C. Environment Java Bean D. Exception Java Bean
- (iv) ----- catches an exception thrown by JSP elements in JSTL.
A. <c:exception/> B. <c:catch/> C. <c:try/> D. All of them
- (v) The default parameter of the setMaxAge() is
A. positive value B. negative value C. zero D. boolean value
- (vi) The attribute used in <jsp:include/> are -----.
A. page B. file C. type D. id
- (vii) JSP page can only generate dynamic contents.
A. true B. false
- (viii) Which of the following is used generally for reading the content of database?
A. Boolean execute() B. int executeQuery()
C. ResultSet executeQuery() D. ResultSet executeUpdate()
- (ix) Which method is invoked in only one time in the life cycle of a servlet?
A. init() B. service() C. doGet() D. doPost()
- (x) Which of the following attribute is used to have uncaught run-time exceptions automatically forwarded to an error processing page?
A. error B. errorPage C. exception D. exceptionPage

2. Write a Client-Server program to print the factorial of a number using socket. The Client accepts a number from the user and sends it to the Server. Then the Server calculates the factorial of the number and returns the result back to the client. And then result is displayed in client side.

(15 marks)

3. Complete the following RMI programs.

(15 marks)

`/*RectangleInterface.java*/`

```
import java.rmi.*;
public interface RectangleInterface extends -----(i)-----
{
    public double Area(int width, int height) throws -----(ii)-----;
    public double Perimeter(int width, int height) throws -----(iii)-----;
}
```

```
/*RectangleServer.java*/
```

```
import java.rmi.*
import----(iv)-----;
import----(v)-----;
public class RectangleServer extends ----(vi)----- implements ----(vii)-----{
    RectangleServer () throws ----(viii)-----{
        super();
    }
    public double Area(int width, int height) throws ----(ix)-----{
        return----(x)-----;
    }
    public double Perimeter(int width, int height) throws ----(xi)-----{
        return----(xii)-----;
    }

    public static void main(String args[]){
        RectangleServer obj= new RectangleServer();
        Naming.rebind("rmi://localhost:1099/recObj" , obj);
    }
}
```

```
/*RectangleClient.java*/
```

```
import java.rmi.*;
import java.net.*;
public class RectangleClient{
    public static void main(String []args) throws Exception{
        RectangleInterface remoteObj;
        remoteObj=----(xiii)-----;
        System.out.println(" Area= " + ----(xiv)----- (20,30) );
        System.out.println(" Perimeter= " + ----(xv)----- (20,30) );
    }
}
```

4. Suppose you have to develop the Online Student Registration System. Create a registration form about Student that contains Student Name, Email, Gender, Year (First Year to Fifth Year) and Hobby.

Student Registration Form	
Please fill student information:	
Student Name:*	<input type="text"/>
E-Mail:*	<input type="text"/>
Gender:*	<input checked="" type="radio"/> Male <input type="radio"/> Female
Year:*	First Year <input type="button" value="v"/>
Interesting Subject:*	<input checked="" type="checkbox"/> J2EE <input type="checkbox"/> PHP <input type="checkbox"/> ASP.NET
<input type="button" value="Register"/> <input type="button" value="Cancel"/>	

When the user submits the information from first form, the system will generate unique student id and save the request information to ArrayList as Student object (ArrayList<Student>) in same session. After saving each student record, all the students information stored in this session will be displayed as shown in figure below. You can use Cookies or Session if you need to keep track of the Student ID and student information.

Student Registration Form

Please fill student information:

Student Name:* SiThu

E-Mail:* sithu@gmail.com

Gender:* Male Female

Year:* Second Year

Interesting Subject:* J2EE PHP ASP.NET

Register Cancel

```
Student ID      : ID1
Student Name    : SiThu
Email           : sithu@gmail.com
Gender          : male
Year           : Second Year
Interesting Subject : J2EE/PHP
```

When submits the second form information, display as follows and so on:

Student Registration Form

Please fill student information:

Student Name:* MayThu

E-Mail:* maythu@gmail.com

Gender:* Male Female

Year:* First Year

Interesting Subject:* J2EE PHP ASP.NET

Register Cancel

```
Student ID      : ID1
Student Name    : SiThu
Email           : sithu@gmail.com
Gender          : male
Year           : Second Year
Interesting Subject : J2EE/PHP
*****
Student ID      : ID2
Student Name    : MayThu
Email           : maythu@gmail.com
Gender          : female
Year           : First Year
Interesting Subject : PHP/ASP.NET
```

To do so, you need to create bean class(Student.java) with required fields. And then write web.xml. **(25 marks)**

5. Create Draw Table Form using JSP, your system should have the following pages:

(i) "index.html", your welcome page is displayed as the following form:

Draw Table Entry

Rows	<input type="text" value="5"/>
Columns	<input type="text" value="2"/>
<input type="button" value="Draw"/>	

(ii) "drawTable.jsp", when you submit the "Draw" button, sample table entry is shown in the following:

Sample Table Entry

(iii) and “showError.jsp” to handle error in “drawTable.jsp” .

(10 marks)

6. Write a web application to order Pizza. Pizza Order Form is shown in figure below.

Get form parameters, and save the request information to database named as “dbOrder” and table named as “Order” table using Servlet or JSP and JDBC. Assume that the fields of the “Order” table are Name, Order_Type, Pizza_Type, Address. Display the orders information from “Order” table as tabular form. (15 marks)

7. Write a jsp page with the following features using JSTL. Firstly, create a salary variable with the value of “200000” in session scope. And then output the salary variable as shown below. The following condition will decide that whether the salary is good or not. If the salary is less than and equal to zero, the output message is “Salary is very low to survive!”. And if the salary is greater than 100000, the output message is “Salary is very good!” and the default message is “No Comment!”. Print result as below:

*Your salary is 200000.
Salary is very good!*

(10 marks)

***** END*****

Department of Higher Education
University of Computer Studies, Hinthada
Second Year (B.C.Sc./ B.C.Tech.)
Final Examination
Mathematics of Computing II (CST-202)
September, 2018

Answer All Questions.

Time Allowed: 3 Hours.

1. (a) Find the inverse transform $f(t)$ if $F(s) = \frac{4s+32}{s^2-16}$.
(b) Represent $t - 2$ ($t > 2$) using unit step functions. Find its transform. Show the details of your work.
(c) Solve the initial value problem $y'' + 6y' + 8y = e^{-3t} - e^{-5t}$, $y(0) = y'(0) = 0$ by the Laplace transform.
2. (a) Find the inverse transform $f(t)$ if $F(s) = \mathcal{L}(f(t)) = \frac{5.5}{(s+1.5)(s-4)}$ by using convolution.
(b) Express the repeating decimal 5.23 23 23 ... as the ratio of two integers.
(c) Write out the first few terms of the series $\sum_{n=0}^{\infty} \left(\frac{1}{2^n} + \frac{(-1)^n}{5^n} \right)$. Then find the sum of the series.
(d) Use the Limit Comparison Test to determine the series $\sum_{n=1}^{\infty} \frac{2n+1}{n^2+2n+1}$ converges or diverges.
3. (a) Use the Ratio Test to determine the series $\sum_{n=1}^{\infty} \frac{2^n}{n!}$ converges or diverges.
(b) Use the alternating series test to determine the series $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{n}{n^3+1}$.
(c) Find the Maclaurin series for the function e^{-x} .
(d) Find the equation for the line tangent to the curve for $x = \sec t$, $y = \tan t$ at the point $(\sqrt{2}, 1)$ where $t = \frac{\pi}{4}$.
4. (a) The parabola $y^2 = 8x$ is shifted down 2 units and right 1 unit to generate the parabola $(y+2)^2 = 8(x-1)$.
(i) Find the new parabola's vertex, focus and directrix.
(ii) Plot the new vertex, focus, directrix and sketch in the parabola.
(b) Find the hyperbola's standard form equation from the vertices: $(\pm 3, 0)$, asymptotes: $y = \pm \frac{4}{3}x$.
(c) Find the focus and directrix of the parabola $x^2 = -6y$.
5. (a) Find (i) the direction of $\overrightarrow{P_1P_2}$ and
(ii) the mid-point of the line segment P_1P_2 where $P_1(-1, 1, 5)$ and $P_2(2, 5, 0)$.
(b) Find the length and direction of $\vec{u} \times \vec{v}$ and $\vec{v} \times \vec{u}$ where $\vec{u} = -8\hat{i} - 2\hat{j} - 4\hat{k}$, $\vec{v} = 2\hat{i} + 2\hat{j} + \hat{k}$.

Department of Higher Education
University of Computer Studies
Second Year (B.C.Sc. / B.C.Tech.)
Final Examination
Advanced Data Structure (CST-203)
September 2018

Answer All Questions.

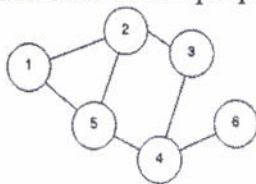
Time Allowed: 3 Hours

1. Choose the correct answers of the following questions.

(15 Marks)

- (i) The insertion sort is the best of other sort, _____ as fast as the bubble sort.
(A) once (B) twice (C) three times (D) four times
- (ii) How many recursive calls for the recursive function triangular (5)?
(A) 1 (B) 4 (C) 5 (D) 6
- (iii) Which data structure is used in depth first search of a graph to hold the nodes?
(A) Stack (B) Queue (C) Tree (D) Array
- (iv) Maximum number of leaf nodes in full binary tree with height $h=4$ is _____.
(A) 4 (B) 7 (C) 8 (D) 9
- (v) The bubble sort is the _____ algorithms.
(A) simplest (B) complex (C) average (D) none of them
- (vi) Merge sort requires _____ time.
(A) $O(N)$ (B) $O(N^2)$ (C) $O(\log N)$ (D) $O(N \log N)$
- (vii) In a binary tree, a node has at most _____ children.
(A) no child (B) one (C) three (D) two
- (viii) The advantages of hash table are _____.
(A) quick moving and quick sorting (B) quick moving and quick searching
(C) quick insertion and quick searching (D) quick copying and quick searching
- (ix) A _____ transforms a range of key values into a range values into a range of index values.
(A) tree (B) heap (C) hash function (D) linked-list
- (x) An adjacency matrix is a _____ dimensional array.
(A) one (B) two (C) three (D) none of them
- (xi) In binary tree, each node has a key less than its parents and _____ than its children.
(A) less (B) equal (C) greater (D) none of them
- (xii) A hash table is based on _____.
(A) array (B) stack (C) queue (D) linked list
- (xiii) Secondary clustering occurs because _____.
(A) many keys hash to the same location (B) the sequence of step lengths is always the same
(C) too many items with the same key are inserted (D) the hash function is not perfect
- (xiv) An inorder traversal visits nodes in order of _____ keys.
(A) equal (B) descending (C) ascending (D) vice versa
- (xv) A node is always removed from the _____ in a heap sort.
(A) left child (B) right child (C) last (D) root
2. (a) Write an algorithm that sorts the given data using selection sort. **(5 Marks)**
(b) Trace by hand the sorting of the array into a $[] = \{44, 77, 66, 55, 11, 99, 33, 88, 22\}$ by the selection sort algorithm. **(7 Marks)**
(c) Describe the efficiency of selection sort? **(3 Marks)**

3. (a) Write an algorithm `recMerge ()` that carried out the merging the two sorted arrays. **(5 Marks)**
 (b) Suppose that we have two sorted arrays, array A has 4 elements (25,49,82,99) and array B has 6 elements (8,16,40,55,67,75). They will be merged into an array C that starts 10 empty cells. Trace merging of two arrays by showing the step of comparisons necessary to determine which element will be copied? **(8 Marks)**
 (c) What is the base case in recursive functions? **(2 Marks)**
4. (a) Write the code for `inorder ()` that traverse the binary search tree in inorder. **(5 Marks)**
 (b) Draw the binary search tree, whose elements are inserted in the following order 55,47,68,25, 49,59,11,29,62,27,30,60,65. And then (i)Find the node 11 in tree (ii) Insert a new node 9 into tree (iii) Delete the node 30 from tree (iv) State the internal memory representation of tree using sequential representation (Array-based Representation). **(10 Marks)**
5. (a) Define open addressing. Describe three methods of open addressing. **(5 Marks)**
 (b) Given input {4371,1323,6173,4199,4344,9679,1989,4172,1988,1325} and a hash function $h(x) = x \text{ mod } 10$, show the result using hash table using linear probing and separate chaining methods. **(10 Marks)**
6. (a) Define a heap. Describe the steps for removing the node with maximum key in a heap. **(5 Marks)**
 (b) Show the heap after inserting each of these keys in this order: 8,5,12,4,3,2,9,7,6,10. Show the heap that results from deletion of the heap built in above. **(10 Marks)**
7. Find each of the properties for the graph. **(10 Marks)**



- (i) its size n
- (ii) its vertex set V
- (iii) its edges set E
- (iv) its degree $d(x)$ of each vertex x
- (v) a path of length 5
- (vi) a cycle of length 4
- (vii) its adjacency matrix
- (viii) its adjacency list
- (ix) DFS tree strategy at vertex 1
- (x) BFS tree strategy at vertex 1

*****END*****

Department of Higher Education
University of Computer Studies, Hinthada
Second Year (B.C.Sc.)
Final Examination
Object Oriented Analysis and Design (CS-204)
September, 2018

Time allowed: 3 Hours

Answer all questions.

I. Choose the correct answer for the following statements:

(20 marks)

- (1) In class diagram, the whole-part relationship is called _____ relationship.
(A) link (B) association (C) aggregation (D) inheritance
- (2) For a requirement engineer, which method is effective when a small amount of information is needed from a larger number of people?
(A) Prototyping (B) Questionnaires (C) Structured meeting (D) Interview
- (3) For software to be easy to maintain, software need to have _____ structure.
(A) robust (B) strong (C) week (D) damage
- (4) Which of the following is a technique for hiding the internal implementation details of an object?
(A) Encapsulation (B) Polymorphism (C) Inheritance (D) None of these
- (5) The dotted line underneath each actor and object in sequence diagrams represents _____.
(A) signal (B) message (C) lifeline (D) transition
- (6) Which is indicated by adding a large cross on the object's lifeline at the end of its activation?
(A) Object deletion (B) Object creation (C) Object activation (D) Object association
- (7) Which stage of system development should not consider the implementation technology?
(A) design (B) analysis (C) implementation (D) maintenance
- (8) A data dictionary provides a central store of data about _____.
(A) class (B) object (C) data (D) database
- (9) _____ is used to describe a relationship between a whole object and one of its parts.
(A) Aggregation (B) Association (C) Both A and B (D) Inheritance
- (10) Usability, performance, reliability and security are _____ requirements.
(A) functional (B) non-functional (C) Both A and B (D) none of these
- (11) For a requirement engineer, which method is effective if clients are unsure of what they want?
(A) Interview (B) Questionnaires (C) Structure meetings (D) Prototyping
- (12) The fact that the same operation may apply to two or more classes is called _____.
(A) Encapsulation (B) Data abstraction (C) Polymorphism (D) Inheritance
- (13) The principal task of the _____ stage in O-O system development is to determine the architecture of the system to be build.
(A) analysis (B) design (C) implementation (D) maintenance
- (14) Anyone who either contributes to the system development is called _____.
(A) user (B) client (C) stakeholder (D) actor
- (15) A class is _____.
(A) a group of objects (B) template for objects of a particular type
(C) a class of objects (D) a classification of object

- (16) Requirement validation methods are interviews, combining technique from elicitation, Fagan inspections and prototyping. (True / False)
- (17) Object-oriented system modeling using CRC method gives classes of the system, their responsibilities and collaborating classes. (True / False)
- (18) A methodology contains guidelines to follow for completing every activity in the systems development life cycle. (True / False)
- (19) Formal specification language is a description in natural language of a particular sequence of interactions between user and system. (True / False)
- (20) The traditional system life cycle can't do partition the development process into more or less agreed sequence of stage. (True / False)

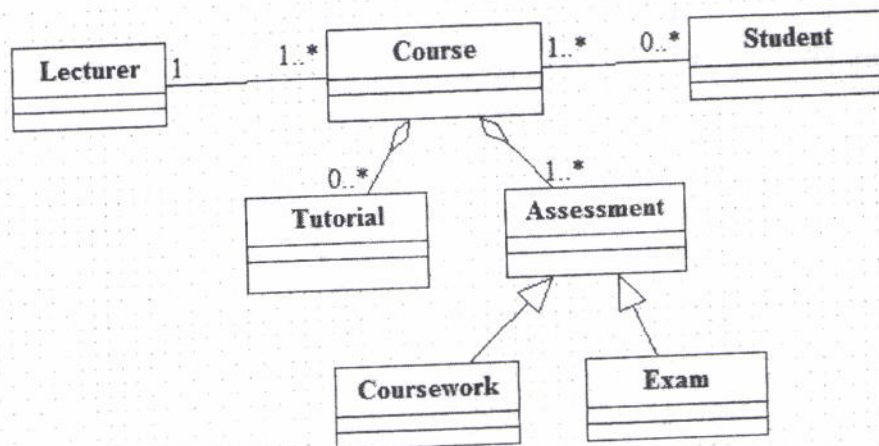
(15 marks)

II. Write the Short Note for ANY FIVE on following:

- Encapsulation / data hiding
- Define an association. Give an example.
- Stages in traditional system life cycle
- Actor / data dictionary
- Subclass / Superclass
- Requirement specification
- Abstraction / decomposition

(5 marks)

III.(a) Write a **scenario** on the following class diagram.



III.(b) Draw a **class diagram** for the specification of the system describe below. A library loans three different kinds of items to customers: books, video tapes and compact disks. Each item has a title and publisher. In addition, books have an author, and CDs have an artist. The library may have multiple copies of the same book, video tape or compact disk. There are two different kinds of customer: student and staff. For both kinds of customer, the library has their name, sex and address. Students may borrow at most 20 items.

(10 marks)

IV.(a) In the Cute Cards system an invoice consists of the order number, customer name and address, delivery address (if different from customer's billing address), one or more order lines, any charge for delivery or postage and packing, and the total cost of the order. Write a **data dictionary definition** for an invoice. (7 marks)

IV.(b) The father, who has a responsibility to satisfy his hunger, tells the mother to get his tea; in order to do this, the mother collaborates with her children, telling them to peel the potatoes, fry the sausages and put the kettle on for tea.
Draw **CRC cards** for the father class, mother class and children class to illustrate the responsibilities and collaborations in this situation. (8 marks)

V.(a) Read through the scenario below, which describes what happens when a car enters the park. Draw **sequence diagram** to illustrate this information. (10 marks)

1. The car driver sees that full sign is off
2. A car's arrival is detected by the sensor and this information is passed to the car park
3. The car park checks to see if there are still spaces
4. There is still at least one space available
5. A card is inserted into the card reader by the car driver
6. The card reader reads the card number and checks that it is in the list of valid cards
7. The card is not recognized as known to the system
8. The card is returned.

V.(b) Draw a **collaboration diagram** that represent the above process of (a). (10 marks)

V.(c) Draw a **state diagram** to illustrate a telephone line as described in the following paragraph and writes a **scenario** for this case. You do not have to include a stop state on the diagram.
At the start of a call, the telephone line is idle. When the phone is removed from the hook, it emits a dial tone and can accept the dialing of digits. Upon entry of a valid number, the phone system tries to connect the call and route it to the proper destination. The connection can fail if the number or trunks are busy. If the connection is successful the called phone begins ringing. If the called party answers the phone, a conversation can occur. When the called party hangs up, the phone disconnects and rewards to idle when put on hook again. (15 marks)

*****END*****

Department of Higher Education
University of Computer Studies, Hinthada
Second Year (B.C.Sc.)
Final Examination
Computer Application Techniques II (CS-205)
October, 2018

Answer All Questions

Time Allowed: 3 hours

1. Answer the following questions. (10 marks)
- (a) Write JavaScript Statements to stop the flow of an event bubbling before it occurs.
(Use **Internet Explorer event** object of the button click event. Button's id is myBtn.)
- (b) Write JavaScript Statements that pops up an alert indicating the type of event being clicked a button (button's id is myBtn) by using **DOM level 0 event** object's property.
- (c) Write JavaScript code for following. To prevent the default behavior of the following text link by using **Internet Explorer event** object.
< a href= "http://www.google.com" id="myLink">Go to Google
- (d) Create an external JavaScript file EventUtil.js with EventUtil object for **Cross_Browser** way. This object includes following methods.
- i) `getEvent()` method: to return a reference to the event object.
 - ii) `getTarget()` method: to return the target of the event.
2. Write the JavaScript statements for following. (15 marks)
- (a) Create an html page which has a canvas element. When the page loaded, red rectangle is drawn on the 2D drawing context. Rectangle located at (50,50) that's 30px tall and 40px wide.
- (b) Create an external javaScript file EventUtil.js with EventUtil object for **Cross-browser way**. This object includes following methods.
- `addHandler()` method: to use the DOM level 0 approach, the DOM level 2 approach, or the Internet Explore approach to adding elements, depending on which is available.
 - `removeHandler()` method: to remove a previously added event Handler.
- (c) Add event handlers to given text box in the form. When user enter the input field (textbox of FORM), a function is triggered which sets the background color of the textbox to yellow. When use leave the input field, a function is triggered this removes the background color. Use **DOM Level 2 event** method. (Don't use EventUtil.js file)
- 3.
- (a) Create an html page that has a division with given style (background-color: red) and text "Mouse Over Me". Create a function to handler 3 events: first, change the background-color of target with "blue" when the user clicks on it; second, change the text of target with "Thank You!" when the mouse is move over it; third, change the target with original text and color

when the mouse is moved away from it. Assign these three events into the division mentioned above. (7 marks)

(b) Create an html page with following design. When user clicks the "Store" button user entered information in text boxes will be stored in **localStorage**. When user clicks the "Display" button display the information in the division below the form as shown.

Remarks: Use desired Event Handler Method or EventUtil.js file by creating yourself.

Roll no: 2CS-23
Name: Mg Mg
Store Display
Roll No :2CS-23
Name :Mg Mg

(8 marks)

4. Create an html page with following. Use **EventUtil.js** file. (10 marks)

- Create and call anonymous function that test to see if the browser supports the "email" input type. If the browser supports the email input type, display the text "Your browser supports the email input type" in the document. Otherwise, display the text "Your browser does not support the email input type."
- Create a form with a text box and three buttons. The email text box must have a value of email.
- When user submit the valid form, pops up an alert with "Form submitted."
- Add a click event handler to "Check Validity" button that pops up an alert with return value of `checkValidity()` method of element.
- Add a click event handler to "Will Validate?" button that pops up an alert with the value of `willValidate` property of element.

Your browser supports the email input type
Email: email SubmitForm
Check Validity Will Validate?

5. Fill in the blanks. (5 marks)

(a) Validation as designing the right product and verification as designing the.....

(b) Four major components in an interactive system. There are the system, the, the input and the output.

(c) Qualitative measurement is -----and us therefore more difficult to analyze.

(d) Network can be used to link-----representation.

(e) ----- emphasizes post hoc structuring of considered design alternatives.

6. Choose the correct answer of the following: **(10 marks)**

- (i) The question that ask the user to provide his own unprompted opinion on a question is called
(a) General (b)Open- ended (c) Scalar (d) Ranked
- (ii) A small picture used to represented a closed window is called an
(a) Radio button (b) check boxes (c) icon (d) scrollbar
- (iii) Which of design demonstrate the customer's requirement satisfaction with the various activities?
(a) Validation (b) Recoverability (c) Operation (d) Task conformance
- (iv) The design rules which high generality and low authority are.
(a) principle s (b) guidelines (c) standards (d) patterns
- (v) Ability of the system to support user interaction pertaining to more than one task at a time.
(a) Dialog initiative (b) Multi-threading (c) Task migratability
(d) Customizability
- (vi) The level of support provided the user in determining successful achievement and assessment of goal- directed behavior.
(a) Learnability (b) Flexibility (c) Robustness (d) Design rationale
- (vii) Which technique do not use in knowledge representation for adaptive help system?
(a) Ruled based (b) Model-based (c) Frame based (d) Netwok-based
- (viii) Standards aredesign rule.
(a) abstract (b) actual (c) specific (d) separate
- (ix) There are -----main types of query technique.
(a) two (b) three (c) four (d) five
- (x) The user's language can be referred as -----.
(a) core Language (b) performance Language (c) task Language
(d) articulation Language

7. Answer the following short questions.

- (a) What are the factors governing the choice of an appropriate evaluation method for different interactive system? **(5 marks)**
- (b) Draw the interaction design process. **(5 marks)**
- (c) Express the Universal design principle and explain two of design principles. **(5 marks)**
- (d) Describe the four main groups of techniques used in knowledge representation for adaptive help systems and explain two of technique. **(5 marks)**
- (e) What are the expected benefits of using in a design rationale? **(3 marks)**
- (f) List the techniques that have been used in dialog modeling in UIMS. **(3 marks)**
- (g) Define qualitative measurement and quantitative measurement. **(3 marks)**
- (h) Difference between system's language and user's language. **(2 marks)**
- (i) Write down the four main transactions involved in the interaction. **(2 marks)**
- (j) Draw the Model view controller (MVC). **(2 marks)**

Department of Higher Education
University of Computer Studies, Hinthada
Second Year(B.C.Sc.)

Final Examination

System Development Concepts and Techniques (CS-206)

October, 2018

Time allowed: 3 Hours

Answer All Questions.

I. Choose the correct answer for the following statements:

(20 marks)

- (1) A benefit derived from the creation of an information system that can be measured in dollars and with certainty.
(A) Tangible cost (B) Intangible cost (C) Tangible benefit (D) Intangible benefit
- (2) A type of cost-benefit analysis to identify at what point (if ever) benefits equal costs.
(A) Tangible benefit (B) Break-even analysis (C) Recurring cost (D) Design analysis
- (3) A document prepared for the customer that describes what the project will deliver and outlines generally at a high level all work required to complete the project.
(A) Baseline project plan (B) Break-even document
(C) Project scope statement (D) Project status report
- (4) An entity type that associates the instances of one or more entity types and contains attributes that are peculiar to the relationship between those entity instances.
(A) Binary relationship (B) Associative entity (C) Entity instance (D) Cardinality
- (5) A simultaneous relationship among the instances of three entity types is called:
(A) Binary relationship (B) Unary relationship (C) Ternary relationship (D) Cardinality
- (6) The document, produced by the project team, clearly outlines the objectives of the project for the customer.
(A) Project scope statement (B) Baseline project plan
(C) Business case (D) Project status report
- (7) The first activity of the system planning and selection phase of the SDLC is :
(A) Project identification and selection
(B) Project initiation and planning
(C) Project identification and planning
(D) Project initiation and selection
- (8) A process of identifying the financial benefits and costs associated with a development project.
(A) Political feasibility (B) Technical feasibility
(C) Economic feasibility (D) operational feasibility

- (9) The ratio of the net cash receipts of the project divided by the cash outlays of the project:
- (A) Net Present Value (B) Return On Investment
(C) Break-even analysis (D) Time Value of Money
- (10) The process of comparing present cash outlays to future expected returns:
- (A) Time Value Of Money (B) Net Present Value
(C) Return On Investment (D) Break-even analysis
- (11) _____ can be used as way of classifying stakeholders and other resources of requirements.
- (A) Interviewing (B) Scenarios (C) Use-cases (D) Viewpoints
- (12) During the requirements validation process, validity checks, consistency checks, completeness checks, _____ and verifiability should be carried out on the requirements in the requirements document.
- (A) realism checks (B) robustness checks (C) performance checks (D) reliability
- (13) Three principal stages of change management process are _____, change analysis and costing and change implementation.
- (A) requirement identification (B) initiating and change specification
(C) traceability management (D) problem analysis and change specification
- (14) Three complementary software architectural styles are system organization, _____ and control styles.
- (A) layered model (B) client-server model
(C) repository model (D) modular decomposition styles
- (15) When decomposing a sub-system into modules, two main strategies that we can use are:
- (A) object-oriented decomposition and function-oriented pipelining
(B) service-oriented decomposition and object-oriented pipelining
(C) layered-oriented decomposition and service-oriented pipelining
(D) function-oriented decomposition and object-oriented pipelining
- (16) The OSI model is a seven layers model for _____.
- (A) Open Systems Interconnection (B) Outer Systems Instruction
(C) Own Systems Interconnection (D) Object Systems Interconnection
- (17) Two generic types of distributed system architecture are client-server architectures and _____.
- (A) distributed architectures (B) distributed object architectures
(C) distributed service architectures (D) distributed function architectures
- (18) The protocol, _____ defines how the interfaces of web services can be represented.
- (A) WSDL (B) SOAP (C) UDDI (D) COM

- (19) Peer-to-Peer architectures are _____ where there are no distinguished clients and servers.
- (A) decentralized architectures (B) centralized architectures
 (C) semi- centralized architectures (D) service oriented architectures
- (20) Distributed object system require _____ to handle object communications and to allow objects to be added to and removed from the system.
- (A) software (B) hardware (C) middleware (D) firmware

II. Write Short Notes on ANY FOUR of the following.

(20 marks)

- (1) A general process model of the requirements elicitation and analysis process
- (2) Two classes of requirements from an evolution perspective
- (3) Two generic control styles used in software system
- (4) The five levels of service in the CASE reference model
- (5) Different Client-Server architectures with example applied system
- (6) Four major elements of CORBA standard

III. The goal of the Requirement Engineering process is to create and maintain a system requirements document. Discuss the principal requirements engineering activities and their relationships.

(10 marks)

IV. The majority of systems that use large amount of data are organized around a shared database or repository. Many CASE toolsets are developed around a shared repository. Discuss about the advantages and disadvantages of a shared repository.

(10 marks)

(OR)

Virtually all large computer-based systems are distributed systems. Compared to systems that run on a single processor or processor cluster, distributed systems have a number of advantages and disadvantages. Discuss about them.

(10 marks)

V. All the information collected during project initiation and planning is collected and organized into a document called the baseline project plan. List and describe the needs for and the contents of a **baseline project plan**.

(10 marks)

VI.(a) For a Mac burger's Food ordering system, list the relevant data flows, data stores, processes and sources/ sinks. Draw a **context diagram** and a **level-0 diagram** that represents the Food ordering system.

(10 marks)

- When customer places an order for specific foods, order details such as customer ID, address, order date and promised date for order to fill in.
- When customer orders are received, receipt information are replied to customers and transform customer food orders to bakery.
- According to the order details, the account department calculates the total amount of sales and update good sold data and inventory data.
- The administration department produces reports to managers such as daily good sold amounts and inventory depletion amounts.