Grade 13
G.C.E. (A/L) PRACTICE TEST 2017

2 hours

## Information \& Communication Technology I

Answer all the questions.
Use of calculators is not allowed.

1. The third generation computers were based on
(1) Very Large Scale Integration technology
(4) Transistors
(2) Large Scale Integration technology
(5) Vacuum tubes
(3) Integrated Circuits
2. Which of the following statement is incorrect about ENIAC
(1) It was the first electronic computer used for general purposes.
(2) It used a large number of vacuum tubes and a few transistors.
(3) It stands for Electronic Numerical Integrator And Calculator.
(4) It was invented by J. Presper Eckert and John Mauchly.
(5) It used a large number of vacuum tubes
3. Which of the following is NOT a factor which affects the quality of information?
(1) Age of the audience
(4) file size
(2) Cost
(5) accuracy
(3) Level of details
4. The stored program concept was presented by
(1) John Von Neumann
(4) Charles Babbage
(2) Ada Lovelace
(5) Blaise Pascal
(3) John Eckert
5. The decimal equivalent of hexadecimal number B 1 A is
(1) 2891
(2) 2980
(3) 2981
(4) 2826
(5) 2842
6. The decimal number equivalent of $11110110_{2}$ is
(1) 240
(2) 246
(3) 264
(4) 624
(5) 426
7. Representation of $8_{10}$ and $-11_{10}$ in 8 bit two's complement forms are
(1) 00000110 and 10101010 respectively
(2) 11100101 and 11101010 respectively
(3) 01010101 and 00101010 respectively
(4) 00001000 and 11110101 respectively
(5) 10100101 and 11101010 respectively
8. $103_{16}+301_{8}$ is not equal to
(1) $1 \mathrm{C}_{16}$
(2) $704_{16}$
(3) $111000100_{2}$
(4) $704_{8}$
(5) 452
9. The simplification of the Boolean expression $\overline{\square \bar{\square} \square}$ (BC)
(1) 0
(2) $\mathrm{A}+\bar{\square}+\mathrm{C}$
(3) A
(4) BC
(5) AB
10. When simplified with Boolean Algebra $(x+y)(x+1)(y+1)$ simplifies to
(1) $x+y$
(3) $x+(y+1)$
(5) 1
(2) $x(1+y)$
(4) $x+(y .1)$
11. Consider the given relation below.

Employee (empno, name, NIC, DOB)
Which of the following SQL statements is syntactically correct on the above relation?
(1) Select all from Employee
(4) Select * from Employee
(2) Select *.* from Employee
(5) Select emp.name from Employee
(3) Select empno.name from Employee
12. What will be the output of the given circuit, if $\mathrm{A}=0$ and $B=0$ ?
(1) 1
(4) 0
(2) $\mathrm{A}^{\prime}$
(5) A
(3) B

13. Identify the function which generates the K-map shown
(1) $\mathrm{F}=\Sigma(1,3,11,12)$
(2) $\mathrm{F}=\Sigma(2,3,8,14)$
(3) $\mathrm{F}=\Sigma(1,2,11,12)$
(4) $\mathrm{F}=\Sigma(1,3,8,14)$
(5) $\mathrm{F}=\Sigma(1,3,8,15)$
AB

14. Which of the following has the fastest access speed?
(1) Cache memory
(4)Virtual Memory
(2) Flash memory
(5) extended memory
(3) Register memory
15. When a program requires more memory space than the maximum memory space available in the primary memory of a computer $\qquad$ is used by the operating system.
(1) Cache memory
(4)Read Only Memory
(2) Virtual memory
(5) Random Access Memory
(3) Extended memory
16. Interval between the time of submission and completion of the job is called as the
(1) Waiting time
(4) Burst time
(2) Turnaround time
(5) Arrival time
(3) Response time.
17. A scheduler which selects processes from secondary storage device is called
(1) Short term scheduler
(4)Long term scheduler
(2) Medium term scheduler
(5)Process scheduler
(3) term scheduler
18. In several programs are kept in main memory at the same time.
(1) Multiprocessor
(4) buffering
(2) on- line operation
(5) multiprogramming
(3) multi-tasking
19. Which of the following HTML code generates the table given below?

## programme

| time | $3.30-4.30$ | $6.30-8.30$ |
| :--- | :--- | :--- |
| show | Macbeth | The Tempest |

(1)

```
<caption>programme</caption>
<table border="1">
    <tr>
    <th>time</th>
    <td> 3.30-4.30 </td>
    <td> 6.30-8.30 </td>
    </tr>
    <tr>
    <th> show </th>
    <td> Macbeth </td>
    <td> The Tempest </td>
    </tr>
```

(2)

```
<table border="1">
<caption>programme</caption>
    <tr>
    <th>time</th>
    <th> 3.30-4.30 </td>
    <th> 6.30-8.30 </td>
    </tr>
    <tr>
    <td> show </th>
    <td> Macbeth </td>
    <td> The Tempest </td>
    </tr>
</table>
```

(3)

```
```

<caption>programme</caption>

```
```

<caption>programme</caption>

<table border="1">
<table border="1">
    <tr>
    <tr>
    <th>time</th>
    <th>time</th>
    <th> 3.30-4.30 </td>
    <th> 3.30-4.30 </td>
    <th> 6.30-8.30 </td>
    <th> 6.30-8.30 </td>
    </tr>
    </tr>
    <tr>
    <tr>
    <td> show </th>
    <td> show </th>
    <td> Macbeth </td>
    <td> Macbeth </td>
    <td> The Tempest </td>
    <td> The Tempest </td>
    </tr>
    </tr>
</table>
```
```

</table>

```
```

(5)
(4)

```
<caption>programme</caption>
<table border="1">
    <tr>
    <th>time</th>
    <td> 3.30-4.30 </td>
    <td> 6.30-8.30 </td>
    </tr>
    <tr>
    <th> show </th>
    <td> Macbeth </td>
    <td> The Tempest </td>
    </tr>
</table>
```

```
<table border="1">
```

<table border="1">
<caption>programme</caption>
<caption>programme</caption>
        <thead>
        <thead>
        <th>time</th>
        <th>time</th>
        <tr> 3.30-4.30 </td>
        <tr> 3.30-4.30 </td>
        <tr> 6.30-8.30 </td>
        <tr> 6.30-8.30 </td>
        </tr>
        </tr>
        <thead>
        <thead>
        <th> show </th>
        <th> show </th>
        <tr> Macbeth </td>
        <tr> Macbeth </td>
        <tr> The Tempest </td>
        <tr> The Tempest </td>
        </tr>
        </tr>
</table>
```
</table>
```

20. The HTML tag <a href="Recepies.html" target="_blank"> Recepies</a> renders the document named Recepies.html by a browser on
(1) The same frame
(4) a new window
(2) The same window
(5) a frame named "_blank"
(3) a window named "_blank"
21. Select the correct symbols used in Data Flow Diagrams with their names.
A.

P. External Entity
B.

Q. Data Flow
C.

R. Data store
D.

S. Data Process
(1) A-Q, B-R, C-S, D-P
(4)A-R, B-S, C-P, D-Q
(2) A-Q, B-P, C-S, D-R
(5)A-S, B-R, C-Q, D-P
(3) A-S, B-Q, C-R, D-P
22. Which of the following statements is correct about relational databases?
(1) A table is considered as an object.
(2) A table must have alternate keys.
(3) The table cannot be created without a primary key.
(4) A column of data in a table is called an attribute of that table.
(5) A candidate key is a composite key.
23. Which of the following is true about the given E-R diagram?

(1) A student can enrol for more than one course.
(2) There are courses which are not followed by any of the students.
(3) A subject is taught only for one course.
(4) There are students who have not enrolled for any of the subjects.
(5) There are subjects that are not taught in any of the courses at present.
24. Match column P with Q and select the correct option.

| i. | Data dictionary | A. provides an indication of how data are transformed <br> as they move through the system and the functions <br> that transform the data flow |
| :---: | :--- | :---: |
| ii. | Entity relationship <br> diagram (ERD) | B. indicates system responses to external events |
| iii. | Data flow diagram <br> (DFD) | C. contains descriptions of all data objects produced or <br> consumed by the software |
| iv. | State transition diagram <br> (STD) | D. depicts data object relationships |

(1) i-D, ii - A, iii-B, iv - C
(4) i-D, ii - A, iii-C, iv - B
(2) i-A, ii - D, iii-B, iv - C
(5) i-B, ii - A, iii-D, iv - C
(3) i-C, ii - D, iii-A, iv - B
25. Consider the following software projects.
A. A clinical record keeping system for dentists.
B. A virtual reality system to support maintenance of air craft.
C. A university accounting system which is intended to replace the existing manual system.
D. An intelligent agent for internet searching for research papers.

The waterfall model is suitable for which of the above projects?
(1) A, B and C
(4) A,C and D
(2) A and C
(5) A and C
(3) B, C and D

## Consider the given flow chart to answer questions

 26 to 27.26. Which of the following is true about the flow chart?
(1) The value of N changes from 1 to x
(2) It displays 5 when we input 3 as x and 2 as y
(3) It displays $\mathrm{N}^{*} 2$.
(4) The value of N should be an odd number
(5) It displays 3 when we input 5 as x and 2 as y
27. Suppose we input 5 as $x$ and 2 as $y$ repeatedly. Which of the following is incorrect about the values at the termination of the algorithm
(1) $y$ is 2
(2) $\mathrm{N}+\mathrm{y}$ is 3
(3) $x$ is 1
(4) N is 1
(5) $x$ is -1

28. What is the output of the following Python statement?
print type([1,2])
(1) <type 'tuple'>
(4)<type 'list'>
(2) <type 'int'>
(5)<type 'set'>
(3) <type 'complex'>
29. What is the output of the following Python statement?
name = "snow white"
name[5] = 'X'
print name
(1) snow white
(4) snowXwhite
(2) snow X white
(5) snowxhite
(3) ERROR, this code will not run
30. What is the output of the given "Python" code segment?
$\mathrm{x}=$ True
$y=$ False
$\mathrm{z}=$ False
if x or y and z :
print "yes"
else:
print "no"
(1) yes
(4)true
(2) no
(5) false
(3) error

Consider the given Python code to answer questions 31 to 32 .

```
def func \((x=1, y=2)\) :
\(\mathrm{x}=\mathrm{x}+\mathrm{y}\)
\(y+=1\)
\(\operatorname{print}(\mathrm{x}, \mathrm{y})\)
func \((y=2, x=1)\)
```

31. The output of the above code is
(1) 13
(2) 32
(3) 23
(4) The program has a runtime error because x and y are not defined.
(5) 33
32. If the fifth line of the above code is changed into func $(y=1, x=2)$. the output of the above code is
(1) 13
(2) 32
(3) 23
(4) The program has a runtime error because x and y are not defined.
(5) 33
33. Which of the following is correct about Python?
(1) It supports automatic garbage collection.
(2) It can be easily integrated with C, C++, COM, ActiveX, CORBA, and Java.
(3) Python is a high-level language.
(4) Python is Object-Oriented:
(5) All of the above.
34. The $\qquad$ of an attribute defined using a DDL statement is a $\qquad$ constraint. Which of the following are the most suitable to fill in the blanks of the above statement respectively.
(1) Integrity,null
(4)null value,key
(2) Length,domain
(5) domain,key
(3) Realation,SQL
35. Which of the following statements is correct about systems?
(1) Human blood circulatory system is an open system.
(2) A mobile phone is a closed system.
(3) An Automatic Teller Machine of a bank should be a closed system.
(4) A solar powe generation system is a closed system.
(5) Human digestive system is an open system.
36. The command that can be used to check the network configuration of a computer is
(1) Ping
(2)netstat
(3)ipconfig
(4) traceroute
(5) hop
37. Suppose you have to create a network that has 5 subnets, each with at least 16 hosts. Which of the following subnet mask would be most suitable to create it?
(1) 255.255.255.192
(4) 255.255 .255 .224
(2) 255.255 .255 .240
(5) 255.255 .255 .256
(3) 255.255 .255 .248
38. The network layer of OSI model does not
(1) Performs routing functions.
(2) Reports delivery errors
(3) Formats and encrypts data to be sent across a network
(4) Performs fragmentation
(5) Handles packet sequencing
39. Which of the following is true about the world wide web
A. World wide web is a creation of Sir Tim Berners Lee
B. It is another name for internet.
C. World wide web is a subset of internet.
(1) A and B only
(3) B and C only
(5) All are incorrect.
(2) A and C only
(4) All are correct.
40. A program in execution is called a
(1) Process
(4) Function
(2) Instruction
(5) Paging
(3) Procedure
41. $\qquad$ is a technique of temporarily removing inactive programs from the memory of a computer system.
(1) Garbage collection
(4)Spooling
(2) Swapping
(5)Scheduling
(3) Fragmentation
42. Which of the following is/are not example/s for essential nonfunctional requirements of an online banking system
A. Rendering information on all popular web browsers
B. Facilitating users to order cheque books
C. Facilitating users to check account balance
(1) A and B only
(3) B and C only
(5) All are examples.
43. Which of the following tasks uses multi software Agents?
(3) Part picking robot
(4) image analysis
(4) Refinery controller
(5) medical diagnosis
(5) Interactive English tutor
44. Which of the following include characteristics of a software Agent?
A. Autonomy and being situated in an environment
B. Autonomy, Veracity and proactiveness
C. Mobility, proactiveness and reactivity
(1) A and B only
(3) B and C only
(5) All are incorrect.
(2) A and C only
(4) All are correct.
45. is not one of the Database models.
(1) Flat file sytem
(4)Hierarchical model
(2) Network model
(5) Waterfall model
(3) Realational model
46. Consider the following table in a relational database.

| Item code | item | quantity | Unitprice |
| :--- | :--- | :--- | :--- |
| It654 | eraser | 30 | 5.00 |
| It678 | pencil | 45 | 10.00 |
| It543 | Gel pen | 70 | 15.50 |

What is the most suitable minimum number of SQL statement/s required to update all the values of the attribute quantity in the above table to 50 ?
(1) 1
(2) 2
(3) 3
(4) 4
(5) 5
47. Which of the following statement is incorrect?
(1)Pure brick organizations are called as Brick and Mortar firms.
(2)In a reverse auction, buyers compete to obtain a good or service by offering increasingly higher prices.
(3)E-marketplace consists of frontend process and backend process.
(4)Facial and voice recognition come under Affective technology.
(5) The digital economy is also sometimes called the Internet Economy.
48. Which of the following statement is true ?
(1)www.amazon.com is an example for brick and click organization.
(2)www.wikipedia.com is an example for G2E
(3)http://www.srilanka.lk/index.php is an example for C2B
(4)www.ebay.com is an example for C2C
(5) www.planetfeed.com is an example for B2B
49. Not an advantage of Artifcial Intelligence
(1) Ability to simulate human behavior
(2) The ability to comprehend large amounts of data quickly.
(3) Fast Response
(4) Capture and preserve human expertise
(5) Raising legal and ethical concerns
50. Which of the following contains applications of Ubiquitous computing?
A. Smart homes
B. Automatic illumination systems
C. RFID
D. Wearable computing
(1) A and B only
(3) B and C only
(5) A, B and C.
(2) A and C only
(4) A,B,C and D

