Department of Higher Education
University of Computer Studies, Yangon
Second Year (B.C.Tech.)
Final Examination
System Analysis and Design (CT – 204)
September, 2018

Answer all questions. **Time allowed 3 hours**

I. Match the following key terms with the relevant definitions. **(10 marks)**

1.	Feasibility study	a)	The amount of time that an activity can be delayed without delaying the project.
2.	Scribe	b)	A person, place, object, event, or concept in the user environment.
3.	Boundary	c)	Determine whether the Information System makes sense for the organization from economic and operational standpoint.
4.	System Analyst	d)	A centralized database.
5.	Multivalued Attribute	e)	The most responsible person for analysis and design of information systems.
6.	Process	f)	The current value of a future cash flow.
7.	Present value	g)	The work or actions performed on data.
8.	Entity	h)	An attribute that may take on more than one value for each entity instance.
9.	Slack time	i)	The line that marks the inside and outside of a system.
10.	Repository	j)	The person who makes detailed notes at JAD session.

II. Choose the correct answer for the following statements. **(10 marks)**

(1) Everything external to a system that interacts with the system is
- (A) environment
- (B) interface
- (C) boundary
- (D) component

(2) Data can move directly to an outside sink from a data store by
- (A) a process
- (B) a dataflow
- (C) two separate arrows
- (D) none of these

(3) A process has a ----- label.
- (A) noun-phrase
- (B) verb-phrase
- (C) adjective-phrase
- (D) none of these

(4) A data flow from a data store means
   (A) update
   (B) insert
   (C) retrieve or use
   (D) none of these

(5) An attribute that may take on more than one value for each entity instance is
   (A) candidate key
   (B) identifier
   (C) single-attribute
   (D) multivalued attribute

(6) The first step in system development life cycle is.
   (A) database design
   (B) system design
   (C) preliminary investigation and analysis
   (D) graphical user interface

(7) Cost-Benefit analysis is performed during
   (A) system analysis
   (B) system design
   (C) feasibility study
   (D) system implementation

(8) A named property or characteristics of an entity that is of interest to the organization.
   (A) attribute
   (B) entity type
   (C) entity instance
   (D) relationship

(9) The number of instances of entity B that can (or must) be associated with each instance of entity A.
   (A) unary
   (B) binary
   (C) ternary
   (D) cardinality

(10) Dividing a system up into chunks or modules of relatively uniform size.
   (A) coupling
   (B) modularity
   (C) decomposition
   (D) cohesion

III. Answer any **five** from the followings. **(20 marks)**

(a) Explain prototyping and what advantage it has?
(b) List the activities performed by project manager during project initiation.
(c) What are the difference between form and report?
(d) Describe the most commonly used methods for highlighting information.
(e) Write down the common skills and activities of a project manager.
(f) What are the important system concepts that the system analyst need to know?
(g) What is JAD? List the typical JAD participants.

IV (a). The account department of a company receives work schedule logs of each employee from the various departments to calculate the salary. Invalid logs are returned to the corresponding department for correction and the valid ones are updated in the file called the schedule book. After the schedule logs are received, the logs are sorted by the employee number and filled back to the schedule. The logs are then used to calculate the gross pay for each employee. Based on each employee salary classification list, each employee's monthly salary is calculated. All employees' specifications (including salary classification) are obtained from a file called the employee profile. A pay cheque is then created and issued to each employee. Draw **the level-0 diagram** for this situation. **(10 marks)**

(b). Draw an **ER-diagram** for the following situations.

Each customer owns zero-to-many Shopping Cart Instances: each Shopping Cart Instance is owned by one-and-only-one Customer. Each Shopping Cart Instance contains one-and-only-one Inventory item: each Inventory item is contained in zero-to-many Shopping Cart Instances. Each customer places zero-to-many Orders: each order is placed by one-and-only-one Customer. Each Order contains one-to-many Shopping Cart Instances: each Shopping Cart Instance is contained in one-and-only-one Order. **(10 Marks)**

V (a). Candidates for employment are accepted if they have experience in database administration. Candidates without experience in database administration must sit for an interview and an aptitude test to be accepted. A satisfactory interview but a failure in the aptitude test will mean rejection except where the candidate has experience of similar work outside of database administration – in which case a probationary appointment is made. Candidate who has experience, but have failed to pass the interview, are offered a temporary job only. Candidates who do not meet any of the above criteria are rejected. Describe **a decision table** to represent the logic in this process. **(10 Marks)**

(b). Assuming monetary benefits of an information system at $50,000 per year. For onetime costs of $80,000, recurring costs of $25,000 per year, a discount rate of 10 percent, and a five-year time horizon, calculate the net present value of these costs and benefits of an information system. Also calculate the overall return on investment of the project. Present **the break even analysis** and at **what point** does **break even occur**? **(10 Marks)**

VI (a). At the end of this semester, your teacher has requested to develop the group projects for specific systems to assess your know-how on the System Analysis and Design subject. **What system** did you propose for your group project? **How many members** were there in your group project? Develop **the project scope statement** for your proposed system. **(10 Marks)**

(b) A project has been defined to contain the following list of activities along with their required times for completion. **(10 Marks)**

Activity No.	Activity	Expected Time(Weeks)	Preceding Activity
1.	Requirement Collection	2	-
2.	Screen Design	3	1
3.	Report Design	4	1
4.	Database Design	6	3
5.	User Documentation	4	2,3
6.	Programming	1	4
7.	Testing	5	4,5,6

(i) **Draw a Network diagram** for the above activities.

(ii) Show **the critical path**.