Q1:Choose the correct answer:

1. Purpose of an OS is
   a. Creates abstractions
   b. Multiple processes compete for use of processor
   c. Coordination
   d. all of above

2. Scheduler decides
   a. which processes get to use the processor
   b. when processes get to use the processor
   c. when and which processes get to use the processor
   d. no one of above

3. Virtual Memory allows processes to
   a. delete information stored on a storage device when deleted in primary memory.
   b. reference information stored on a storage device as if it were stored in primary memory.
   c. update information stored on a storage device when updated in primary memory.
   d. all of above

4. Direct Memory Access it's a way to
   a. increase the CPU utilization.
   b. increase the Memory utilization.
   c. increase the I/O utilization.
   d. no one of above

5. Device Management is implemented across
   a. resource managers

b. device drivers
c. device handlers.
d. all of above

6. The modern OS uses
   a. multiprogramming, the illusion that applications each reside inside of there own computer.
   b. multiprocessor, the illusion that applications each reside inside of there own computer.
   c. multithreads, the illusion that applications each reside inside of there own computer.
   d. all of above

7. In a classic OS system,
   a. only one program can be running per processor, the base thread
   b. additional threads can share the host process' resources
   c. only one thread can be running per processor, the base thread
   d. no one of above

Q 2 Explain briefly, Steps in Thread Scheduling

Q3 Choose the right choice:

1) ---------- A sequence of characters to be treated as asingle unit.
a)token b) white space c)lexemes d)statements

2) ---------- Parserscan the input from left to right and construct a right most derivation in reverse.
a)LR b) bottom up c) top down d)predictive

3) ---------- are statements that generally produce no executable code.
a)declaration statements b) control statements c) computation statements d) structure statements

4) The syntax directed translation scheme is useful because it enables the compiler designer to express the generation----------.
a) intermediate code b)source code c)machine code d)syntactic code

5) If the source language is assembly language and the target language is machine language then the translator is called----------.
a)assembler b)interpreter c) compiler d) code generator

6) 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

7) Operator precedence parse is especially suitable for parsing ----------.
a)expression b) recursive routines c)associative operators d) all above

Q4 By example give the difference between top down parsing bottom up parsing.

Q5 Choose the correct answer:

1-If A square matrix, and A is invertible matrix. If A^{-1} the inverse ofA then..

$a)\ A^{-1}=\frac{1}{A},\quad b)\ AA^{-1}\neq I,\quad c)\ A^{-1}A=I$

2- $\frac{d}{dx}(\cot^{-1}(x))$ is … ……. ……

$a)\ \frac{1}{1-x^2},\quad b)\ \frac{-1}{1+x^2},\quad c)\ \frac{1}{1+x^2},$

3- The solution of following differential equation[**y″-4y**= 0] is……

$a)\ y=c_1+c_2e^{-4x},\quad b)\ y=c_1+c_2e^{4x},\quad c)\ y=c_1e^{2x}+c_2e^{-2x}$

4- The solution of following differential equation[y″= 0] is……

$a)\ y=c_1+c_2e^{x},\quad b)\ y=c_1+c_2\ ,\quad c)\ y=c_1+xc_2$

5- If [f (t) = sinh2t], the Laplace transformation [f(s) = L {sinh2t}], is…….

$a)\ f(s)=\frac{1}{s^2-4},\quad b)\ f(s)=\frac{2}{s^2-4},\quad c)\ f(s)=\frac{2}{s^2+4}$

6- If [$f(s)=\frac{4}{s^5}$], the inverse of Laplace transformation [f (t) = $L^{-1}\{\frac{4}{s^5}\}$] is……

$a)\ f(t)=t^4,\quad b)\ f(t)=24t^4,\quad c)\ f(t)=\frac{t^4}{6}$

7- If f (x, y) and its partial derivatives f_x,f_y, $f_{y\,x}$, and f_{xy} are define in region containing a point (a, b) and are all continuous at (a, b), then ……

(a)$f_{x\,x} = f_{yy}$, (b) $f_{y\,x} = f_{xy}$, (c) $f_{y\,x} \neq f_{xy}$.

Q6 Find cosine Half-range series for the function defined as

f(x) = 4, for 0< x<Π .

Q7 Choose the correct answer:

1 - Which of the following registers is used to keep track of address of the memory location where the next instruction is located?
a. Memory Address Register
b. Memory Data Register
c. Instruction Register
d. Program Register

2 - Pipelining strategy is called implement
a. instruction execution
b. instruction prefetch
c. instruction decoding
d. instruction manipulation

3 - IRR stands for:

a. Interrupt request register
b. Input request register
c. Interrupt resolver register
d. Input resolver register

4 - A stack pointer is
a. a 16-bit register in the microprocessor that indicate the beginning of the stack memory.
b. a register that decodes and executes 16-bit arithmetic expression.
c. The first memory location where a subroutine address is stored.
d. a register in which flag bits are stored

5 - The branch logic that provides decision making capabilities in the control unit is known as
a. controlled transfer
b. conditional transfer
c. unconditional transfer
d. none of above

6 - Interrupts which are initiated by an instruction are
a. internal
b. external
c. hardware
d. software

7 - 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

8 - Which is a type of microprocessor that is designed with limited number of instructions:

a. CPU
b. RISC
c. ALU
d. MUX

Q8 What is cache?

Q9: Choose the correct answer:

1-_____ is the capability to continue as if nothing has happened, even after a major component failure.
A) Redundancy
B) Interoperability
C) Fault tolerance
D) Backup

2- More than one of the same components is an example of a _____ system.
A) Scalable
B) Redundant
C) RAID
D) back-up

3- The purpose of decision support systems (DSS) is to:
A) Replace a manager's judgment during the decision-making process
B)Provide a predefined sequence of analysis during the process of problem solving
C) Provide interactive assistance during the process of problem solving
D) Automate a manager's decision-making process

4- E-business software is best defined as to manage:
A) Internal administrative applications**.**
B) sell-side e-commerce applications.
C) . buy-side applications.
D) Not all above

5-An _____ system has a stored knowledge base and an inference engine.

A) Expert.
B) Control
C) MIS
D) None of the above.

6-Which is the correct for MIS:
A) Communication process wherein information is recorded, stored, processed and retrieved for managerial decision-making.
B) Communication process wherein data is recorded, stored, processed and retrieved for managerial decision-making.
C) Communication process wherein data is converted into information.
D) All of the above.

7-Management uses information for two purposes : planning and _____.

A) Programmable.
B) Control.
C) Predictive reports.
D) None of the above.

8- An MIS provides:

A) Past information.
B) Present information.
C) future information
D) All of the above

Q10 What are the components of management information system?

Q11 **Identify the choice that best completes the statement or answers the question.**

1. The third stage in designing a database is when we analyze our tables more closely and create a _____ between tables
A) relationship
B) Join
C) Query
D) None of these

2. This key uniquely identifies each record
A) primary key
B) key record
C) unique key
D) field name

3. It is an association established between common fields of two tables.
A) line
B) relationship
C) primary key
D) records

4. This is the stage in database design where one gathers and list all the necessary fields for the database project.
A) data definition
B) data refinement
C) establishing relationship
D) none of the above

5. A database language concerned with the definition of the whole database structure and schema is _____
A) DCL
B) DML
C) DDL
D) All of above

6. Which of the following statement is true?
A) Foreign key fields don’t allow duplicate values
B) In primary key field you can enter duplicate value
C) In an indexed field you may or may not enter duplicate value depending upon setting
D) All statements are true

7. Following is not a database model
A) network database model
B) relational database model
C) Object Oriented database model
D) None

8. The database language that allows you to access or maintain data in a database
A) DCL
B) DML
C) DDL
D) None of above

Q12 **list the main parts of any database system environment**

Q13: Choose the correct answer:

1. ……. Are rules that govern a communication exchange
   a. media
   b. criteria
   c. protocols
   d. all of the above.
2. The performance of a data communication network depends on …….
   a. The number of users
   b. The transmission media
   c. The hardware and the software
   d. All of the above
3. …… connection provides a dedicated link between two devices
   a. Point-to-point
   b. multipoint
   c. primary
   d. secondary
4. in …….transmission, the channel capacity is shared by both communicating devices at all times
   a. simplex
   b. Half duplex
   c. Full duplex
   d. Half simplex
5. When different programs are running at the same time on a computer, they can be identified by their ……. addresses
   a. node
   b. station
   c. service point (port)
   d. source
6. the ……..changes bits into electromagnetic signals
   a. physical
   b. data link
   c. transport
   d. presentation

7. in fiber optics, the signal source is ……. waves
    a. light
    b. radio
    c. infrared
    d. very low frequency
8. the sharing of a medium and its path by two ore more devices is called ……
    a. modulation
    b. encoding
    c. line discipline
    d. multiplexing

<u>Q14</u>Compare between bridges, routers , and gateways.

Q15: Choose the correct answer:

1.The ---------- is a collection of interrelated components that collect, process, store, and provide as output the information needed to complete business tasks.
a. system b. information system c. operating system d. system analysis

2. ---------- are the people involved in or affected by project activities.
a. stakeholders b. users c. Project team d. Suppliers

3. KWS means ----------.
a. Key Word Systems b. King Willy Systems c. Knowledge Work Systems d. Krish Wald Systems.

4. The input to the DSS is ----------.
a. High-volume data b. low-volume data c. high-volume information d. low-volume information.
5. One of the alternatives to traditional waterfall SDLC is ----------.
a. JAD b. DAJ c. ADJ d. DJA

6. ---------- is a form requesting development or maintenance of an information system.
a. SSR b. RRS c. RSR d. SRS

7. ---------- integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.
a. PIS b. RTS c. GIS d. KLS

Q16 what are the Guidelines for Drawing Data Flow Diagrams.