UNIT 8 - ICT
PAPER - 1
UGC NTA NET

1. Compiler Scans the entire program and translates it as a whole into machine code.

Interpreter - Translates program one statement at a time.

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Interpreter	Compilers
• takes less amount of time to analyze	• large amount of time to analyze the source code.
• memory efficient	• requires more memory
• Debugging is easy	• Debugging is comparatively hard.
• Programming language like Python, Ruby use interpreters	• Programming language like C, C++ use compilers.

2. Circuits that can hold their state as long as power is applied is Static Memory

3. The small extremely fast, RAM's are called as Cache.
   • Registers are faster than cache memory

4. The ALU makes use of Accumulators to store the intermediate results.

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5. The term clip art originated with large books of reproducible images.

6.

First Programmer – Lady Ada Lovelae
Basic Architecture of Computer – Neumann
Father of modern computer – Alan Turing
ENIAC – Eckert & Mauchly

7. Full Forms:

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CCNA – Cisco certified Network Associate
RFI – Remote File Inclusion
CSS – Cascading style sheet
HTTP – Hypertext Transfer Protocol

8. High level language is also called –
- Problem Oriented language
- Business " "
- mathematical " "

9. Firmware is built using – ROM

10. A parallel port is most often used by Printer

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11) Examples of Optical Disk — made of fiber & glass
Digital Versatile disk
CD, BluRay

12) IC chips used in computers are made of —
Silicon

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13) Supercomputer developed by Indian Scientists
— ParamShivaay

14) .MOV extension refers to Movie file.

15) .MPG extension refers to Movie file

16) CAD - Computer-aided drafting (design)

17) Two kinds of main memory are: RAM & ROM

18) DIMM — Dual in-line memory module
SIMM — Single in-line memory module

19) DPI — Dots per inch

20) Father of computer - Charles Babbage
father of modern computer - Alan Turing
First electronic computer — ENIAC

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1. Computer Generations — Insta-ugcnet-notes

	1st	2nd	3rd	4th	5th
Timeframe	1951-58	1959-64	1965-74	1975-89	1990-present
Circuit Components	Vaccuum Tubes	Transistors	Integrated Circuits (IC's)	Large-Scale IC (LSI)	Very Large Scale IC (VLSI)

2. In audio & video compression, the term RGB means — Red, Green, Blue.

3. HTML is used to create Webpages. (Hypertext markup language)

4. Joint Photographic Experts Group (JPEG) is used to compress Image.

5. Two main components of CPU are Control Unit and ALU (Arithmetic Logic Unit)

6. Fastest memory - Registers.

7. Computer uses Binary number system to store date and peyorm calculations.

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8. Primary memory or Main memory –
RAM, ROM

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9.

	RAM	ROM
Definition	a form of data storage that can be accessed randomly at any time, in any order and from any physical location	a form of data storage that cannot be easily altered or reprogrammed.
Stands for	Random Access Memory	Read-Only Memory
Use	Read data quickly to run applications that allows reading & writing.	Stores the program required to initially boot the computer. Only allows reading.
Volatility	Volatile (contents are lost when the device is powered off)	Non-Volatile (contents are retained even when the device is powered off.
Types	Static RAM and dynamic RAM	PROM - Programmable Read-only memory EPROM - Erasable Programmable Read-Only Memory EEPROM - Electronic Erasable Programmable Read-only memory

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RAM	CACHE
→ Volatile memory which could store the data as long as power is supplied.	→ Smaller & fast memory component.
→ Size of ram is greater	→ Size of cache memory is less.
→ It is expensive.	→ It is not expensive.
→ Slower than Cache	→ Faster than RAM

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⇒ 4 bit Nibble
8 bit 1 byte
1024 B 1 KB (2^10)
1024 KB 1 MB (2^20)
1024 MB 1 GB (2^30)
1024 GB 1 TB (2^40)
1024 TB 1 PB (2^50)
1024 PB 1 XB (2^60)
1024 XB 1 ZB (2^70)
1024 ZB 1 YB (2^80)
1024 Yottabytes = 1 Brontobyte
1024 Brontobytes = 1 Geopbyte

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1. Translator:

Takes a program's code and translates it into machine code, allowing the computer to read and understand what tasks ~~the~~ needs to be done, in its own native code.
eg: Assembler, Compiler.

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2. Compiler

Compiler are used to convert high level languages [like C, C++) into machine code
eg: gcc, Visual Studio
* Translates entire doc at the same time.

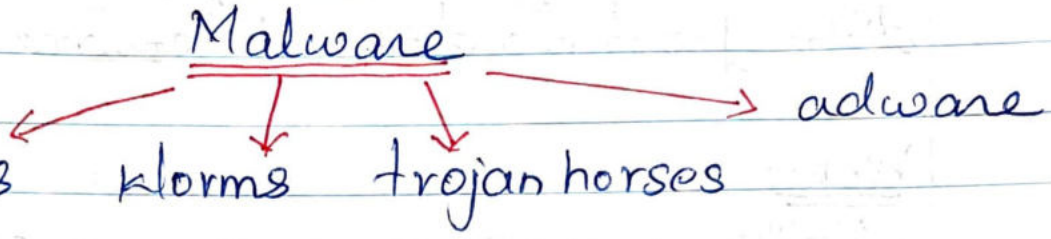
Assembler

Assembler are used to convert assembly language code into machine code.

Interpreter

Interpreter is a computer program which executes a statement directly (at runtime) [Line by line]
Eg: python, LISP, Ocaml.

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VIRUS

A computer virus is a piece of software that can 'infect' a computer, install itself and copy itself to other computers, without the users knowledge or permission. It usually attaches itself to other computer programs, data files, or the boot sector of a Hard drive.

MALWARE

Malware is short for malicious software. Malware is the name given to any type of software that could harm a computer system, interfere with and gather a user's data, or make the computer perform actions without the owner's knowledge or permission.

TROJAN HORSE

A type of malware that uses malicious code to install software that seems ok, but is hidden to create back doors into a

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system typically causing loss or theft of data from an external source.

WORM

Unlike a virus, a worm, is a standalone piece of malicious software that replicates itself in order to spread to other computers. It often uses a computer network to spread itself, relying on security flaws on the target system to allow access.

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SPYWARE

Spyware is software that aids in gathering information about a person or organization without their knowledge, they can monitor and log the activity performed on a target system, gather credit card info.

ADWARE

A software which can automatically causes pop-up and banner adverts to be displayed in order to generate revenue for its author or publisher.

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3. Voice Over Internet Protocol (VOIP)

4. WEB 1.0
1989 to 2005
Web 1.0 - First stage of the web represents the web 1.0, which according to Tim Berners-Lee, is the "read-only web."
In other words, the early web allowed to search for info and read it

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5. WEB 2.0 - WEB 2.0 is the second generation of web. It was defined by Dale Dougherty in 2004 as a read-write web.

6. WEB 3.0 - WEB 3.0 was first coined by John Markoff of the New York Times and he suggested web 3.0 as third generation of the web in 2006.
WEB 3.0 can be also stated as "executable Web."
eg: Alexa, Siri, Cortana

- Artificial Intelligence
- Semantic

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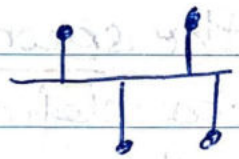
7. National Super Computing Mission (NSM)

- Boosting high power computing in the country
- Param Shivay, the first supercomputer assembled indigenously, was installed in IIT (BHU)
- followed by Param Shakti and Param Brahma at IIT- Kharagpur and IISER, Pune, respectively

8. NETWORK TOPOLOGIES

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1) Bus



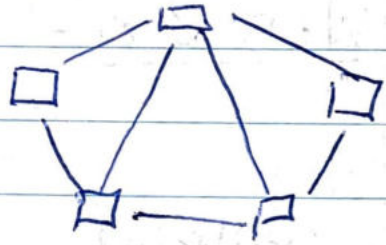
Star



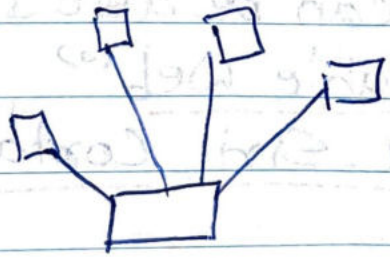
Ring



Mesh



Tree



Point-to-point



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9. TCP/IP
(Transmission Control Protocol / Internet Protocol)

→ TCP is used for communication over a network
→ TCP data is broken down into small packets and then sent to the destination by IP.
→ The IP protocol was developed in 1970.

ARP - (Address Resolution Protocol)
IMAP - (Internet Message Access Protocol)

10) The Open System Interconnection (OSI) model defines a networking framework to implement protocols in seven layers.

11) Firewall

Firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.
• Barrier

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12) Bitcoin- Cryptocurrencies in India

Blockchain - the record-keeping technology behind the Bitcoin network.

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13) Bridge -
Used to connect two LAN's with the same standard but using different types of cables.

Routers -
Used to join multiple computer networks together via either ~~wired~~ wired or wireless connections.

MODEM - Modulator Demodulator
- Electronic device that allows computers to communicate over telephone wires or cable-TV cable.
- A modem converts digital signals generated by the computer into analog signals which can be transmitted over a telephone or cable line and transforms incoming analog signals into their digital equivalents.

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PAPER-1

UNIT 8- ICT

UGC NTA NET

1. ERNET stands for Educational and Research Network.

2. Sending and receiving messages/signals occuring at the same time is denoted by Synchronous

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3. Video-conferencing is an example of Synchronous technologies

4. In the hypermedia database, information bits are stored in the form of Signals.

5. Communication bandwidth that has the highest capacity and used by microwave, cable and fibre optics lines is known as Broadband.

6. The institution promoted by the IT Dept. to provide comm. infrastructure and service to academic research institutions in India is ERNET.

7. The bouquet of FM radio channels which broadcast programs contributed by institutions such as IGNOU and IITs is Gyan Vani

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8. The joint initiative of the IITs and the IISc to provide e-learning through online web and video courses in many streams, specifically engineering in the country, by providing free online courseware is National Programme on Technology Enhanced Learning (NPTEL)

9. 'A-View', the software that has been developed under the NMEICT, is basically developed for Teacher's training.

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10. Semiconductor is used for manufacturing chips.

11. A byte consists of Eight bits.

12. System software designed to help in analysing, monitoring, configuring, optimizing settings and maintaining the computer are known as Utility software.

13. The computer size was very large in First Generation

14. Microprocessors as switching devices are for which generation computers?

Fourth Generation

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15. The first electronic digital computer contained Semiconductor memory.

16. A software that converts a program in assembly language into machine language is called Assembler.

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17. A software which converts a high-level language into machine language is called Compiler.

18. A computer program that converts an entire program into machine language is called Compiler.

19. A computer program that translates one program instructions at a time into machine language is called an Interpreter.

20. UNIVAC belongs to the 1st generation of computers.

21. A collection of eight bits is called a byte.

22. The ALU of a computer responds to the commands coming from Control Section

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23. The ALU of a computer normally contains a no. of high-speed storage elements called Registers.

24. EBCDIC can code up to 256 different characters.

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25. BCD is Binary Coded Decimal.

26. ASCII stands for American Standard code for Information Interchange.

27. CDROM stands for Compact Disk Read-only Memory

28. In comparison to secondary storage, primary storage is Faster and more expensive.

29. RAM means Random Access Memory.

30. RAM is used as short memory as it is Volatile.

31. Computer memory used for temporary storage of data and program is called RAM.

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32. Cache has the shortest access times.

33. EEPROM — Electrically Erasable Programmable Read-Only Memory

34. VGA — Video Graphics Array.

35. MSI — Medium Scale Integrated Circuits.

36. WAN — Wide Area Network.

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37. The output quality of a printer is measured by Dots per inch.

38. An error in the software or hardware is called a bug. What is the alternative jargon for it — Glitch.

39. Meaning of a dedicated computer — Which is assigned one and only one task.

40. Programs designed to perform specific tasks are known as Application Software

41. The type of media with varying capacities that is used in the storage subsystem in a

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microcomputer is Magnetic or optical.

42. The computer code for interchange of information between terminals is ASCII. (American Standard Code For Information Interchange)

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43. A 32-bit microprocessor has a word length equal to 4byte.

44. The accounting software Tally was developed by TCS.

45. WWW - World Wide Web

46. HTML is basically used to design Webpage.

47. SMTP - Simple Mail Transfer Protocol

48. Softwares such as Explorer, Firefox and Chrome are referred to as Browsers.

49. Firewalls are used to protect a communication network against Unauthorized attacks

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50) Video transmission over the internet that looks like delayed livecasting is called Real-time video

51) VoIP technology converts voice calls from Analogue to digital.

52. Domain originally meant for non-profitable organizations — .org.

53) Bit stands for Binary Tree.

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54) HTTP — Hypertext Transfer Protocol
(Deals with transfer of hypertext between two or more computers)

55) IRC — Internet Relay Chat

56) Internet's initial development was supported by ARPANET.

57. World Wide Web was proposed by Tim Berners-Lee

58. URL - Uniform Resource Locators
Address of a document or page on the www.

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59) A machine that links two networks using two different protocols is known as Gateway.

60) ISP - Internet Service Provider.

61) Telnet is A telephone network

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62) Ethernet is a family of protocols used in LAN

63) A large number of computers in a wide geographical area can be efficiently connected using Communication Satellites.

64) USB - Universal Serial Bus.

65) The type of digital telephone service used for transferring large chunks of data to and from the internet without a modem is ISDN (Integrated Services Digital Network)

66) The size of the IPV4 is 32 bits

67) S/MIME
Secure Multipurpose Internet Mail Extension

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68) The launch of satellite channel by IGNOU on 26th Jan 2003 for technological education for the growth and development of distance education is Eklavya Technology Channel.

69) The Press Council of India is located in Delhi

70) DTH service was started in India in the year 2004.

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71) National Press Day is celebrated on 16th November

72) The first Indian satellite for serving the education sector is known as EDUSAT

73) The exclusive educational channel of IGNOU is known as Gyan Darshan

74) All India Radio, before 1936, was known as Indian State Broadcasting Service.

75) Prasar Bharti was launched in India in 1997.

76) SIMM - Serial in Memory Module

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77) The algorithm is basically The logical flow of a program.

78) The standard size of IP address is 32bits.

79) A message beneath a message is labelled as Subtext.

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80) In a analogue mass comm^n, the stories are static.

[2020 questions]

81) Multimedia comprises of Text, Audio and Video

82) MOODLE - Modular Object-Oriented Dynamic Learning Environment.

83) Python is a programming language.

84) BIOS - Basic Input Output System.

85) IOT - Internet of Things.

86) ROM (Read Only memory) holds the computer startup routine.

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87) URL is the name for a web page address.

88) Computer memory types from lowest to highest speed —
Secondary storage, Main memory, Cache memory

89) GIF - Graphics Interchange format.

90) Speed of Internet is measured in Gbps.

91) Image — .jpeg
Video — .mpeg
Audio — .mp3
Word processing - .doc

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92) Programming Language — C++
Operating System — Windows xP
Internet — Wide Area Network
Application Software — MS Powerpoint

93) UPS - Uninterrupted Power Supply
ALU - Arithmetic Logic Unit.

94) Param Shivay is related to National Super Computing Mission of Govt. of India.
→ is a Super computer

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95) Software – Linux
Hardware – Hard disk
Algorithm – Step by step procedure to solve a problem
Data – Raw facts & figures

96) RAM is placed on Motherboard.

97) MHRD's scheme 'VIDWAN', is aimed at Creating a database and national research network.

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98) Cache memory & RAM memory are volatile memory.

99) Primary storage is faster, more expensive and not persistent.

100) RAM – Holds programmes currently being run on computer
DVD-ROM – Can be written only once
ALU – Performs all computations & comparision operation
CPU – Brain of the Computer.

101) CPS – Cyber Physical System.
-Integration of computation, networking and physical processes.

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102) Microsoft Access, Oracle and SQL are examples of Relational Data Base.
This database is based on the relational data model, which stores data in the form of rows (tuple) and columns (attributes), and together forms a table (relation)

103)

Digital Initiative	Objective
- NAD	24x7 online store house of all academic awards viz. Certificates
- SWAYAM Prabha	Utilization of satellite comm^{n} technologies for transmission of education e-contents through National channels
- NDL	All-digital library that stores info (metadata) about different types of digital contents.
- SWAYAM	Offers various online courses for school education & higher education.

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104) Operating system is an interface between User and computer.

105) Block chain is used for crypto currency.

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106) OCR- Optical Character Recognition.

107) SAMARTH - ICT initiative of MHRD deals with E-governance of institutions and universities.

108) Extra browser window of commercials than open automatically on browsing web pages is called Pop-up

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109) CRT - Cathode Ray Tube.

110) An Algorithm is a finite sequence of well-defined, computer-implementable instructions, typically to solve a class of problems or to perform a computation.

111) Web 2.0 Applications — Blogs, twitter
Search Engines — Google, Yahoo
System Softwares — Windows, iOS
High Level languages — C++, Java

112) CDMA - Code Division Multiple Access

113) The word 'blog' is derived from the word - 'We blog'

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114) The term 'Plotter' is best described as—
An output device to produce drawings & graphics.

115) Ctrl, shift and Alt on keyboard are called modifier keys.

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116) 1 Gigabyte (GB) represents 1 billion characters

117) BCD – Binary Coded Decimal

118) Satellite Comm° works through Transponder

119) ATM – Automatic Teller Machine.

120) Bitrate – Number of bits per second that can be transmitted over a network.

121)

E-Initiatives	Description
(a) Vidwan	Database of leading scientists/ researchers
(b) Digilocker	Platform for issuance & verification of documents & certificates
(c) Sakshat	Education portal to facilitate learnir
(d) Shodh Ganga	Repository for full-text theois, e-books and journals.

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122) WORM - Write Once Read many

123) WWW — World Wide Web
Java — Programming Language
RAM — Volatile Memory
ROM — Non-volatile memory

124) e-Kalpa is related to the digital learning environment for design.

125) Internation Computer Security Day is observed on 30th November.

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126) VDU - Visual Display Unit.

127) International Literacy Day - 8th September

128) PCI - Peripheral Componet Interconnect.

129) The term one gigabyte (GB) refers to — 1024 megabytes (MB)

130) UMANG - Single point of access to all govt. services
BHIM - Unified Payment Interface
eBiz - G2B services
SWAYAM - Learning platform

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* Synchronous media requires all participants to be together at the same time even though when they are in different locations

* Asynchronous media allows participants in the learning process to be at different times and at different places.

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Digital Initiatives in Higher Education

1) National Mission on Education through Information and Communication Technology (NMEICT)

→ A-view software has been developed under the NMEICT for teacher training.
→ Centrally Sponsored scheme to realize the potential of ICT in teaching learning process.

2) National Programme on Technology Enhanced Learning (NPTEL):

→ NPTEL was initiated by 7 IITs (Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati, and Roorkee) along with the Indian Institute of Science, Bangalore in 2003.

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→ Five core disciplines →
civil engineering, computer science and engineering, electrical engineering, electronics and comm^n engineering and mechanical engineering.
→ Online Web Portal
→ Online courses

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* SWAYAM
(Study Webs of Active-Learning for Young Aspiring Minds)

→ An indigenous (made in India) IT Massive Open Online Courses (MOOCs) Platform for providing best quality education.
→ Three cardinal principles -
Access, Equity and Quality
→ Std. 9th till post-graduation to be accessed by anyone, anywhere at any time.

Why SWAYAM? High Quality Learning Experiences
4 Quadrant Approach

Quadrant 1: Video Tutorials
2: E-Content
3: Self-Assessment
4: Discussion forum

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* SWAYAM Prabha -

• 32 educational DTH channels.
• Project for telecasting high quality educational programmes through 32 DTH channels on 24x7 basis, using the GSAT-15 satellite.

The DTH channels cover :-

a) Curriculum based course
b) School education (9-12) levels modules
c) Curricula and courses for life-long learners
d) IIT PAL

To assist the students in class 11 & 12th aspiring to join IITs.

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→ The project was conceived and completed within 3 months with the active participation of the Bhaskaracharya Satellite Application Centre ~~CBT~~ and Geoinformatics (BISAG) Gandhinagar and ECIL Hyderabad.

* National Digital Library (NDL)

→ Project under Ministry of Education
→ Virtual repository of learning resources through a single window.
→ More than 72 lakh digital books are available through the NDL.

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* e-Shodh sindhu -
- More than 15,000 international electronic journals and e-books are made available.
- The INFLIBNET (Information and Library Network) Gandhinagar, Gujarat is implementing the Scheme.

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* e-Yantra
→ An Ministry of Education initiative under NMEICT (National mission on Education through ICT) Programme, named "e-Yantra" is implemented to incorporate Robotics into engineering education with the objective of engaging students.
* Developed at IIT Bombay.

* e-Acharya -
- Also called 'Integrated e-content Portal' of NMEICT
- official repository of NMEICT product e-content

* e-Kalpa -
- Creates Digital Learning Environment for Design in India.
- Social Networking for Higher Learning

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* The Free and Open Source Software for Education (FOSSEE)

→ Project sanctioned to IIT Bombay has been promoting use of Open source software in educational institutions.
→ Textbook Companion (TBC) is a collection of code for solved examples of standard textbooks
→ About 2000 college students and teachers have participated in this activity & close to 1,000 TBC's have been created in Scilab and Python alone.

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* e-Vidwan-

The INFLIBNET Centre took the initiative called "Vidwan - Expert Database and National Researcher's Network" with the financial support from NMEICT.

• The objectives are :-
- collect academic and research profiles of scientists, faculty & research scientists working in leading academic & R&D org. in India & abroad
- Quickly & conveniently provide information
- Establish communication directly with the experts.
- Identify peer reviewers for review of

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artides and research proposals.

* NMEICT has awarded a project to IIT Delhi, to set up a robust 24x7 backed Data Centre and the cloud is called 'Baadal.' The IIT Delhi cloud is hosting e-content and video content of e-Acharya - Central Cloud Infrastructure

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* Domain Name.
Unique name that identifies an internet site or website.

- .com - Commercial institutions or organization
- .edu - educational institutions
- .gov - Government sites
- .mil - Military sites
- .net - Gateways and administrative hosts
- .org - Private Organizations.

* Bharat Interface for Money (BHIM) is an initiative to enable fast, secure, reliable cashless payments through mobile phone.

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* Cryptocurrency

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- A cryptocurrency is a digital or virtual currency that is secured by cryptography - digital asset based on a network that is distributed across a large no. of computers.
- The first blockchain-based crytocurrency was Bitcoin, which still remains the most popular and most valuable.
  - Bitcoin was launched in 2009.

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Information and Communication Technology

Date No.

1. CBT- Computer-Based training.
2. NPTEL- National programme on technology enhanced learning.
3. E-learning platform developed by IIT-Kanpur-Brihaspati
4. TKDL- Traditional knowledge Digital library.
5. Sending and receiving messages/signals occuring at the same time is denoted by Synchronous.
6. An electronic billboard that has a short text or graphical advertising message — Strap.
7. The concept of connect intelligence is derived from Value-added Networks.
8. knowledge repository e-Gyankosh in 2005 — IGNOU.
9. IT Department to provide Comm" infra and services to academic research institutions in India - ERNET.
10. The Satellite Comm" works through Transponder.
11. A typical modern computer uses LSI chips [Large-Scale Integration] process of integrating or embedding thousands of transistors on a single silicon semiconductor microchip.
12. Main component of first generation computers was Vacuum tubes and Valves.
13. FORTRAN is the acronym for Formula Translation.

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Date No.

14. J. Presper Eckert and John. W. Mauchly designed the first electronics computer called ENIAC.

15. The hexadecimal number system consists of the symbols 0-9, A-F.

16. 1 GB is equal to 2^{30} bytes.

17. The silicon chips used for data processing are called Microprocessors.

18. Instructions and memory address are represented by Binary Codes.

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19. UNIVAC is Universal automatic Computer.

20. PASCAL - Used in Computer Science, Engineering & Business.

21. Assembler - Converts assembly language into machine code

22. Compiler - A program that converts instructions into a machine-code or lower-level form so that they can be read and executed by a computer.

23. CPU consists of Control Unit, arithmetic logic unit and primary storage.

24. The keyboard of a computer is encoded in ASCII code.

25. EBCDIC - Extended Binary Case Decimal Inter-Change Code.

26. ASCII - American Standard code for Information Interchange

27. The computer memory used for temporary storage of data and program is called RAM.

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28. ROM & RAM two main memory types

29. EEPROM - Electrically Erasable Programmable Read-only memory.

30. VGA - Video Graphics Array.

31. Programs designed to perform specific tasks are known as Application Software.

32. CAD - computer Aided Design

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33. A 32-bit microprocessor has a word length equal to 4byte.

34. Tally was developed by TCS. Accounting software.

35. HTML is basically used to design webpage.

36. The protocol used specifically for exchange of e-mails is SMTP.

37. SMTP - Simple mail Transfer Protocol.

38. Bit stands for - Binary tree

39. IRC - Internet Relay Chat

40.

41. URL - Uniform Resource Locators.

42. Ethernet is a family of protocols used in LAN.

43. The name of the protocol that supports linking from web page to another is HTTP.

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Date No.

44. The size of the IPV4 is 32bits.

45. S/MIME – Secure Multipurpose Internet Mail Extension.

46. The largest no. of newspapers in India is published in U.P.

47. The Press council of India is located in Delhi.

48. National Press day is celebrated on 16th Nov.

49. The exclusive educational channel of IGNOU is Gyan Darshan

50. PTI (Press Trust of India) is the biggest news agency in India.

51. PAL broadcasting system for TV is followed in India.

52. 4 bits makes one nibble.

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53. SIMM - Serial in Memory Module.

54. The algorithm is basically The logical flow of a program.

55. The standard size of IP address is 32 bits.

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Unit 8- ICT

1. Multimedia comprises of Text, Audio and Video

2. Examples of 5th-generation languages - Mercury, OPS5 and Prolog.

3. BIOS - Basic Input-Output System

4.

ICT Initiatives	Benefits
A. SWAYAM	To earn credits through online courses
B. SWAYAMPRABHA	To watch high-quality educational programmes 24×7
C. e-PG Pathshala	To get free books and curriculum based econtent
D. e-Yantra	To get hands-on experience in embedded system.

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5. Using a website to pour out grievances is called Cyber Venting.

6. Computer memory type from lowest to highest speed - Secondary storage, main memory, Cache memory

7. Speed of Internet is measured in Gbps.

8.

List I	List II
A. Software	Linux
B. Hardware	Hard disk
C. Algorithm	Step by step procedure to solve a problem
D. Data	Raw facts and figures.

9. Scheme 'VIDWAN', is aimed at creating a database and national research network.

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10) ICT comprises of Online Learning, Learning through Mobile Application, Web based learning.

11) Generation languages:

i) The first generation languages, or 1GL
- Low level languages, machine language
- No translator
- binary numbers, represented by 1s and 0s.

(ii) Second-generation languages.
→ low-level assembly languages.
→ Used for video editing and video games

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(iii) Third-generation languages:
→ High-level languages.
→ C, C++, Java, JavaScript and Visual Basic.
→ 1950s, Fortran, ALGOL, BASIC, COBOL are examples of early 3GLS.

(iv) Fourth-generation languages.
→ Consist of statements similar to human language.
→ Used in database programming and scripts.
eg: Perl, PHP, Python, Ruby, SQL, Oracle Reports, R

(v) Fifth-generation languages:
→ Programming languages that contain visual tools to help develop a program.
eg: Mercury, OPS5 and Prolog.

12) The file extension of Microsoft (MS) Word document in office 2007 is docx.

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13) Compilers are software
Touch screen monitors are input/output devices

14) Primary memory - RAM
Secondary memory - Pendrive.

15) National Super Computing Mission is a Govt. of India initiative
→ To boost high power computing in the country.

16) In computers, a DVD-ROM is:
an optical storage media and it can be written only once.

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17) Minimum number of bits required to store any digit decimal number is 10.

18) Software is loaded into RAM from secondary storage and is then executed by CPU.

19) WiFi is short for Wireless Fiedelity and it is a set of standards for using short range waves to allow computing Devices to connect to a LAN or to the Internet.

20)

List I Examples of Comm	List II Types of Comm^n
A. Sending e-mail	Formal groups of people
B. Verbal Instruction	Informal
C. Exchange of information	Transactional
D. Traffic Signals	Semiotics

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2021 Solutions:

1) Sequence of different types of computer components ranked from fastest to slowest in terms of access time.
- CPU Cache → RAM → SSD → Optical Drive

2) Binary equivalent of decimal number 67.625
- 1000011.101

3)

Computer Terms	Description
A) HTML	Language used to create web pages
B) Web 2.0	Collaborative web
C) Web 3.0	Semantic web
D) VOIP	Use of internet to make phonecalls.

4) A web browser is a piece of software that retreives and displays web pages

5) A search engine is a special kind of website that helps people in finding web pages from other web-sites.

6)

Computer Components	Description
A) HDD [Hard disk drives]	External memory
B) RAM	Volatile memory
C) ROM	Non-Writable memory
D) CRT [cathode-ray tube]	Visual Display Unit.

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7) Register, Cache memory and Hard disk are all memory modules.

8)

Computer Terms	Description
A) Processor programs	Part that runs executable programs
B) RAM	Part that stores instructions and data temporarily for use
c) Hard disk	Part that stores files permanently
D) Compiler	Part that translates source program to executable program

9) A short-range radio communication standard that transmits data over short distances upto approx 30 feet is known as Bluetooth.

10)

Digital Initiatives in Higher Education	Purpose
A) NAD	Issuance, storage, access and verification of Academic Awards namely degrees, mark-sheets etc
B) NDL	Framework of virtual repository of learning resources with a single-window search facility
c) Spoken tutorial	Learn various free and open source software all by oneself
D) FOSSEE	Reduce dependency on proprietary software in educational institutions.

11) Tim Berners Lee created the WWW.
Mosaic was the first widely used web browser

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12) Computer Virus is a computer program which copies itself to infect a computer without the permission/knowledge of the user.

13) About Wikis-
- Wiki pages can be locked by moderators to prevent vandalism
- Every change that is made to a wiki page is logged and can be viewed in a history list.
- A wiki is designed to allow people to collaborate easily.

14)

Digital Initiatives in Higher Education	Purpose
(A) SWAYAM	MOOCs for high-quality education anywhere and anytime
(B) SWAYAM Prabha	Free DTH channel for high-quality education
(C) Digilocker	Store and access personal e-documents irrespective of physical location
(D) NAD	Online store and access of academic awards namely degrees, mark-sheets etc.

15) Ethernet is a protocol used by many wired LAN's

16)

List I	List II
A) System software	Compiler
B) Application software	Library Management System
C) Security Software	Firewall
D) Embedded software	Automatic Fridge

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17) A Network Interface Card (NIC) contains MAC address
→ NIC provides a computer with dedicated, full-time connection to a network.

18) The number of bits in IPv6 addressing are 128 bits.

19) Repeater - A repeater operates at the physical layer. It is added to transmission systems to boast the signal. It can also be used on wireless systems.

20) Correct sequence to join a Google meet session.
- Go to meet.google.com
- Click use a meeting code
- Enter code and click continue
- Click Ask to Join
- When someone in the meeting gives you access you will join it.

21)

List I - Devices	List II - Example
A. Input devices	Joysticks
B. Direct data entry	Radio frequency identification readers
C. Output devices	Speakers
D. Data backup	DVD

22) Internet Explorer and Mozilla firefox are WWW Browsers.

23) ASCII file format -
American Standard code for Information Interchange. ASCII file is a text file that allows a document to be recognized and read easily.
• DAT, • CSV, • TXT, RTF

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24)

Digital Initiative	Objective
A) e-Vidwan	Expert Database and National Research Network
B) e-Kalpa	Digital learning environment for design
C) e-Yantra	Spread education in embedded systems and Robotics
D) e-ShodhSindhu	Subscription-based scholarly information (e-books and e-journals) at lower rates

25) Bitmap graphics store information about every individual picture element (pixel) making up an image, thereby giving quite large files.

26) A blended courses is a traditional course of instruction incorporated with online materials and/or intermittent online discussion.

27) A copy of the email is sent to a Cc (carbon copy) address and other recipients can see that address.

28) Hardware represents the physical and tangible parts of a computer.

29) A Webinar allows a speaker from the hosting organization to share multimedia content with audiences that can be located anywhere.

30) Purpose of Block chain - To secure the data

31) CAE stands for- Computer Aided Engineering

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32) Wi-Fi can transmit data at a faster rate than Bluetooth

33) The purpose underlying modern and ICT based support system in teaching is to optimise learning outcomes.

34) Every general-purpose computer must have an Operating System (OS) installed on it as Man and Computer cannot communicate directly.

35) An IT company has recently produced a new laptop model that uses less power, is smaller in size and weighs less than previous laptop models. The technology that has been used to accomplish this is Solid state Hard Drive

A solid-state drive (SSD) is a new generation of storage device used in computers. SSDs use flash-based memory, which is much faster than a traditional mechanical hard disk.

36) Anti-spy software - It detects and removes programs installed illegally on a user's computer system.

37) A device driver is A software that communicates with the operating system and translates data into a format understood by the device.

38) When a computer is switched on, the BIOS is loaded from ROM.
BIOS (Basic input/output system) is a program a computer's microprocessor uses to start the computer system after it is powered on.

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39)

ICT Applications	Example
A. Measurement applications	River pollutions
B. Control applications	Automatic oven
C. Modelling	Simulating car crashes
D. Expert systems	Medical Diagnosis

40)

Computer Terms	Description
(A) Magnetic Tape	Used for data archival purposes but must be accessed sequentially
B) Memory Card	Used in digital cameras, photo printers and cell phones
c) Hard disk	A set of metal disks mounted on a spindle.
D) DVD	Uses laser beam technology to read or write data.

41) USB drives are also known as Flash drives.

42) Device used by banks to automatically read those unusual numbers on the bottom of cheques and deposit slips is known as MICR. (Magnetic Ink Character Recognition) is a 9-digit code that uniquely identifies a bank and a branch.

43) RAM and Cache consists of volatile memory only.

44)

Founders	Company
a) Apple Inc	Steve Jobs
b) Microsoft Inc	Bill Gates
c) Infosys Limited	N. R. Narayanmurti
D) Airtel	Sunil Bharti Mittal

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45) With respect to computers, TFT is related to Monitor.
TFT- Thin Film Transistor - A transistor that is deposited onta a substrate in thin layers, commonly used in LCD screens.

46) Access time is typically stated in milliseconds for secondary storage devices and in nano-seconds for primary storage devices.

47)

Digital Initiative	Objective
(A) e-Acharya	Integrated e-content portak for projects under NMEICT
(B) e-Kalpa	Digital-learning environment for design
(C) IMPRINT	Road map to pursue engineering challenges
(D) BHIM	Unified Payment Interface

48) The use of the Internet, Cell phones or other devices to send or post content intended to hurt or embarrass another person is called Cyber Bullying.

49) Worm is a special type of Computer Virus that fills a computer system with self-replicating information, clogging the system so that its operations are slowed or stopped.

50) JPEG files use a lossy format file compression method. JPEG is used to store photographs as a reduced file size.

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51)

Computer Terms	Description
A) Mouse	Input device
B) Modem	Network device
c) Pen-drive	External memory
d) Opera	Web browser

52) In libraries, the process of digitization began with services which was limited to creation of bibliographic database and house keeping operations.

53) Short-term memory encompasses encoding and short-term storage and manipulation and has a limited capacity.

54) Wireless Access Points (WAPs) are connected into the wired network at fixed locations.

55) RAM (Random Access memory) is an internal chip where data is temporarily stored and it stores the part of operating system currently in use.

56) Pixel density is number of pixels per square centimeter.

57)

List I: Type of Software	List II - Example
A. Word Processor	Open-office
B. Database	Oracle
C. Operating system	Mac
D. Utilities	Anti-virus

58) Softwares tools used to prepare schedules and class time-tables-
- Microsoft Outlook, Trello, Google Calendar.

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59) Bluetooth is short-range data transmission protocol

60)

List I	List II
A) Proprietary LMS	Blackboard
B) Open source LMS	MOODLE
C) Cloud based LMS	Google Classroom
D) Data collection & quiz	Google forms

Proprietary LMS -
Subscriptions and license fees are required for access. These are normally paid on an annual basis. They offer a high degree of external support
List : Blackboard learn, D2L, eCollege, Edmodo, EduNext etc

Open Source LMS -
Open source systems are freely distributed without licensing fees, can be run-in-house, and maintained by the users themselves.
List: Moodle, Chamilo, Open edx, Canvas, Forma, Effectus.

Cloud based LMS -
A cloud-based LMS is a learning tech solution that is accessible from anywhere with an Internet connection and hosted on the web.

61) Address bus carries signals relating to addresses between the processor and memory.

62) Hard disk drives (HDD) use circular platters coated in magnetic material.

63) Modems are used to convert digital data into

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analogue and vice versa.

64)

Network Addresses	Respective Layers
A. IP Address	Network Layer
B. MAC Address	Data Link layer
C. Socket Address	Transport layer
D. URL Address	Application layer

65) A disk defragmenter rearranges blocks of data to store files in contiguous sectors.

66) About Laser printers :-
- Use dry ink
- Laser printers use the property of static electricity.
- Laser printers produce ozone gas and tiny toner particulates in the air.

67) DRAM - Dynamic random access Memory.
Type of RAM that stores each bit of data in a separate capacitor within an integrated circuit. It consists of a number of transistors and capacitors.

68)

List I	List II
A. Synchronous	Face-to-face
B. Asynchronous	Newspaper reading
C. Participatory	Boardroom meeting
D. Authoritarian	Head of the organizations to employees.

69) GPS (Global Positoning System) is used to determine the exact location of a vehicle or other forms of transport.

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70) Tablet is a device with a touch screen; which has a virtual keyboard which uses touch screen technology.

71) In a classful IPv4 addressing, what are the number of netID bits and number of hostID bits for the network class A?
- 8, 24

72) What is the MAC address?
A unique number that identifies a device connected to the internet.

73) Parity checking - A method to check whether data has been changed or is corrupted

74) (Quick Response) QR codes can store website addresses

75)

Content Area	Integrating Technology Application
A. Reading / Language Arts	Software programs to develop basic reading skills
B. Mathematics	Graphing calculations to illustrate abstract or hard to-visualize relationships
C. Science	Simulations to illustrate complex relationships
D. Social studies	Simulations to explore distant places and times

76) VisiCalc, the first spreadsheet software application, is a commonly cited example of one of the first killer applications. VisiCalc helped in bringing (VisiCalc - Visible Calculator)

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PCs into the business realm.

77)

Description	Appropriate Technical Term
A. Numerical ID for each device on the internet	IP Address
B. Unique ID for a Network Interface Card (NIC)	MAC
C. Use of the Internet to make phone calls	VOIP
D. Text used by web browsers to locate a web address on Internet	URL

78)

List I - Training Material	List II : Appropriate File format
A. Printed copies of instructions on how to play music	DOC
B. Sound files of him playing his music	MP3
C. Video files of playing music	AVI
D. Images of instruments	JPEG

79) Media Kits are used in External Communication
A media kit is a package of information, assembled by a company, to provide basic information about itself to external parties.

80)

List I:	List II
A. Operating System	Linux
B. Application software	Anti-virus
C. Processor	Pentium
D. Network device	Router

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81) Steps for creating survey forms using ICT application like Google Forms.
→ Select question type and create
→ Make questions mandatory / keep optional
→ Give name to survey form and save
→ Configure the settings
→ Share with respondents

82) Every time a device connects to a network, it is given an IP (Internet Protocol) address.

83)

List I	List II
A. Network System	Firewall
B. Operating System	Mac
C. Memory	Rom
D. Communication	Email

84) Utility program is a part of the operating system which carries out defragmentation or disk formatting

85)

List I - I/O device	Data transfer rate
A. Disk	100 Mbps
B. Mouse	120 mbps
C. Laser printer	1 Mbps
D. Keyboard	50 bps

86) The number of characters in 8 bit ASCII code (American standard Code for Information Interchange) is 256.

87) Logic bomb is a type of malware embedded in a program on a computer that will set off a

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malicious function when certain conditions are met.

88) mooKIT platform uses DRUPAL, an open source content management system
* mooKIT is an open-source MOOC Management software designed and developed at IIT Kanpur, it is a system that instructors, learners, and system administrators find easy to work with.
Drupal is a free and open-source web content management system.
Joomla is a free and open-source content management system for publishing web content on websites.
Sakai is a free, community source, educational software platform designed to support teaching, research and collaboration.

89) What is a blog?
Personal website in the form of a journal

90)

Type of memory	Fabrication method
A. Dynamic Random Access Memory (DRAM)	Transistors and Capacitors
B. Static Random Access Memory (SRAM)	Flip-Flops
C. Programmable Read Only memory	Matrix of fuses
D. Erasable Programmable Read Only memory (EPROM)	Floating gate transistors and capacitors

91) The first MOOC offered in 2008 by Stephen Downes and George Siemens was Connectivism and Connective knowledge.

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92)

List I - MOOC Platform	List II - Developer
A. Coursera	Andrew Ng, Daphne Koller
B. Udacity	Sebastian Thrun
C. Edx	Anant Agarwal
D. Khan Academy	Salman Khan

93)

List I	List II
A. Input device	Scanner
B. Output device	Speaker
C. Pointing device	Trackerball
D. Sensor device	Traffic light simulator

94) The Internet of Things (IOT) is a rapidly evolving technology capable of transforming numerous areas of our lives.

95)

List I - Memory Device	List II - Memory Type
A. Main memory	Dynamic Random Access Memory
B. Cache memory	Static Random Access Memory
C. Hard Disk	Magnetic memory
D. CDROM	Optical Memory

96) MODEM - Modulator - Demodulator

97) The emergence of consumers who can control and even create media of their own and of producers who can easily track consumer responses, is made possible by Internet.

98) Vacuum Tube is the key technology which was used for making the first generation computers

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99)

List I - Memory Devices	List II - Memory Types
A. Pen drive	Flash memory
B. Hard disk	Magnetic memory
C. CD ROM	Optical memory
D. RAM	Volatile memory

100) EEPROM is a non-volatile memory which is most likely to store firmware, like a computer's BIOS.

101) 'Twitter' is a microblogging site that is very restricted on the size of the post.

102)

List I	List II
A. Recording a song to play on an iPod	· mp3
B. Saving a video	· mp4
C. Sending a photo to someone using your mobile	· jpeg
D. Compressing a folder of files	· zip

103) Disruptive technologies in education mean New technologies that completely change the way things are done in education

104)

List I - ICT Tool	List II - Purpose
A. Google Classroom	Access to course content
B. Google Meet	Synchronous interaction
C. Google quiz	Assessment of learning
D. Google Jamboard	Collaborative tasks

105) Chatting on whatsapp is an example of Synchronous Comm[n]

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106)

List I - Network Security Technique	List II - Implementation technique
A. Symmetric encryption	Secret Key
B. Asymmetric encryption	Public and private Key
C. Authentication	Digital Signature
D. Denial of service avoidance	Email filter

107) The Trojan horses are malicious programs often disguised as legitimate software

108) Databus sends data between the processor, memory unit and the I/O devices

109) The Ethernet is a system that connects a number of computers or devices together to form a LAN.

110)

Indian ICT Initiative	Purpose
A. eGyankosh	Digital repository of learning resources developed by ODL institutions
B. ePathshala	Educational e-sources developed by NCERT in 2015
C. NROER	Open educational resources developed by NCERT in 2013
D. NDL	Virtual repository of learning

NROER - National Repository of Open Educational Resources

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111) DVDs use a single spiral 'track' to store data working from the centre to the edge.

112) A spreadsheet is Two-dimensional table or grid

113) What is the World Wide Web (WWW)?
-Collection of webpages stored on websites

114) The Post office protocol is -
Protocol used when receiving emails from the email server.

115)

List I	List II
A. Authoring language used to create documents to be viewed on the WWW	HTML
B. Computer that responds to requests to provide Info and services over Internet	Internet server
C. Defines how messages are transmitted and formatted over the Internet	HTTP
D. Software that enables users to access/view documents and other resources on the Internet	Browser

116) Most Significant bit (msb) is the bit furthest to the left in a binary number, while the least significant bil (LSB) is the one furthest to the right.

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Topology: The physical topology of a network refers to the configuration of cables, computers and other peripherals or simply as arrangement of computers. Here, the workstation or node refers to computer systems which are in the network. The topology can be classified as follows.

1. **Bus topology:** Here, every computer is connected to a main (single) cable like a bus.
2. **Star topology:** There is a hub or switch box to which all workstations are directly connected.
3. **Ring topology:** Here, every device has exactly two neighbours.
4. **Mesh topology:** Every computer is connected to another, so messages can take any path.
5. **Tree topology:** It is a combination of two or more star networks.

Computer virus: These are the programs that spread across computers by attaching a copy of itself to the files on the infected computer. Thus, they spread from one computer to another by attaching itself to other programs. When the user runs the infected file, the virus gets into action. A virus is usually harmful and it can corrupt data, overwrite files or use up system resources. They are usually written by programmers to cause trouble. Some viruses act to cause a humorous message to appear on the screen, some cause minor glitches but others may cause serious damage to a computer's memory or disks, some flood an organization's website, interrupt or entirely prevent access to the organization's customers.

2. **Internet Message Access Protocol (IMAP):** It defines the format for communication between e-mail servers and clients.
3. **Secure Sockets Layer (SSL):** A protocol developed by Netscape for transmitting private documents through the internet.
4. **Transfer Control Protocol/Internet Protocol (TCP/IP):** It is the main data transfer protocol used in the internet. It manages all the information that moves across the internet. It consists of multiple protocols, each of which transfers data across the network in a different format and with different options.
5. **File Transfer Protocol (FTP):** A set of guidelines or standards that establish the format in which files can be transmitted from one computer to another.
6. **Trivial File Transfer Protocol (TFTP):** This protocol allows transferring of files between the network devices.
7. **Simple Mail Transfer Protocol (SMTP):** Network-based e-mail was initially exchanged on the ARPANET in extensions to the FTP, but it is now carried by the SMTP.
8. **Telnet:** A protocol that allows a computer to connect with a remote host computer on the internet. The use of Telnet has diminished as the web's HTTP has become a dominant protocol.
9. **Hypertext Markup Language (HTML):** It is a formatting language which is used to establish the appearance of a web page. Thus, it helps in creating pages on the World Wide Web. The HTML also enables us to insert hypertext links within one web page or to other pages anywhere on the web.
10. **Standardized General Markup Language (SGML):** A metalanguage that can be applied to documents in order to maintain their structure and context is called SGML.
11. **Uniform Resource Locator (URL):** It is an address for a specific document found on the web. It can also be termed as the location of a resource on the internet. A URL specifies the address of the computer where the resource is located, which may be the home page of a website. It is made up of several components, like a domain name, the directories and subdirectories of the site and the extension. It is also known as the web address.