Question I (24 pts) Choose the correct answer:

1. Is not a type of Information Systems:
   a. TPS b. GPS
   c. MIS d. EIS

2. Is a skill needed by the systems analyst:
   a. General business knowledge b. Flexibility and adaptability
   c. General problem-solving skills d. All of the mentioned

3. System Development Process consists of:
   a. Initiation, analysis, design, and implementation
   b. Waterfall, Agile, and Spiral models
   c. Feasibility study, Requirement Analysis, and Requirement Specification
   d. Reports, Documents, and Contracts

4. Purpose of SDLC process is to deliver software
   a. with no errors b. with high performance
   c. that is cost efficient d. that has better GUI (graphical user interface)

5. The waterfall model of software development is:
   a. A reasonable approach when requirements are well defined
   b. A good approach when a working program is required quickly
   c. The best approach to use for risky projects with large development teams
   d. An old-fashioned model that is rarely used any more

6. What is the major advantage of using Incremental Model?
   a. Analyst makes risk study at each stage
   b. Easier to test and debug
   c. It is used when there is a need to get a product to the market early
   d. Both b & c

7. The prototyping model of software development is
   a. A reasonable approach when requirements are well defined
   b. A useful approach when a customer cannot define requirements clearly
   c. The best approach to use for projects with large development teams
   d. A risky model that rarely produces a meaningful product

8. The spiral model of software development
   a. Use to quickly deliver the software product
   b. Is more flexible than the incremental model
   c. Includes project risks evaluation during each iteration
   d. Is known as Agile

Question II (26 pts) For a blood donation system, classify the following requirements as Functional or Non-functional (Quality):

1. The customer wants to have access to the software via a mobile application
   a. Functional b. Non-functional

2. Access to the application must be reserved only for registered users
   a. Functional b. Non-functional

3. For better security, the application must not use encryption
   a. Functional b. Non-functional

4. The application must be able to accommodate up to 4000 access in parallel while keeping a response time of less than 2 seconds per page
   a. Functional b. Non-functional

5. The application must provide an interface adaptable to different screen sizes of mobile devices, using specific libraries.
   a. Functional b. Non-functional

6. A user can request a blood donation by specifying the requested blood type (A+, A-, B+…), the required number of units and an eligible blood donation center.
   a. Functional b. Non-functional

7. When a blood donation request is made, notifications are sent to the compatible donors.
   a. Functional b. Non-functional

8. The requester must be able to check the progress of the arrival of the list of donors in real-time while they are heading to the donation center
   a. Functional b. Non-functional

9. The progress of the donors is displayed on a map view to be easier for the user to visualize and understand instead of text.
   a. Functional b. Non-functional

10. The requests of users are secured with a password of length 8 characters with 1 capital, 1 lower-case, 1 digit and 1 symbol, to make it largely difficult to hackers to get access to this sensitive medical history.
    a. Functional b. Non-functional

11. Notifications sent to the donors must be sent within 1 second delay no matter what the number of donors is.
    a. Functional b. Non-functional

12. A notification is sent to the users 2 months after their last donation to remind them of their ability to donate again, and the importance of donating for their own health and its role in saving others' lives.
    a. Functional b. Non-functional

13. The application can be installed on Android and IOS operating systems
    a. Functional b. Non-functional

Question III (50 pts) A project is broken into the tasks shown in the following table along with the dependencies, duration and number of resources (# RS) for each task.

Task	Duration	Dependencies	Resources
A	2	-	1
B	4	A	2
C	5	A	4
D	6	B, C	3
E	5	C	4
F	7	E	2
G	2	D, F	3

A. Build the Gantt chart to calculate the duration to finish the project, the number of resources needed.

Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A																						
B																						
C																						
D																						
E																						
F																						
G																						
# RS																						

B. Draw the Pert diagram of the where each node of the diagram has the following information: (You may use the back of this paper to draw)

ES	T	EF
ST	Critical?	
LS	D	LF

C. Using the above Pert diagram, find (show / draw) the critical path.

D. What is the impact on the project if task B is delayed for 2 days? Why?