

University of Baghdad
 College of Science
 Computer Science Dept
 Higher Diploma Exam. Test
 Date: / / 2012
 Time: 3 hrs.



Notes:

- Answer All Questions.
- Questions are mainly divided into two groups: G1 --- > MCQ (60%). G2 --- > Short Answers (40%)
- Answer in English.
- It is not allowed to consult any other information during the exam except for your own knowledge and what during the exam the assistants will explain.

Q. Number	Mark (Numbering)	Mark (Written)	Signature
Q1			
Q2			
Q3			
Q4			
Q5			
Q6			
Total			

(GROUP 1: MCQ)

Q1. Answer with either True or False (20 Marks)

1. Records data structure store the homogeneous data elements.
2. Finding the location of the element with a given value is Traversal.
3. Option buttons separated by frames (one frame for each option) are behaved exactly as checkboxes.
4. In HTML, the general syntax for inline image is `<src=image >` .
5. The Form-Load()event procedure is automatically executed when an application is run.
6. For a computer to begin running, the CPU must initialize and starts executing the bootstrap program in RAM.
7. $\exists x \forall y$ is the same as $\forall y \exists x$.
8. The octal number equivalent to the hexadecimal number (AB.C) is (325.6).
9. Interval between the time of submission and completion of the job is called response time.
10. A symbol table is a data structure used to store the constant value only.
11. Information needed during an execution of a procedure is kept in a block of storage called storage table.
12. Finding UAE flights in the Year 2008 would require compound search with AND.
13. The ALU and control unit of most of the microcomputers are combined and manufacture on a single silicon chip it is called monochip.
14. Dynamic typing concepts means determining at runtime what method to invoke.
15. A* algorithm becomes best first search when $g(n)$ is assumed to be zero.
16. The entries in the access matrix represents process.
17. MAN a data communication network designed to work over a large geographical area.
18. The logical operator of the NAND gate is (\uparrow).
19. Latency time is the time required by a sector to reach below Read/Write head.
20. A Pushdown automata is deterministic if there is at most one transition applicable to each configuration.

(GROUP 1: MCQ)

Q2. Mark with circle the best choice (40 Mark)

1. Round-Robin algorithm is essentially the preemptive version of
 - A. FIFO.
 - B. Shortest job first.
 - C. Shortest remaining.
 - D. Longest time first.

2. A time sharing system imply
 - A. More than one processor in the system.
 - B. More than one program in memory.
 - C. More than one memory in the system.
 - D. None of above.

3. CMYK model are used for
 - A. Computer display.
 - B. Printing.
 - C. Painting.
 - D. None of these.

4. Main memory always contain the same data as in cache in
 - A. Write back.
 - B. Write allocate.
 - C. Write around.
 - D. Write through.

5. The following are input devices
 - A. Camera, Scanners, and Plotter.
 - B. Keyboard, Scanners, and Printer.
 - C. Camera, Mouse, and Data show.
 - D. Mouse, Scanners, and Trackball.

6. Virtual memory is
 - A. An extremely large main memory.
 - B. An extremely large secondary memory.
 - C. An illusion of extremely large main memory.
 - D. A type of memory used in super computer.

7. The maximum number of points that can be displayed without overlap on a CRT is referred as the:
 - A. Resolution.
 - B. Color depth.
 - C. Refreshing.
 - D. Pixmax.

8. Multiplexer and arbitration logic units locate in
- A. Time shared common bus.
 - B. Dual bus.
 - C. Multiport memory.
 - D. Crossbar switch.
9. Which of the following is not a good use for a database program?
- A. Keeping school records.
 - B. Completing a paper for English class.
 - C. Maintaining hospital admission records.
 - D. Organizing recipes at home.
10. What is a shell
- A. A hardware component.
 - B. Command interpreter .
 - C. Part of compiler.
 - D. A tool in CPU scheduling.
11. Which of the following statement is true concerning objects and/or classes?
- A. An object is an instance of a class.
 - B. A class is an instance of an object.
 - C. An object includes encapsulates only data.
 - D. A class includes encapsulates only data.
12. What does searching a database mean
- A. Editing data entries.
 - B. Looking for records that meet certain conditions.
 - C. Opening the file for viewing.
 - D. Ranking the records in the order you need.
13. Which of the following is a technique for hiding the internal implementation details of an object
- A. Encapsulation.
 - B. Polymorphism.
 - C. Inheritance.
 - D. All of the above.
14. Which one of these lists contains only Java programming language keywords
- A. Class, if, void, long, Int, continue.
 - B. Goto, instanceof, native, finally, default, throws.
 - C. Try, virtual, throw, final, volatile, transient.
 - D. Strictfp, constant, super, implements, do.

15. The front line of defense against intruders is
- A. Encryption system.
 - B. Password system.
 - C. Antivirus system.
 - D. Spyware.
16. Which of the following is an abstract data type
- A. Int.
 - B. Double.
 - C. String.
 - D. Class.
17. Frames from one LAN can be transmitted to another LAN via the device
- A. Router.
 - B. Bridge.
 - C. Repeater.
 - D. Modem.
18. A language is regular if and only if it is accepted by a finite automation
- A. The given statement is true.
 - B. The given statement is false.
 - C. The given statement is partially true.
 - D. Sometime true, sometimes false.
19. When an input electrical signal $A=10100$ is applied to a NOT gate, its output signal is
- A. 01011
 - B. 10001
 - C. 10101
 - D. 00101
20. Which of the following malicious programs are independent
- A. Logic bombs.
 - B. Trapdoors.
 - C. Worms.
 - D. Trojan horses.

(GROUP 2: Short Answers)

Q3. Within computer science discipline, write down **(in the blank entries)** full names of the following short forms (see the answered one) **(10 Marks)**

0	SW	Software
1	MPC	
2	LRU	
3	MISD	
4	CAD	
5	TSL	
6	CASE	
7	4GT	
8	CBD	
9	DRE	
10	UML	

(GROUP 2: Short Answers)

Q4. Matching (10 Marks)

For each of the subjects listed in A, select the most suitable field in B that you may learn the subject in.

A	Answer	B
Stack		1. Multimedia
Object animation		2. Operating System
Predictive Parsing		3. Compiler
DMA		4. Software Engineering
Waterfall		5. Computer Security
Encapsulation		6. Database
SQL		7. Data Structure
Access Control List		8. Object Oriented Programming
File Allocation Table		9. Computer Network
OSI Model		10. Computer Architecture

(GROUP 2: Short Answers)

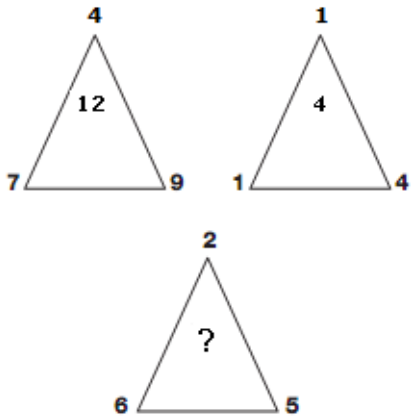
Q5. Numerical answers (8 Marks)

1. How many objects and reference variables are created by the following lines of code?

```
Employee emp1, emp2;  
emp1 = new Employee() ;  
Employee emp3 = new Employee() ;
```

Solution:

2. Which number replaces the question mark?



Solution:

3. Determine the new radius if a circle with (R=3) and center ($X_c = 1, Y_c = 1$), is shifted ($T_x=3, T_y= 2$) and scaled ($S_x = S_y =2$).

Solution:

4. How many bits are there in source IP address field?

Solution:

(GROUP 2: Short Answers)

Q6: A. Answer the following **(6 Marks)**

1. Convert the expression $((A + B) * C - (D - E) ^ (F + G))$ to equivalent Prefix and Postfix notations.

1. **Prefix Notation:**

2. **Postfix Notation:**

2. What is the difference between array and matrix?

3. What are the three generic phases of software engineering?

1.

2.

3.

4. What is the purpose of the system programs?

Q6: B. Write a function in any structured programming language to determine the greatest common divisor (GCD) among three numbers (x, y, z). **(6 Marks)**