National School of Business Management
1ˢᵗ Year 2ⁿᵈ Semester
System Analysis & Design

Answer all questions.   **Time: 03Hrs**

Question 1   **(40 marks)**

Put a cross (X) within the correct cage as the answer for below multiple choice questions.

Question	Answer				Question	Answer			
1	a	b	c	d	**11**	a	b	c	d
2	a	b	c	d	**12**	a	b	c	d
3	a	b	c	d	**13**	a	b	c	d
4	a	b	c	d	**14**	a	b	c	d
5	a	b	c	d	**15**	a	b	c	d
6	a	b	c	d	**16**	a	b	c	d
7	a	b	c	d	**17**	a	b	c	d
8	a	b	c	d	**18**	a	b	c	d
9	a	b	c	d	**19**	a	b	c	d
10	a	b	c	d	**20**	a	b	c	d

1) The person who ensures that computer systems are developed on time, within budget, and with acceptable quality is the ……………………………
   a) system designer
   b) project manager
   c) system administrator
   d) system user

2) Data processing done on timely and regular basis for a huge volume of data is called as
   a) Batch processing
   b) Real time processing
   c) Transaction processing
   d) Demand processing

3) ……………….. is defined as a set of interconnected activities performed across an organization creating an output with added value of a product or service to a client to accomplish an organizational goal.
   a) Development process

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    b) Business process

    c) Quality process

    d) Data process

4) "Software engineers should not use their technical skills to misuse other people's computers." Here the term misuse refers to:
    a) Unauthorized access to computer material
    b) Unauthorized modification of computer material
    c) Dissemination of viruses or other malware
    d) All of the mentioned

5) .... is a set of processes and procedures that transform data into information and knowledge.
    a) Information system
    b) Knowledge system
    c) Database system
    d) Computer system

6) Statement of scope and objectives, opportunities and performance criteria is identified during the …………. phrase of SDLC.
    a) Problem definition
    b) System analysis
    c) System design
    d) Documentation

7) Decision makers who are concerned with tactical (short-term) operational problems and making decisions are ………………..
    a) executives
    b) supervisors
    c) middle managers
    d) none of the above

8) When analysing systems "Close ended questions" are best suits to apply in
    a) Interviews
    b) Questionnaires
    c) Both Interviews and Questionnaires
    d) None of the above

9) Artificial intelligence is attempting to duplicate which of the following human capabilities in computer-based systems?
    a) Thinking and reasoning, and using reason to solve problems.
    b) Learning or understanding from experience.
    c) Responding quickly and successfully to new situations.
    d) All of the choices are correct.

10) Which of the following are included in an Office automation system?
   i) Word processing   ii) Electronic mail
   iii) Voice mail   iv) Electronic calendaring
   v) Audio conferencing

   a) i, ii, iii and v only
   b) i, ii, iii and iv only
   c) i, ii, iv and v only
   d) All i, ii, iii, iv and v

11) Reason for the formation of groups in a working environment includes,
   a) In organizations, major decisions are often made by individuals as opposed to groups.
   b) Completion of certain critical tasks can be performed with individual efforts.
   c) Transformation of skills and technical expertise is beneficial to the organization as a whole, rather than individuals.
   d) Companies who value teamwork, then promotions, pay raises, and other forms of recognition can be given to individuals for how effectively they work as an individual.

12) Which business process typically employs more people in an organization than any other functional area?
   a) Logistics
   b) Operations
   c) Marketing
   d) Finance

13) Which of the following can be considered as an important factor for a successful outsourcing of information system development?
   a) Understanding company goals and objectives, and having a strategic vision and plan.
   b) Selecting the right vendor and ongoing management of the relationships.
   c) Open communication with affected individuals/groups.
   d) All of the choices are correct.

14) When somebody is collecting your personal information, you should be allowed,
   a) to know why information is collected
   b) to know what information is collected
   c) to accept or deny collection of your information
   d) all of the above

15) Design Phase consists of …………………….
   i. Identity the functions to be performed
   ii. Design the input/output and file design
   iii. Defining basic parameters for system design

   a) i & ii
   b) ii & iii
   c) i & iii

d) I, ii & iii

16) A context diagram
   a) describes the context of a system
   b) is a DFD which gives an overview of the system
   c) is a detailed description of a system
   d) is not used in drawing a detailed DFD

17) ……………… is a tabular method for describing the logic of the decisions to be taken.
   a) Decision tree
   b) Decision Method
   c) Decision Data
   d) Decision tables

18) System Study involves
   a) study of an existing system
   b) identifying current deficiencies and establishing new goals
   c) All of the above
   d) None of the above

19) Documentation is prepared
   a) at every stage
   b) at system analysis & design only
   c) at system development & implementation only
   d) None of the above

20) Which of the following is not true of the conversion phase of the development life cycle?
   a) the user and systems personnel must work closely together.
   b) steps must be taken to phase out the old system
   c) training and documentation are not required
   d) None of the above

Question 2 **(20 marks)**

(i)   Name four pictorial form of system representations in any aspect.   (4 marks)
(ii) Clearly mention four facts which affect to develop a successful software product.
                                                                          (4 marks)
(iii) Interviews are considered as the best source of getting qualitative information. Discuss the important factors to consider when conducting interviews as a major fact finding method in system analysis.   (6 marks)
(iv) "It is very important to check the capability of developing and implementing any project before you really start it". Discuss the importance of doing that with some examples based on internal and external factors which make an influence on it.
                                                                          (6 marks)

Question 3 and Question 4 are based on the scenario given below.

You have been appointed as a software engineer to develop a Student Enrolment System to ABC University. The descriptions of the proposed system is given below.

ABC University is a renowned institution which offers numerous diploma programs and degree programs in high demanding streams. University consists of four faculties such as computing, business, science and engineering and also a city centre which coordinates all the university activities.

Each faculty has a unique code, name, a unique building and a faculty office located in the city centre. Each faculty has a dean who is the responsible person for the management of the entire faculty as well as the progress and accomplishment of the faculty. A faculty is assigned with several department heads, lecturers and program coordinators while the faculty office handles all the administrative activities of the faculty as well as it deals with all student related matters.

A faculty consists of several departments and each department offers distinct programs under the supervision of the department head who is responsible in planning and decision making of all the activities within the department as well as communicating the certain amendments of the existing programs and introducing new programs. Each program has a unique code, title, duration, category (eg: degree or diploma), medium, entry qualifications and a program coordinators who is responsible in coordinating all the operational activities of the program such as assign lecturers, prepare program time tables, schedule examinations etc.

Lecturers teach multiple modules in various programs and they upload all the module information and lecture materials to university management system where registered students can access them and also they can discuss subject matters with module lectures online. Each lecturer is assigned an ID which is unique across the whole university and the system tracks the lecturer's name, title, module teach etc.

Students who are willing to join with the university should collect application forms from the city centre and submit the duly completed forms with the authorized copies of required certificates to the city centre or apply via the official website of the university by uploading scanned copies of necessary documents with the registration payment which can be done online or to the bank or to the cashier at the city centre. City centre examines student applications to check the basic entry requirements which is a 'credit' pass for English in Ordinary Level (OL) examination and three passes in Advance Level (AL) examination in any stream or five credit passes in OL examination.

Applicants who are not eligible to meet the basic entry requirement are informed via an email or a registered mail about their incompetent to enter to the university. Applicants with three passes in AL are eligible to follow a degree program while others can follow a diploma program. City centre assigns each selected student to a faculty based on student's interest area and the entry qualifications of faculties with the support of each faculty office. Then the

selected students are informed about their entitlement to follow any program in the assigned faculty via en email or a registered mail. Selected candidates receive details about each department and programs it offer within the assigned faculty and they are requested to select any one program offered by a particular department as they wish.

Students supposed to enroll with the chosen program by paying the semester fee of the program online or to the bank or to the cashier at the city centre before the due date. Every enrolled student receives a unique ID and the system keeps tract of student information and batch information in which he/she is enrolled such as batch code, start date and number of students etc. Once the students get registered to a program they are requested to participate for the inauguration ceremony organized by the university and the students receive their unique login to the university management system.

Question 3 (20 marks)

Read the given scenario carefully and draw the following Data Flow Diagrams (DFD) accordingly.

(i)   Context Diagram   (6 marks)
(ii) Level 0 DFD.   (10 marks)
(iii) Level 1 DFD for any **one (1)** of the above identified main processes.   (4 marks)

Question 4 (20 marks)

Draw the following Unified Modelling Language (UML) diagrams for the given scenario.
Note: Mention any additional assumptions (if any) you made on the given scenario.

(i)   Use Case Diagram   (10 marks)
(ii) Class Diagram   (10 marks)

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