

University of Thi-Qar

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Computer Science Dept.

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M.Sc. Competitive Test 2013-2014

Date 8-9-2013

Time: 3 hrs

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Notes:

- Answer all questions.
- Questions are mainly divided into two groups: Group 1: MCQ (60%). Group2: 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			
Q7			
Total			

## Group 1: MCQ

**Q1:** Mark with circle the correct answer. (40 marks)

1. The operating system may work to forbidden at least one of the necessary conditions of deadlock, this method is used to:
  - a) Detect deadlock state
  - b) Prevent deadlock state
  - c) Avoid deadlock state
  - d) Recover deadlock state
2. The type of CPU scheduling algorithm that is suitable for real time computer system is:
  - a) FCFC algorithm
  - b) Priority scheduling algorithm
  - c) Round Robin algorithm
  - d) SJF algorithm
3. Medium term scheduling algorithm is used to schedule the processes in:
  - a) Hard Disk
  - b) Main Memory
  - c) Backing Store
  - d) Hard disk and main memory together
4. Purpose of an OS is:
  - a) Creates abstractions
  - b) Multiple processes compete for use of processor
  - c) Coordination
  - d) All of above
5. Maximum period of r-stage LFSR equal:
  - a)  $2^{r-1}$
  - b)  $2^r$
  - c)  $2^r - 1$
  - d)  $r^2 - 1$
6. value of X from  $(3 * X \bmod 23 = 10)$  is:
  - a) 13
  - b) 11
  - c) 9
  - d) 17

7. Value of  $r$  from  $(-11 \bmod 3=r)$  is:
  - a) -2
  - b) 0
  - c) 2
  - d) 1
8. ----- is an example of static estimation model:
  - a) CBD
  - b) Spiral
  - c) COCOMO
  - d) Waterfall
9. The data domain model objectives that is the analysis principle are data object, data attributes and-----:
  - a) Data relationships
  - b) Rules relationships
  - c) Loc
  - d) Engineering tasks
10. ----- is a sequence of characters to be treated as a single unit.
  - a) Token
  - b) White space
  - c) Lexems
  - d) Statements
11. A grammar that produce more than parse tree for same sentence is said to be -----
  - a) Ambiguous
  - b) Context free grammar
  - c) Normal form grammar
  - d) Syntactic grammar
12. How do you represent "all dogs have tails"
  - a)  $\forall X:\text{dog}(x) \rightarrow \text{hastail}(x)$
  - b)  $\forall X:\text{dog}(x) \rightarrow \text{hastail}(y)$
  - c)  $\forall X:\text{dog}(y) \rightarrow \text{hastail}(x)$
  - d)  $\forall X:\text{dog}(x) \rightarrow \text{has} \rightarrow \text{tail}(y)$
13. It is a processor that may be classified as a processor with direct memory access capability that communicates with I/O devices:
  - a) CPU
  - b) I/O processor
  - c) Multiprocessor
  - d) Cache memory

14. If  $(x,y)$  is the cartesian coordinates for a point in 2D, then its new coordinates after the reflection by the line  $y=x$
- a)  $(-x,y)$
  - b)  $(x,-y)$
  - c)  $(-x,-y)$
  - d)  $(y,x)$
15. How might the following be written in Prolog? "If I forget my umbrella on a day when it rains, I'll get wet"
- a) `wet(M):-rainy(D)`
  - b) `rainy(D), no-umbrella(M,D):-wet(M)`
  - c) `rainy(D):-wet(M)`
  - d) `wet(M):-rainy(D),no-umbrella(M,D)`
16. Which of the following is the communications protocol that permits data transmission over the Internet
- a) POP
  - b) TCP/IP
  - c) ISPN
  - d) IMAP
17. What term describes a component that can be shared by users on a LAN?
- a) Lender
  - b) Server
  - c) Borrower
  - d) Attendant
18. Which of the following is not a logical database structure?
- a) Tree
  - b) Relational
  - c) Chain
  - d) Network
19. ----- is a special program that enables the computer to convert the source code into its own machine language
- a) Dos
  - b) Compiler
  - c) Assembler
  - d) BIU
20. ----- is the process of translating a task into a series of commands that a computer will use to perform that task
- a) Project design
  - b) Installation

- c) System analysis
  - d) Programming
21. Decimal 63 equals ----- in hexadecimal
- a) 2B
  - b) 3F
  - c) 1E
  - d) FF
22. The most important property that has been gained by using pipelining is:
- a) Speedup
  - b) Low cost
  - c) Design convenience
  - d) Saving storage
23. -----identifies the location of the next instruction to be executed in the current code segment
- a) Instruction pointer
  - b) Stack pointer
  - c) Program counter
  - d) Stack
24. The process of building new classes from existing one is called
- a) Polymorphism
  - b) Structure
  - c) Inheritance
  - d) Cascading
25. In DBMS FD stands for:
- a) Facilitate Data
  - b) Functional Data
  - c) Facilitate Dependency
  - d) Functional Dependency
26. In the linked list implementation of the stack , the push operation places the new item on the linked list:
- a) At the tail
  - b) At the head
  - c) At the middle
  - d) At any of the above answer
27. The creation of worldwide businesses and markets is called:
- a) Globalization
  - b) Geographical information system
  - c) Global network navigator

- d) Intranet
28. When the operating systems concurrently executes many programs, it is called:
- a) Multitasking
  - b) Multithreading
  - c) BIOS instructions
  - d) System software
29. Database software is an example of a(n):
- a) DBA
  - b) Application
  - c) Operating system
  - d) Desktop publishing program
30. Consider the following link  
<http://www.sou.edu/business/marketing/smithers/syllabus.html>  
www.sou.edu in the above link is:
- a) URL
  - b) Host computer
  - c) Path
  - d) Domain
31. What term is used to describe the number of bits (on/off electrical signals) that a chanal transmits per second?
- a) Throughput
  - b) Raster rate
  - c) Bandwidth
  - d) Band rate
32. The description enclosed between '(\*'and '\*' ) is called a comment statement in:
- a) C++ PL
  - b) Basic PL
  - c) Pascal PL
  - d) Fortran PL
33. The structured program is called:
- a) Bottom-up design program
  - b) Program which has no functions
  - c) Top-down design program
  - d) Have not refinement processing
34. The function sector(350,250,0,60,100) is used to draw:
- a) A sector of a circle
  - b) An arc of ellipse
  - c) A sector of ellipse

d) An arc of a circle

35. The function of three input NAND gate is:

- a)  $A.B.C$
- b)  $A+B+C$
- c)  $A+B +C$
- d)  $A.B.C$

36. If the source language is assembly language and the target language is machine language then the translator is called:

- a) Interpreter
- b) Compiler
- c) Assembler
- d) Code generator

37. Let P: a push operation to push an item into stack, U a pop operation to pop item from stack. The input sequence to stack is 1234. Which of the following sequence of operations produce the output 2314?

- a) PUPUPUPU
- b) PPUPUPUU
- c) PPPPUUUU
- d) PPUPUUPU

38. What is the intersection of a column and a row on a worksheet called:

- a) Address
- b) Cell
- c) Column
- d) Value

39. This virus that attaches itself to macros is called:

- a) Email virus
- b) Time bomb
- c) Trojan horse
- d) Macro virus

40. The declaration of an array A with 5 columns and 10 rows using BASIC language will be:

- a) `DIMENSION A(10,5)`
- b) `DIM A(10,5)`
- c) `DOUBLE A[10],[5];`
- d) `Var A:array[1..10,1..5] of real;`

## Group 1: MCQ

**Q2:** Mark with circle the correct answer (20 marks)

1. Operating systems are event-driven program, so they are also interrupt-driven.
  - True
  - False
2. The main application of image subtraction is edge detection.
  - True
  - false
3. Paging and segmentation need mapping tables to define the address map.
  - True
  - False
4. Ensuring that users have permission to perform particular actions is known as globalization.
  - True
  - False
5. DES enciphers 56-bit blocks of data with 64 bit key.
  - True
  - False
6. The statements `putpixel(x,y,color)` and `line(x1,y1,x2,y2)` can be used to draw any regular or irregular geometric shape.
  - True
  - False
7. The summation of integer numbers 1,2,3,...,n is  $n(n+1)/2$ 
  - True
  - False
8. The main advantage of using cache memory is to extend the storage
  - True
  - False
9. Linked list are indexed structures
  - True
  - False
10. To refer to a particular item within an array , we specify the name of the array and the value of the particular item
  - True
  - False



11. Each displayed color on a monitor can be defined in terms of three basic components they are: Red, Green, and Blue.
- True
  - False
12. System engineering is concerned with all aspects of computer-based systems development including hardware, software, and process engineering.
- True
  - False
13. Distributed database spread data across networks on several different computers.
- True
  - False
14. IT stands for Information Theory
- True
  - False
15. Gray level images can be converted to binary images through quantization operation.
- True
  - False
16. A 512x8 EPROM would have 512 words, each word being 8 bits wide.
- True
  - False
17. The motherboard's chipset controls the flow of information between all systems components connected to the board.
- True
  - False
18. SQL stands for Software Query Language.
- True
  - False
19. LAN operating systems come in two formats peer-to-peer (p2p) and dedicated server.
- True
  - False
20. If A square matrix, and A is invertible matrix. If  $A^{-1}$  the inverse of A then  $A^{-1} = \frac{1}{A}$ .
- True
  - False

## Group 2: Short answers

**Q3: A:** Match the following terms to their meaning: (4 Marks)

Term	Meaning	Answer
1. ALU	A. Memory which is faster than RAM	1.
2. Register	B. Type of memory that is loses its data when the power is turned off	2.
3. Cache	C. Part of the CPU where instructions are performed	3.
4. Decode unit	D. Integrated corporate data kept in a central repository	4.
5. Clock	E. Translate an instruction	5.
6. XML	F. Timing device	6.
7. Data warehouse	G. Data description language designed for database access on the web	7.
8. Volatile memory	H. 32 or 64 bits storage for the ALU	8.

**B:** list the necessary randomness properties in cipher systems (4 Marks)

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**Q4: A:** compare between stream cipher and block cipher (4 Marks)

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**Q4 B:** Explain the fetch and execute cycle

(4 Marks)

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**Q5: A:** what are the functions of each of the following: (4 Marks)

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مع أطيب الأمنيات لكم بالموفقية والنجاح الدائم