STD: 11	COMPUTER SCIENCE	TIME : 2.30 HRS
	QUARTERLY EXAM ANSWER KEY-2018	MAX MARKS : 70

NAGAPATTINAM DISTRICT

Register Number

QUARTERLY COMMON EXAMINATION - 2018

STD : XI | **COMPUTER SCIENCE** | Marks : 70, Time : 2.30 hrs

Instructions : (1) Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.
(2) Use Blue or Black ink to write and underline and pencil to draw diagrams.

Section – I

Note : i) Answer all the questions. ii) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer. 15x1=15

1. How many types of Booting process in system
   a) 3 b) 2 c) 5 d) 4
2. Which one of the following is Biometric Device?
   a) Scanner b) Fingerprint Scanner c) Light Pen d) Mouse
3. How many memory size in Tera Bytes contain?
   a) 2^10 b) 2^30 c) 2^40 d) 2^50
4. A.A= ?
   a) A b) 0 c) 1 d) $\overline{A}$
5. NAND and NOR Gates are called as ----------
   a) Fundamental Gates b) Logical Gates c) Universal Gates d) Electronic Gates
6. $(10100110)_2 = (\ )_{16}$
   a) A5 b) B5 c) A6 d) B6
7. Which of the following is a CISC processor?
   a) Intel P6 b) AMD K6 c) Pentium III d) Pentium IV
8. Which of the following software is not system software?
   a) Windows b) M.S.Word c) Linux d) DOS
9. Which of the following Operating System is introduced 64 - Bit Processor
   a) Windows XP b) Windows Me c) Windows Vista d) Windows NT
10. Expansion for GUI
    a) Graphical User Interface b) Graphic Using Interface
    c) Graphical User Intermediate d) Graphical Uniform Interface
11. CD data is represented as tiny indentations known as ----------
    a) Bits b) Lands c) Pits d) Bytes
12. Which is the default browser for Ubuntu?
    a) Firefox b) Internet Explorer c) Chrome d) Thunderbird
13. If 0 < i before the assignment i := i-1 after the assignment, we can conclude that
    a) 0 < i b) 0 ≤ I c) i = 0 d) 0 ≥i
14. If C is false just before the loop, the control flows through
    1. S1
    2. While C
    3. S2
    4. S3
    a) S1;S3 b) S1;S2;S3 c) S1;S2;S2;S3 d) S1;S2;S2;S2;S3

15. If m x a + n x b is an invariant for the assignment a, b : = a + 8, b + 7, the values of m and n are
a) m = 8, n = 7 b) m = 7, n = -8 c) m = 7, n = 8 d) m = 8, n = -7

Section - II

Answer any 6 questions. Question no.17 is compulsorily. 6x2=12

16. Write Demerits of Artificial Intelligence.
17. $(8888)_8$ Is it Exactly Octal Number? State the Reason
18. Define the Types of RAM.
19. Define Software and its Types.
20. Differnce between Click and Double Click.
21. What do you mean by Recycle bin?
22. What is Pseudo Code ?
23. Define : Invariants.
24. What is Multitasking.

Section - III

Answer any 6 questions. Question no.27 is compulsorily answered. 6x3=18

25. How Finger Print Scanner working?
26. Expand the following: (i) BCD (ii) ASCII (iii) DLNN – Deep Learning Neural Netwo
27. $C = \overline{A+B}$ This expression belongs to which Operator ? Draw the Diagram and Truth Table.
28. Differentiate the Memory : Cache and Flash.
29. What is Android OS ? List the versions atleast 6
30. Explain : (i) Switch User (ii) Log off (iii) Restart
31. List the Popular versions of Linux.
32. What are the merits and demerits of Time Sharing Operating System
33. Specific usage of Cortana.

Section - IV

Answer all the questions. 5x5=25

34. Explain all the Generations of Computer? (or)
Short answer on the following:
a) Data b) Hardware c) Natural Language Processing
d) Types of Memory e) Bit
35. Write the Expressions with truth table of AND, OR, NOR, NAND, NOR gates. (or)
Convert the followings
(i) $(65)_{10}$ = ( )$_2$ 1000001_2
(ii) $(5AF)_{16}$ = ( )$_2$ 010110101111_2
(iii) $(12.29)_{10}$ = ( )$_2$ $1100.010010\ldots_2$
(iv) $(452)_8$ = ( )$_2$ 100101010_2
(v) $(1100101)_2$ = ( )$_8$ 145_8
36. What do you mean by ROM and its Types? (or)
Determine the Merits and Demerits of Open Source Operating System
37. Compare and explain any 5 Icons in Windows and Ubuntu. (or)
In an Quadratic equation $ax^2+bx+c=0$ to derive the finite steps of Algorithm using Real Root.
38. Add the following using 2's Complement. i) -18 + -25 ii) -63 + -14 (or)
What are the Important OSs are available. Explain each OS?

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$-b_2 = 11000001$

SECTION-II (2 MARK)

16. Write Demerits of Artificial Intelligence.

- ✓ Parallel processing.
- ✓ Super conductors.
- ✓ Computer size was drastically reduced.
- ✓ Can recognise Images and Graphics.
- ✓ Introduction of Expert Systems.
- ✓ Able to solve high complex problems including decision making and logical reasoning.

17. $(8888)_8$. Is it exactly Octal Number? State the reason.

- ✓ No this not an Octal Number system.
- ✓ Octal Number system having the number range from 0 to 7.

18. Define the types of RAM.

- ✓ There are two basic types of RAM
  - ❖ Dynamic RAM (DRAM)
  - ❖ Static RAM (SRAM)
- ✓ These two types differ in the technology they use to hold data.
- ✓ Dynamic RAM being a common type needs to be refreshed frequently.
- ✓ Static RAM needs to be refreshed less often, which makes it faster.
- ✓ Hence, Static RAM is more expensive than Dynamic RAM.

19. Define software and its types.

- ✓ A software is set of instructions that perform specific task.
- ✓ It interacts basically with the hardware to generate the desired output.
- ✓ Software is classified into two types:
  1) Application Software 2) System Software.

20. Difference between Click and Double click.

Click	Double click
Point to the item on the screen, press and release the left mouse button.	Point to the item on the screen, quickly press twice the left mouse button.

21. What do you mean by Recycle bin?

- ✓ Recycle bin is a special folder to keep the files or folders deleted by the user, which means you still have an opportunity to recover them.
- ✓ The user cannot access the files or folders available in the Recycle bin without restoring it.
- ✓ To restore file or folder from the Recycle Bin.

22. What is Pseudo code?

- ✓ Pseudo code is a notation similar to programming languages.
- ✓ Algorithms expressed in pseudo code are not intended to be executed by computers, but for communication among people.

23. Define: Invariants.

- ✓ An expression involving variables, which remains unchanged by an assignment to one of these variables is called an invariant of the assignment.

24. What is Multitasking?

- ✓ Multiple applications can execute simultaneously in Windows, and this is known as **"Multitasking".**

SECTION- III (3 MARK)

25. How Finger Print Scanner working?

- ✓ Finger print Scanner is a fingerprint recognition device used for computer security, equipped with the fingerprint recognition feature that uses biometric technology.
- ✓ Fingerprint Reader / Scanner is a very safe and convenient device for security instead of using passwords, which is vulnerable to fraud and is hard to remember.

26. Expand the following: i) BCD ii) ASCII iii) DLNN

i) BCD→ Binary Coded Decimal

ii) ASCII→ American Standard Code for Information Interchange

iii) DLNN→ Deep Learning Neural Networks

27. $C=\overline{A+B}$. This expression belongs to which operator? Draw the diagram and truth table.

- ✓ This is NOR operator..

Diagram:

Truth table:

Input		Output
A	B	C
0	0	1
0	1	0
1	0	0
1	1	0

28. Differentiate the memory: Cache and Flash

Cache Memory	Flash Memory
This extremely fast memory would store data that is frequently accessed and if possible, the data that is closer to it.	Flash memory offers a fast read and write access time.
This helps to achieve the fast response time, Where response Time, (Access Time) refers to how quickly the memory can respond to a read / write request.	The capacity of the flash memories varies from 4 GB to 2 TB.

29. What is Android OS? List the versions atleast 6.

- ✓ Android is a mobile operating system developed by Google, based on Linux and designed primarily for touch screen mobile devices such as smart phones and tablets.
- ✓ Google has further developed Android TV for televisions, Android Auto for cars and Android Wear for wrist watches, each with a specialized user interface.
- ✓ Variants of Android are also used on game consoles, digital cameras, PCs and other electronic gadgets.

Android versions:

- ✓ Alpha
- ✓ Beta
- ✓ Jelly bean
- ✓ Lolly pop
- ✓ Nougat
- ✓ Oreo

30. Explain: i) Switch User ii) Logoff iii) Restart

i) Switch User:

- ✓ Switch to another user account on the computer without closing your open programs and Windows processes.

ii) **Logoff:**

- ✓ Switch to another user account on the computer after closing all your open programs and Windows processes.

iii) Restart:

- ✓ Reboot the computer. (This option is often required as part of installing new software or Windows update.)

31. List the popular versions of Linux.

The most popular Linux server distributors are:

- ✓ Ubuntu Linux
- ✓ Linux Mint
- ✓ Arch Linux
- ✓ Deepin
- ✓ Fedora
- ✓ Debian
- ✓ CentOS

32. What are the merits and demerits of time Sharing Operating System.

Advantages:-

- ✓ Provides the advantage of quick response.
- ✓ Avoids duplication of software.
- ✓ Reduces CPU idle time

Disadvantages:-

- ✓ Problem of reliability
- ✓ Problem of data communication.
- ✓ Problem of data security.

33. Specific usage of Cortana.

- ✓ **Cortana** is a virtual assistant created by Microsoft for Windows 10, Windows 10 Mobile, Windows Phone 8.1, Invoke smart speaker, Microsoft Band, Xbox One, iOS, Android, Windows Mixed Reality, and soon Amazon Alexa.
- ✓ Cortana can set reminders, recognize natural voice without the requirement for keyboard input, and answer questions using information from the Bing search engine.

SECTION- IV(5 MARK)

34. Explain the generations of computer.

SN	Generation	Period	Main Component used	Merits/Demerits
1	**First Generation**	1942-1955	 **Vacuum tubes**	• Big in size • Consumed more power • Malfunction due to overheat • Machine Language was used
First Generation Computers - ENIAC , EDVAC , UNIVAC 1 ENIAC weighed about 27 tons, size 8 feet × 100 feet × 3 feet and consumed around 150 watts of power				
2	**Second Generation**	1955-1964	 **Transistors**	• Smaller compared to First Generation • Generated Less Heat • Consumed less power compared to first generation • Punched cards were used • First operating system was developed - Batch Processing and Multiprogramming Operating System • Machine language as well as Assembly language was used.
Second Generation Computers **IBM 1401, IBM 1620, UNIVAC 1108**				
3	**Third Generation**	1964 -1975	 **Integrated Circuits (IC)**	• Computers were smaller, faster and more reliable • Consumed less power • High Level Languages were used
Third Generation Computers **IBM 360 series, Honeywell 6000 series**				
4	**Fourth Generation**	1975-1980	 **Microprocessor** Very Large Scale Integrated Circuits (VLSI)	• Smaller and Faster • Microcomputer series such as IBM and APPLE were developed • Portable Computers were introduced.
5	**Fifth Generation**	1980 - till date	 **Ultra Large Scale Integration (ULSI)**	• Parallel Processing • Super conductors • Computers size was drastically reduced. • Can recognize Images and Graphics • Introduction of Artificial Intelligence and Expert Systems • Able to solve high complex problems including decision making and logical reasoning
6	**Sixth Generation**	In future		• Parallel and Distributed computing • Computers have become smarter, faster and smaller • Development of robotics • Natural Language Processing • Development of Voice Recognition Software

OR

Short answer on the following:

a) Data b) Hardware c) Natural Language Processing d) Types of Memory e) Bit

a) Data:

- ✓ The term data comes from the word datum, which means a raw fact.
- ✓ The data is a fact about people, places or some objects.

b) Hardware:

- ✓ Hardware is the physical component of a computer like motherboard, memory devices, monitor, keyboard etc., while software is the set of programs or instructions.

c) Natural Language Processing:

- ✓ Natural Language Processing is a method used in artificial intelligence to process and derive meaning from the human language.

d) Types of Memory:

- ✓ The Memory Unit is of two types which are primary memory and secondary memory.
- ✓ The primary memory is used to temporarily store the programs and data when the instructions are ready to execute.
- ✓ The secondary memory is used to store the data permanently.

e) Bit:

- ✓ A bit is the short form of Binary digit which can be '0' or '1'.
- ✓ It is the basic unit of data in computer.

35. Write the expressions with truth table of AND, OR, NOT, NAND, NOR gates.

AND Gate:-

- ✓ One way to symbolize the action of an AND gate is by writing the boolean function.
  C = A AND B
- ✓ In boolean algebra the multiplication sign stands for the AND operation.
- ✓ Therefore, the output of the AND gate is
  C = A . B or simply C = AB
- ✓ Read this as **"C equals A AND B".** Since there are two input variables here, the truth table has four entries, because there are four possible inputs : 00, 01, 10 and 11.
- ✓ For instance if both inputs are 0,
  C = A . B
  = 0 . 0
  = 0

The truth table for AND gate is

Input		Output
A	B	C
0	0	0
0	1	0
1	0	0
1	1	1

OR Gate:-

- ✓ The OR gate output is **C = A OR B**
- ✓ We use the + sign to denote the OR function. Therefore, **C = A + B**
- ✓ Read this as **"C equals A OR B".**
- ✓ For instance, if both the inputs are 1, **C = A + B = 1 + 1 = 1**

Input		Output
A	B	C
0	0	0
0	1	1
1	0	1
1	1	1

NOT Gate:-

- ✓ The boolean function of NOT gate is **C = NOT A**
- ✓ In boolean algerbra, the overbar stands for NOT operation. Therefore, **C = $\overline{A}$**
- ✓ Read this as "C equals NOT A" or "C equals the complement of A".
- ✓ If A is 0,
  C = $\overline{0}$ = 1
- ✓ On the otherhand, if A is 1,
  C = $\overline{1}$ = 0

The truth table for NOTgate is:

Input A	Output C
0	1
1	0

NAND GATE:-

- ✓ The output of the NAND gate is **C = (A . B)**
- ✓ Read this as **"C" equals NOT of A AND B"** or **"C" equals the complement of A AND B".**
- ✓ For example if both the inputs are 1
  C = (1 . 1)= 1 = 0

The truth table for NAND gate is:

Input		Output
A	B	C
0	0	1
0	1	1
1	0	1
1	1	0

NOR GATE:

- ✓ The output of NOR gate is **C = (A + B)**
- ✓ Read this as **"C equals NOT of A OR B**" or **"C equals the complement of A OR B".**
- ✓ For example if both the inputs are 0,
  C = (0 + 0) = $\overline{0}$ = 1

The truth table for NAND gate is:

Input		Output
A	B	C
0	0	1
0	1	0
1	0	0
1	1	0

OR

Convert the followings: (ANSWERS)

i) $(65)_{10}$ = **$(1000001)_2$**

ii) $(5AF)_{16}$= **$(010110101111)_2$**

iii) $(12.29)_{10}$ = **$(1100.010010\ldots)_2$**

iv) $(452)_8$ = (**$111000100)_2$**

v) $(1100101)_2$= **$(145)_8$**

36. What do you mean by ROM and its types.

ROM (Read Only Memory):-

- ✓ Read Only Memory refers to special memory in a computer with pre-recorded data at manufacturing time which cannot be modified.
- ✓ The stored programs that start the computer and perform diagnostics are available in ROMs.
- ✓ ROM stores critical programs such as the program that boots the computer.
- ✓ Once the data has been written onto a ROM chip, it cannot be modified or removed and can only be read.
- ✓ ROM retains its contents even when the computer is turned off. So, ROM is called as a non-volatile memory.

Programmable Read Only Memory (PROM):-

- ✓ Programmable read only memory is also a non-volatile memory on which data can be written only once.
- ✓ Once a program has been written onto a PROM, it remains there forever.
- ✓ Unlike the main memory, PROMs retain their contents even when the computer is turned off

Erasable Programmable Read Only Memory (EPROM):-

- ✓ Erasable Programmable Read Only Memory is a special type of memory which serves as a PROM, but the content can be erased using ultraviolet rays.
- ✓ EPROM retains its contents until it is exposed to ultraviolet light.
- ✓ The ultraviolet light clears its contents, making it possible to reprogram the memory.

Electrically Erasable Programmable Read Only Memory (EEPROM) :

- ✓ Electrically Erasable Programmable Read Only Memory is a special type of PROM that can be erased by exposing it to an electrical charge.
- ✓ Like other types of PROM, EEPROM retains its contents even when the power is turned off.
- ✓ Comparing with all other types of ROM, EEPROM is slower in performance.

OR

Determine the merits and demerits of an Open Source Operating System.

Advantages:-

i) It's generally free – it has been estimated that open source software collectively saves businesses $60 billion a year. These days for virtually every paid for proprietary software system you will find an open source version.

ii) It's continually evolving in real time as developers add to it and modify it, which means it can be better quality and more secure and less prone to bugs than proprietary systems, because it has so many users poring over it and weeding out problems.

iii) Using open source software also means you are not locked into using a particular vendor's system that only work with their other systems.

iv) You can modify and adapt open source software for your own business requirements, something that is not possible with proprietary systems.

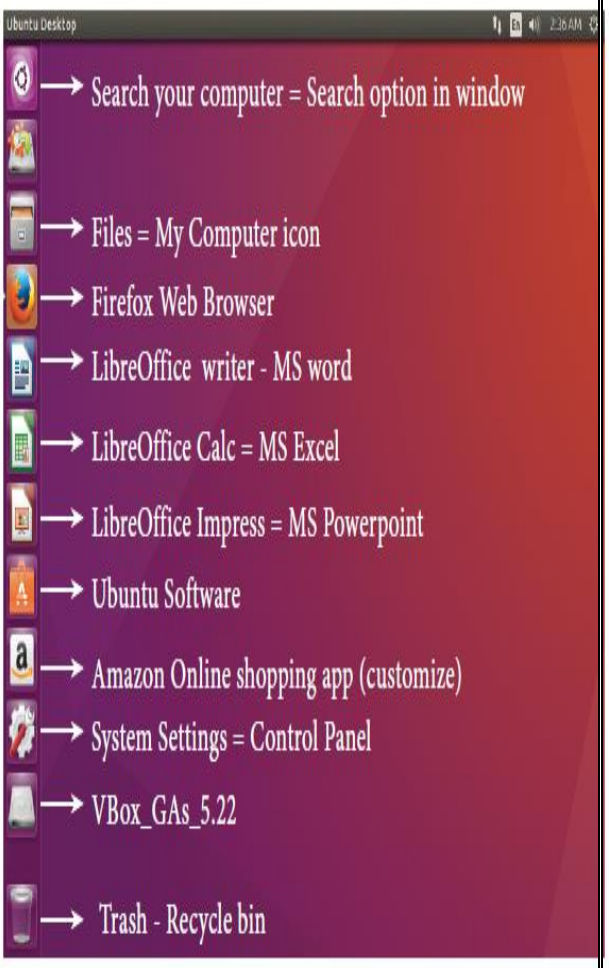
Disadvantages:-

i) Because there is no requirement to create a commercial product that will sell and generate money, open source software can tend to evolve more in line with developers' wishes than the needs of the end user.

ii) For the same reason, they can be less "user-friendly" and not as easy to use because less attention is paid to developing the user interface.

iii) There may also be less support available for when things go wrong – open source software tends to rely on its community of users to respond to and fix problems.

37. Compare and explain any 5 icons in Windows and Ubuntu.



Windows	Ubuntu
Recycle bin	Trash
My computer	Files
MS Word	LibreOffice Writer
Control Panel	System Settings
Search	Search your Computer

OR

In an Quadratic equation $ax^2+bx+c=0$ to derivate the finite steps of Algorithm using Real Root.

✓ You intend to use the formula and you are prepared to handle only real number roots. Write a suitable specification.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

ANSWER:-

$$x_1 = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

And

$$x_2 = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

38. Add the following using 2's Complement: i) -18 + -25 ii) -63 + -14

Answer:

i) -18 + -25 = **11110101**

ii) -63 + - 14 = **110110010**

OR

What are the important OSs are available? Explain each OS.

Important OS are as follows:

- ✓ UNIX
- ✓ Microsoft Windows
- ✓ Linux
- ✓ iOS
- ✓ Android

Labs, where the development began in the 1970s by Ken Thompson and Dennis Ritchie.

Windows:

- ✓ Microsoft Windows is a family of proprietary operating systems designed by Microsoft Corporation and primarily targeted to Intel and AMD architecture based computers.

Linux:

- ✓ Linux is a family of open-source operating systems.
- ✓ It can be modified and distributed by anyone around the world.

Android:

- ✓ Android is a mobile operating system developed by Google, based on Linux and designed primarily for touch screen mobile devices such as smart phones and tablets.
- ✓ Google has further developed Android TV for televisions, Android Auto for cars and Android Wear for wrist watches, each with a specialized user interface.
- ✓ Variants of Android are also used on game consoles, digital cameras, PCs and other electronic gadgets.

iOS:

- ✓ iOS (formerly iPhone OS) is a mobile Operating System created and developed by Apple Inc., exclusively for its hardware.
- ✓ It is the second most popular mobile Operating System globally after Android.

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