

UGC NET 22 AUG 2024 SHIFT-2

Question Paper & Exam Analysis

✓ Easy to moderate
✓ tough
✓ lengthy



~~21/22~~
Continue
Notes

States with highest vulnerability index rank

- ▶ Assam
- ▶ Andhra Pradesh
- ▶ Maharashtra
- ▶ Karnataka
- ▶ Bihar
- ▶ Manipur
- ▶ Rajasthan
- ▶ Arunachal Pradesh
- ▶ Sikkim
- ▶ Odisha

The findings

- ▶ 27 of 35 states and UTs are highly vulnerable to extreme hydro-met disasters and their compounded impacts
- ▶ 463 of 640 districts are vulnerable to extreme floods, droughts, and cyclones
- ▶ Over 45% of these

districts have undergone unsustainable landscape and infrastructure changes

- ▶ 59% of districts located in the eastern zone are highly vulnerable to extreme cyclone events

- ▶ In the western zone, more than 41% of districts are cyclone hotspots

The Sanskrit Commission is a commission appointed by the Government of India to promote Sanskrit. The first Sanskrit Commission was established in 1956 and led by Professor Suniti Kumar Chatterjee. The commission's work included:

Q2

SPSS



Logo icon, v27

<u>Developer(s)</u>	Norman H. Nie, Dale H. Bent, C. Hadlai Hull
Initial release	1968; 56 years ago
Stable release	29 / September 13, 2022; 23 months ago ^[1]
<u>Operating system</u>	Windows (x86-64), macOS (x86-64), Linux (x86-64, ppc64le, IBM Z) ^[2]
Platform	Java
Size	~1.2 GB
<u>Type</u>	Statistical analysis ✓ Numerical analysis ✓
License	Subscription or enterprise licensing ^[3]
Website	www.ibm.com/products/spss-statistics



Q.3
Statistics



SPSS Statistics is a statistical software suite developed by IBM for data management, advanced analytics, multivariate analysis, business intelligence, and criminal investigation. Long produced by SPSS Inc., it was acquired by IBM in 2009. [Wikipedia](#)



एस पी एस एस स्टैटिस्टिक्स एक कम्प्यूटर सॉफ्टवेयर है जो विश्लेषणात्मक बैच और गैर-बैच सांख्यिकी विश्लेषण का काम यकरता है। इसका आविष्कार एस पी एस एस इंकॉर्पोरेटेड ने 1968 में किया था। वर्तमान संस्करण को आधिकारिक रूप से आई बी एम एस पी एस एस स्टैटिस्टिक्स कहा जाता है। एस पी एस एस सॉफ्टवेयर को सन् 1968 में नोमेन एच. विकिपीडिया

हिन्दी में खोजें : [एस पी एस एस](#)

Developer: IBM, SPSS Inc.

Initial release: 1968; 56 years ago

License: Subscription or enterprise licensing



Operating system: Windows (x86-64), macOS (x86-64), Linux (x86-64, ppc64le, IBM Z)

Platform: Java

Size: ~1.2 GB

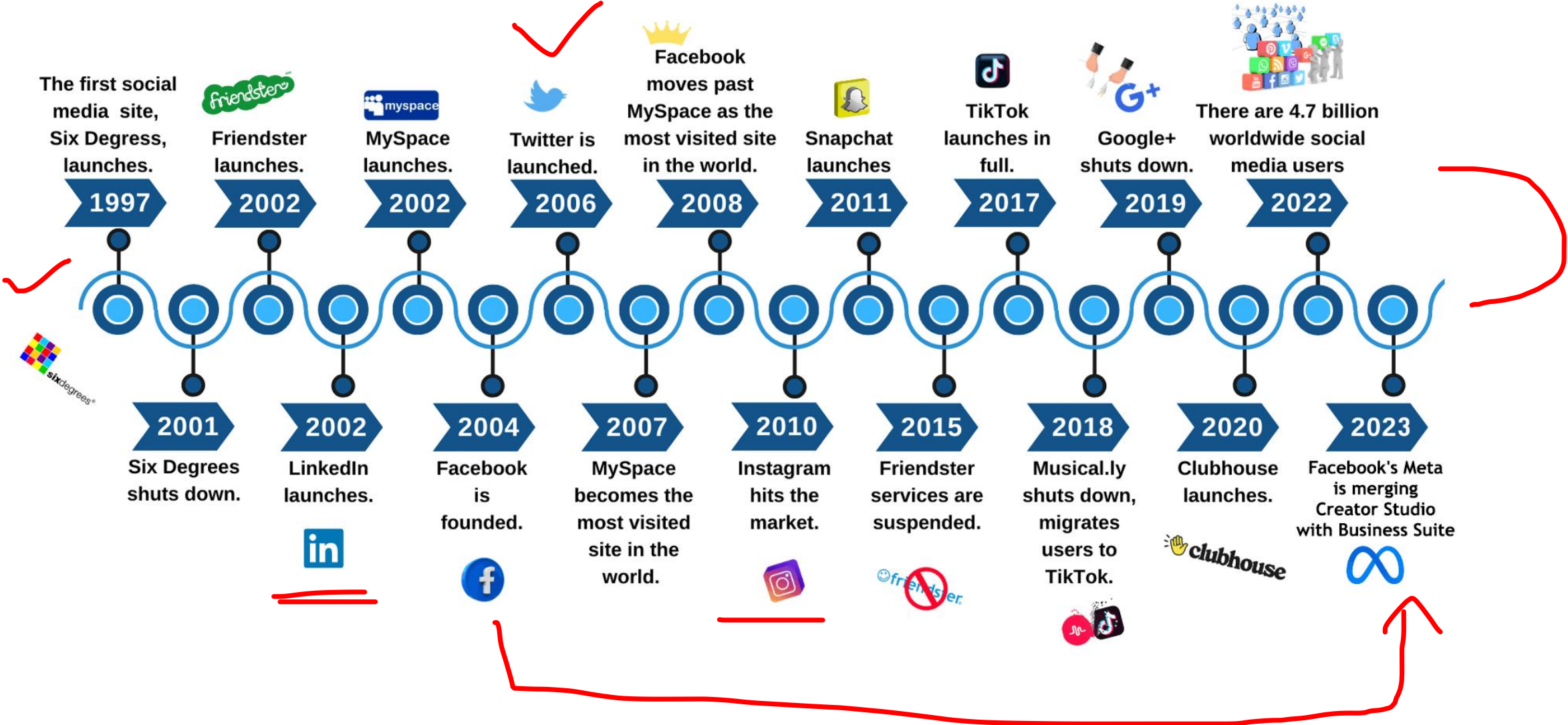
Stable release: 29 / September 13, 2022; 23 months ago

Best Data Analysis Tools for Researchers

	SPSS is widely used for <u>statistical analysis</u> and data management especially in <u>social sciences</u> .
	R is a powerful and flexible open-source programming language and environment for <u>statistical computing and graphics</u> .
	SAS a comprehensive software suite used for advanced <u>analytics, business intelligence, and data management</u> .
	STATA is a <u>statistical software</u> package with a user-friendly interface, widely used in social sciences and economics.
	Python is a very popular language with numerous libraries and packages for data analysis, including pandas, NumPy, and SciPy.
	Matlab is a software <u>environment</u> with <u>powerful numerical computing and visualization capabilities</u> .
	MS Excel's advanced <u>data analysis</u> features are amazing, but people mostly used it for <u>basic data analysis</u> .
 SPSS Modeler	SPSS Modeler is an advanced <u>data mining and predictive analytics</u> tool that allows for <u>complex data analysis and modelling</u> .
	Minitab is normally used for <u>statistical analysis</u> , but you can also <u>draw excellent charts and graphs</u> with it.
 JASP	JASP is a <u>statistical analysis</u> tool, offering a user-friendly interface.

Maths

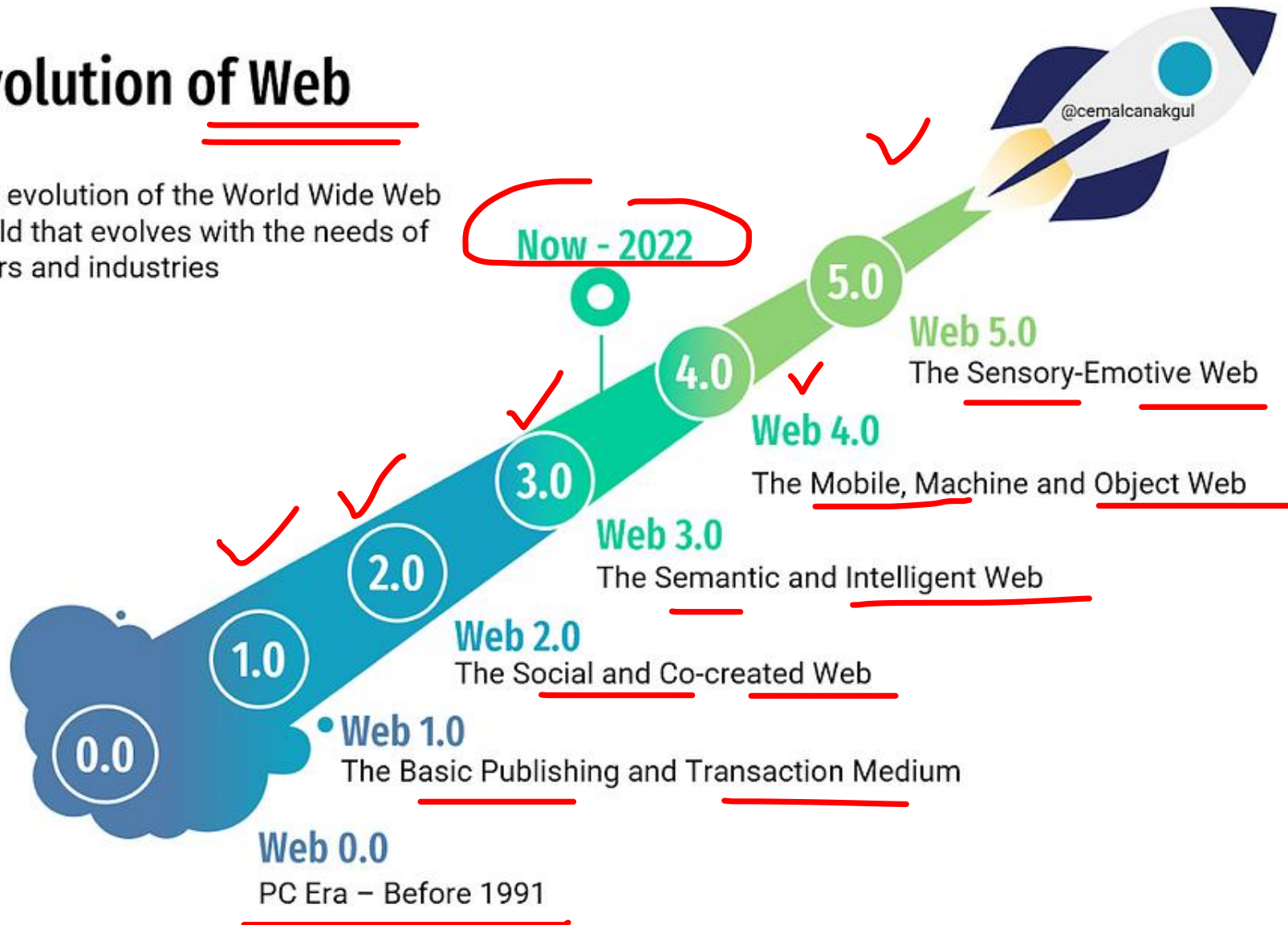
Social Media Timeline

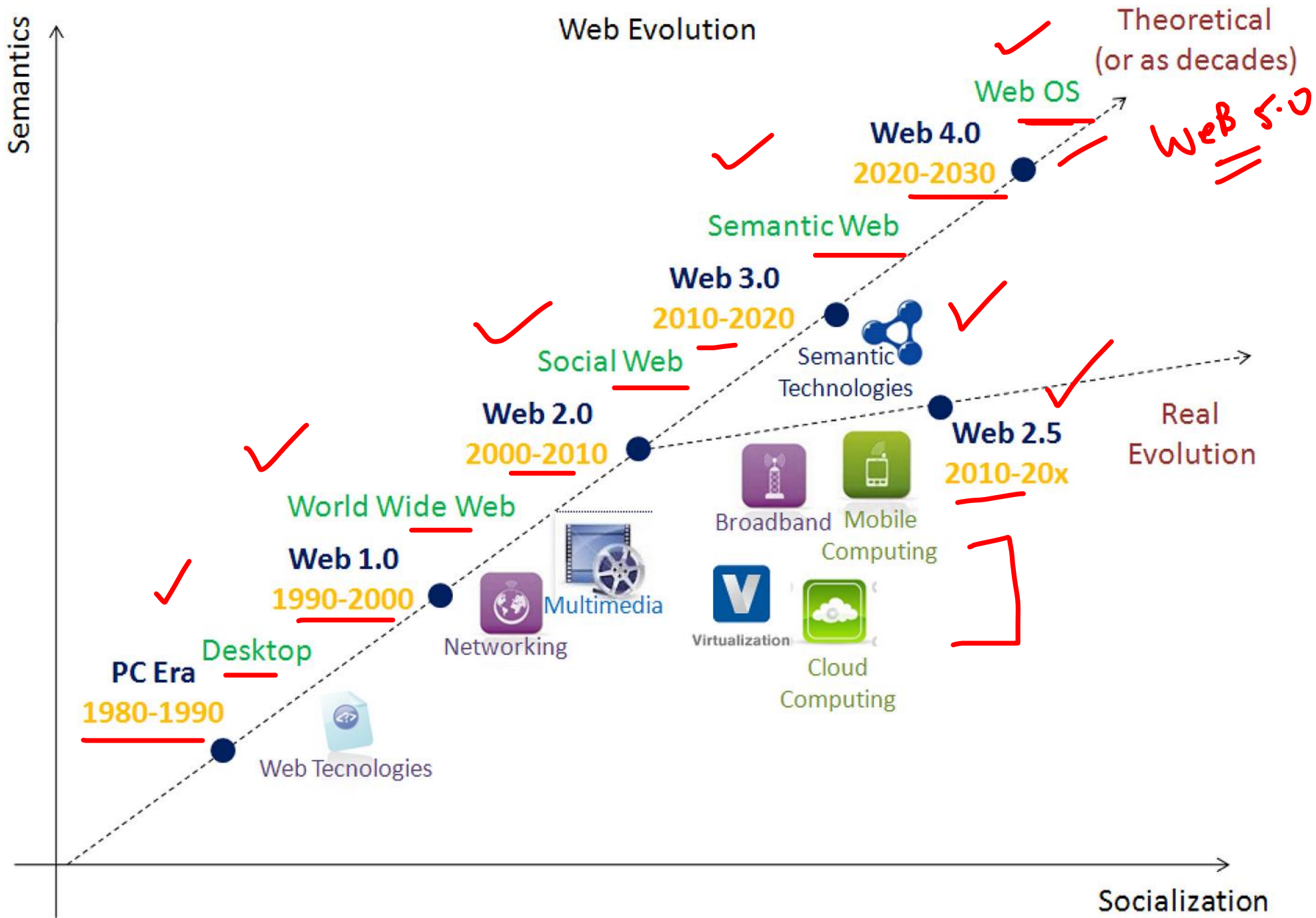




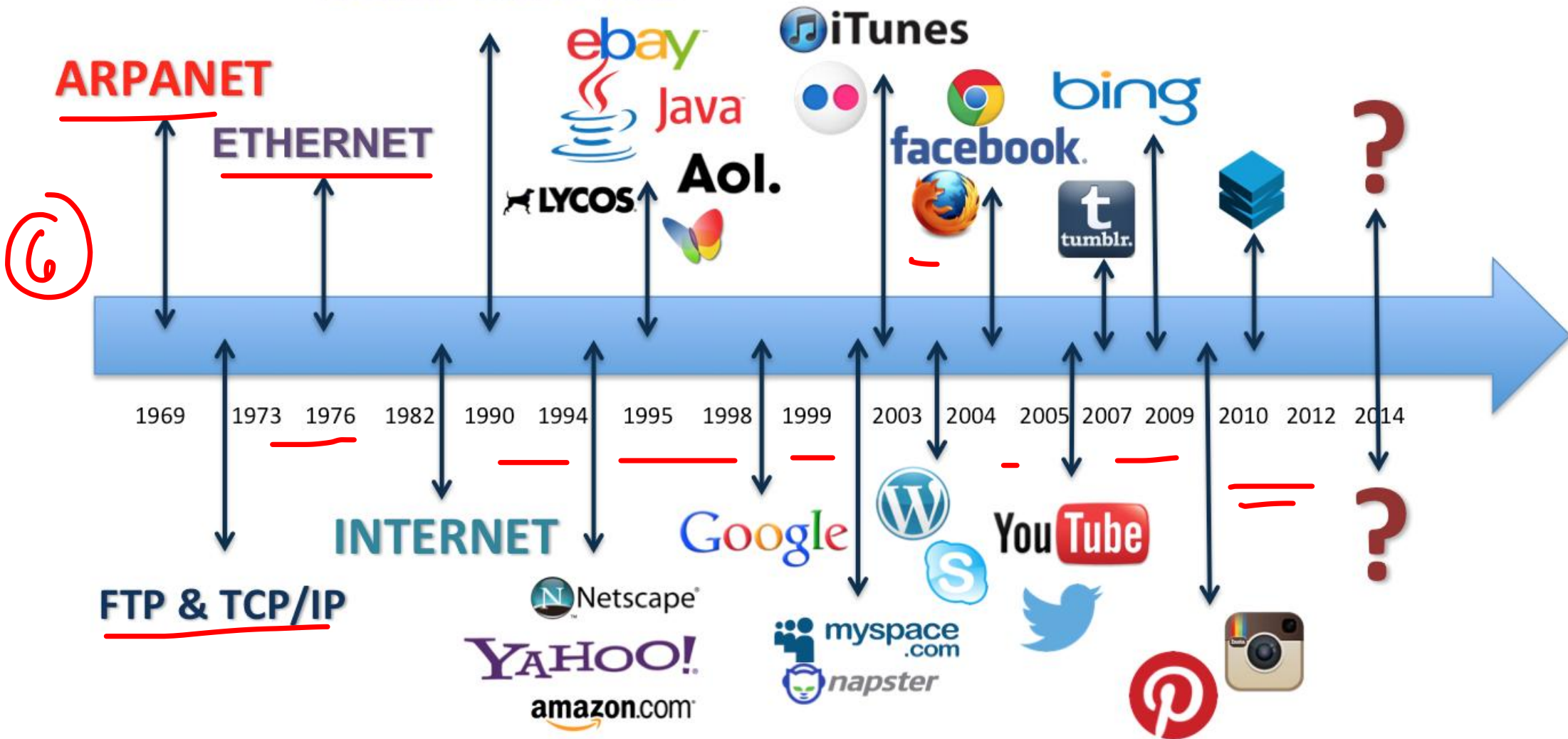
Evolution of Web

The evolution of the World Wide Web world that evolves with the needs of users and industries





WORLD-WIDE-WEB



Ethernet vs Wi-Fi

REQUIRES CABLE

RESTRICTS USER MOVEMENT

RELIABLE CONNECTION

MORE SECURE

FASTER DATA TRANSFER



NO CABLES NEEDED

PROVIDES MOBILITY

PRONE TO INTERFERENCE

EASILY INTERCEPTED

HIGH LATENCY



Q.1

Top 10 Statistical Tools Used in Medical Research

S/N	Product	Developer	Learning Curve	Cost (USD)	Open Source	Software license	Interface	Written in	Most Common Use Cases
1	STATA	StataCorp LLC	Steep	Academic starting at \$595/ industry starting at \$1,195	No	Proprietary	CLI/GUI	C	Clinical Data Analysis & Public Health
2	R	R Foundation	Steep	Free	Yes	GNU/PL	CLI/GUI	C with chunks in Fortran/C++	Meta-Analysis using special packages (Metafor & JASP)
3	GraphPad Prism	GraphPad Software, Inc.	Shallow	595	No	Proprietary	GUI	C/C++	Biological Labs, Research & Clinical Data Analysis
4	SAS	SAS Institute	Pretty steep	~\$6000 per seat (PC version)/~\$28K per processor (Windows server) first-year fees for BASE, STAT, GRAPH, and ACCESS modules. Modules are licensed individually. Subsequent year fees are roughly half.	No	Proprietary	CLI/GUI	C	Clinical Data Analysis, Health & Life Sciences
5	IBM SPSS	IBM	Shallow	\$4,975	No	Proprietary	CLI/GUI	Java	Systematic Reviews, Surveys & Clinical Data Analysis
6	MATLAB	MathWorks	Pretty steep	\$2150 (commercial), \$99 (student), toolboxes additional	No	Proprietary	CLI	C++ & Java	Meta-Analysis & Clinical Data Analysis
7	JMP	SAS Institute	Shallow	\$1995 (commercial) \$29.95/\$49.95 (student) \$495 for H.S. site licence	No	Proprietary	CLI/GUI	C++	Clinical Data Visualisation and Analysis
8	Minitab	Minitab Inc.	Shallow	\$895-\$1395 perpetual, \$542 or less concurrent annual, \$29.99/\$49.99/\$99.99 academic	No	Proprietary	CLI/GUI	Fortran	Clinical Data Analysis & Healthcare Analytics
9	STATISTICA	StatSoft	Steep	>\$695	No	Proprietary	GUI	C	Clinical Data Visualisation and Analysis
10	Excel	Microsoft Corporation	Shallow	\$8.25 per month	Yes	Proprietary	GUI	C and C++ and C#	Clinical Data Analysis & Meta-Analysis (MetaXL add-in)

Note: *Pretty Steep* = Very difficult and gradual learning curve, *Steep* = Difficult and gradual learning curve, *Shallow* = Relatively easy and quick to learn

Significance of statistical software in data analysis

SPSS

- Data Transformation
- Regression Analysis
- ANOVA (Analysis of variance)
- MANOVA (Multivariate analysis of variance)

STATA

- To manage, analyze, and generate graphical visualizations.
- the user-friendly graphical user interface
- comprises data management features
- Complete control over

9





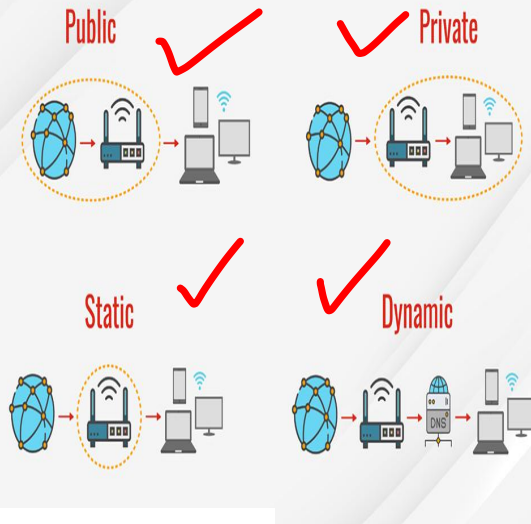
IP Address

[ɪˈpɛəˈdres]

A number used to identify a computer or network of computers.

Investopedia

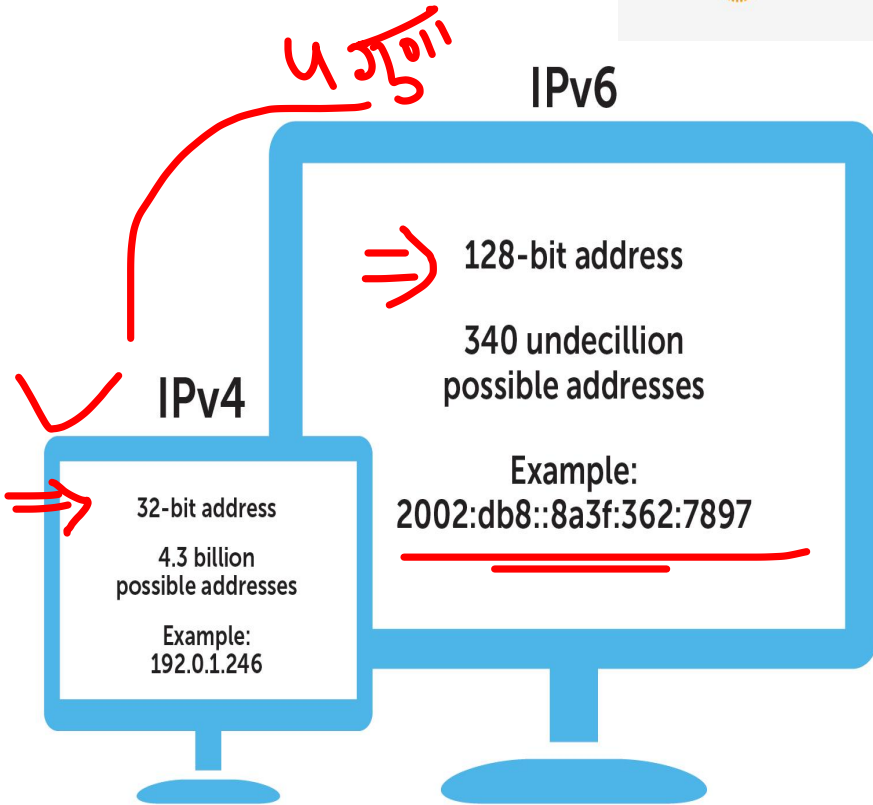
Four types of IP Addresses



KEY COMPARISONS

Between IPv4 vs IPv6

	IPv4	IPv6
Address	32 bits (4 bytes)	128 bits (16 bytes)
Packet Size	576 bytes required, fragmentation optional	1280 bytes required without fragmentation
Packet Fragmentation	Routers and sending hosts	Sending hosts only
Packet Header	Does not identify packet flow for QoS handling	Contains Flow Label field that specifies packet flow for QoS handling
	Includes a checksum	Does not include a checksum
	Includes options up to 40 bytes	Extension headers used for optional data
DNS Records	Pointer (PTR) records, IN-ADDR.ARPA DNS domain	Pointer (PTR) records, IP6.ARPA DNS domain
IP To MAC Resolution	Broadcast ARP	Multicast Neighbor Solicitation
Local Subnet Group Management	Internet Group Management Protocol (IGMP)	Multicast Listener Discovery (MLD)
Broadcast	Yes	No
Multicast	Yes	Yes
IPSec	Optional	Required



Key Points



- **HTML (HyperText Markup Language)** is the standard markup language used to create web pages.
- **XML (eXtensible Markup Language)** is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.
- **DHTML (Dynamic HTML)** is not a markup language itself but a combination of HTML, CSS, and JavaScript used to create dynamic and interactive web pages.

Additional Information

- **LML** and **PML** are not standard or widely recognized markup languages in the context of web development or data representation.



12

SDG
MDG



"SDG" redirects here. For other uses, see [SDG \(disambiguation\)](#).

This article is about the 2023 goals. For the 2015 goals, see [Millennium Development Goals](#).

The 2030 Agenda for Sustainable Development, adopted by all [United Nations](#) members in 2015, created 17 world **Sustainable Development Goals (SDGs)**. They were created with the aim of "peace and prosperity for people and the planet..."^{[1][2][3]} – while tackling [climate change](#) and working to preserve oceans and forests. The SDGs highlight the connections between the environmental, social and economic aspects of [sustainable development](#). [Sustainability](#) is at the center of the SDGs.^{[4][5]}

The short titles of the 17 SDGs are: No poverty ([SDG 1](#)), Zero hunger ([SDG 2](#)), Good health and well-being ([SDG 3](#)), Quality education ([SDG 4](#)), Gender equality ([SDG 5](#)), Clean water and sanitation ([SDG 6](#)), Affordable and clean energy ([SDG 7](#)), Decent work and economic growth ([SDG 8](#)), Industry, innovation and infrastructure ([SDG 9](#)), Reduced inequalities ([SDG 10](#)), Sustainable cities and communities ([SDG 11](#)), Responsible consumption and production ([SDG 12](#)), [Climate action](#) ([SDG 13](#)), Life below water ([SDG 14](#)), Life on land ([SDG 15](#)), Peace, justice, and strong institutions ([SDG 16](#)), and Partnerships for the goals ([SDG 17](#)).

These goals are ambitious, and the reports and outcomes to date indicate a challenging path. Most, if not all, of the goals are unlikely to be met by 2030. Rising inequalities, climate change, and [biodiversity loss](#) are topics of concerns threatening progress.^[6] The

[COVID-19 pandemic](#) in 2020 to 2023 made these challenges worse. The pandemic impacted all 17 goals and emphasized the interconnectedness of global health, economic, social, and environmental challenges.^[7] Some regions, such as Asia, have experienced significant setbacks during that time. The global effort for the SDGs calls for prioritizing environmental sustainability,

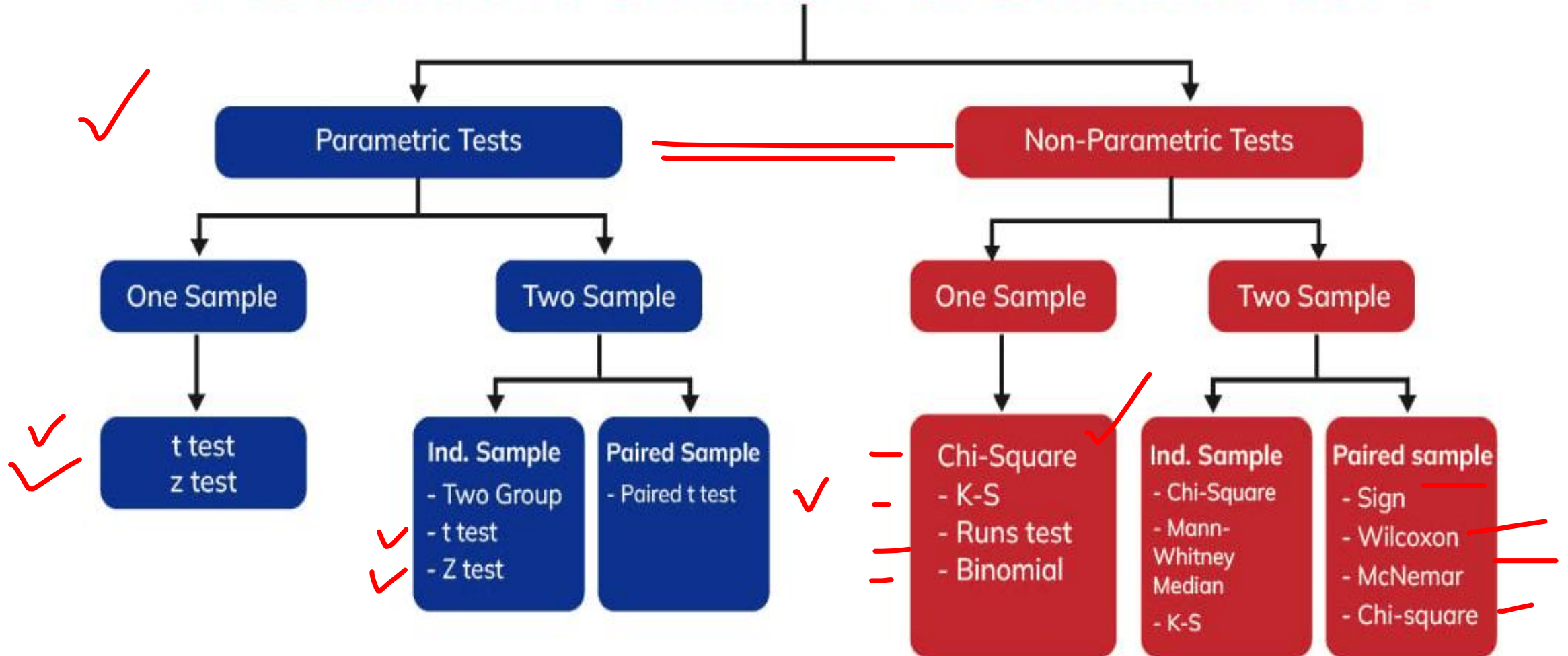
Sustainable Development Goals (SDGs)



SUSTAINABLE DEVELOPMENT GOALS

Mission statement	"A <u>shared</u> blueprint for peace and prosperity for people and the planet, <u>now and into the future</u> "
Location	Global
Founder	United Nations
Established	2015 ✓
Website	sdgs.un.org ↗

Parametric & Non-Parametric Test



Test statistic	Associated test	Sample size	Information given	Distribution	Test question
<u>z-score</u>	z-test	Two populations or <u>large samples</u> ($n > 30$)	<ul style="list-style-type: none"> • Standard <u>deviation</u> of the population (this will be given as σ) • <u>Population mean</u> or <u>proportion</u> 	Normal	Do these two populations differ?
<u>t-statistic</u>	t-test	Two <u>small samples</u> ($n < 30$)	<ul style="list-style-type: none"> • Standard deviation of the <u>sample</u> (this will be given as s) • <u>Sample mean</u> ✓ 	Normal	Do these two samples differ?
<u>f-statistic</u>	<u>ANOVA</u>	<u>Three or more samples</u>	<ul style="list-style-type: none"> • <u>Group sizes</u> ✓ • <u>Group means</u> ✓ • <u>Group standard deviations</u> ✓ 	Normal	Do any of these three or more samples differ from each other?
✓ <u>chi-squared</u>	<u>chi-squared test</u>	<u>Two samples</u>	<ul style="list-style-type: none"> • <u>Number of observations for each categorical variable</u> 	Any	Are these two categorical variables independent?

Improving Year-on-Year

SDG Goal-Wise Performance (2023-24)

SDG 1 No Poverty 72 ✓

SDG 2 Zero Hunger 52 ✓

SDG 3 Good health and well being 77 ✓

SDG 4 Quality Education 61 ✓

SDG 5 Gender Equality 49

SDG 6 Clean water & sanitation 89

SDG 7 Affordable and clean energy 96

SDG 8 Decent work & economic growth 68

SDG 9 Industry, innovation, infrastructure 61

SDG 10 Reduced inequalities 65

SDG 11 Sustainable cities & communities 83

SDG 12 Responsible consumption, production 78

SDG 13 Climate Action 67

SDG 15 Life on land 75

SDG 16 Peace, justice, strong institution 74



SDG
on
Ineq

Next

Forms of Indigenous Communication	Function	Knowledge
1. Folk Media ✓	<u>Storytelling</u>	Folklores, plays, dance, song, festival celebration.
2. <u>Indigenous Organisation</u>	<u>Discussion</u>	Organisation activities of religion group, tribe gathering, tribe leader meeting.
3. Economic Relationship and Service Supplier _____	Share information	Farming activities, hunting activities, trading, healer sharing information about diseases.
4. <u>Deliberate Instruction</u>	Instruction	Tribe leader and elderly's instruction. Parenting, how to eat, how to cook, how to behave.
5. <u>Unstructured Channel</u>	<u>Chatting</u>	Spontaneous and informal conversation about hobbies, entertainment, gossip.


Indigenous Communication _____

Definitions

- Indigenous - originating or occurring naturally in a particular place; native.
- Indigenous Communication includes the transmission of entertainment, news, persuasion, announcements, and social exchanges of every type among indigenous peoples
- it is an important aspect of culture and the means by which a culture is preserved, handed down, and adapted.

Evening
9:30
5:30

Renewable and Nonrenewable Resources



Renewable Resource
[ri-'nu-a-bal 're-sɔ:rs]

A resource that can be used repeatedly and does not run out because it is naturally replaced, such as solar, wind, hydro, geothermal, and biomass energy.

Investopedia



renewable

Restore naturally at a rate comparable to human consumption



sunlight



crops



water



livestock



wind



trees

nonrenewable

Exist in finite amounts or replenish over geological time spans



fossil fuels



minerals



nuclear fuels



metals



sand



topsoil

0, 7, 26, 63, 124,? find next

215

7, 19, 37, 61 ✓

$\begin{array}{r} \sqrt{\quad} \\ 12 \\ \hline \end{array}$ $\begin{array}{r} \sqrt{\quad} \\ 19 \\ \hline \end{array}$ $\begin{array}{r} \sqrt{\quad} \\ 24 \\ \hline \end{array}$

6×2
 6×3
 6×4

$6 \times 5 = 30$

$30 + 61 = 91$

$91 + 124 = \underline{\underline{215}}$


The International Environmental Education Programme (IEEP) was launched in 1975 by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Environment Programme (UNEP). The IEEP was created in response to the United Nations Conference on the Human Environment's 1972 Recommendation 96. The program's goals include:

- Behavior: Developing new patterns of behavior towards the environment
- Education: Facilitating the development of environmental education for sustainable development
- Reflection and action: Promoting reflection and action, as well as international cooperation in the field of environmental education

In 1976, UNESCO launched the environmental education newsletter Connect as the official organ of the IEEP.

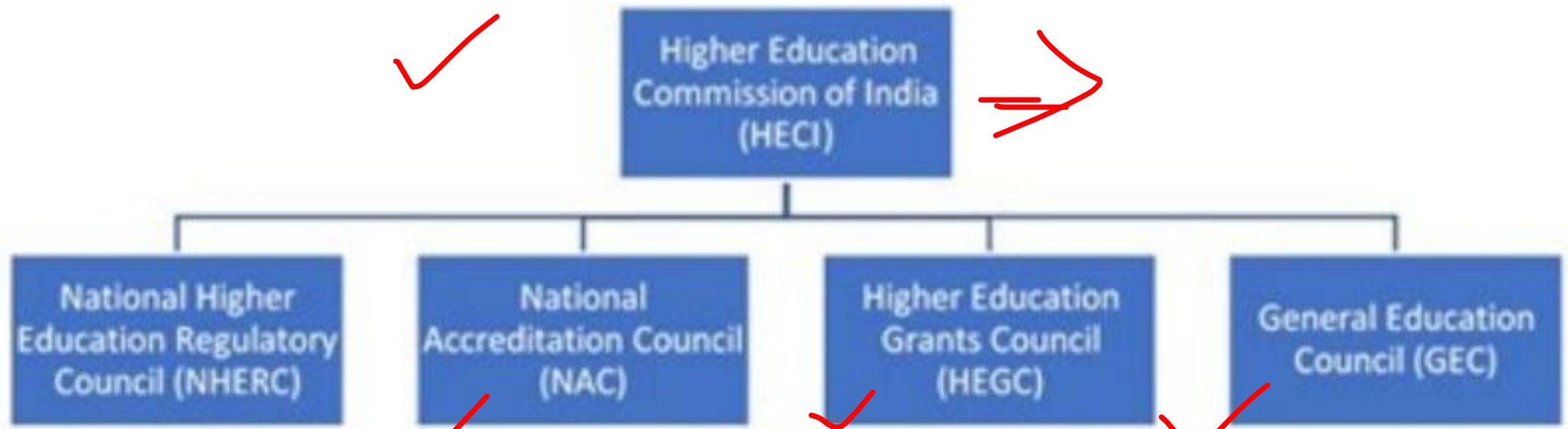
C.A. ⇒

**UPSC Prelims Facts
- UNEP**



Name: United Nations Environment Programme (UNEP)
Year of formation: 1972
HQ: Nairobi, Kenya
Sector: Environment
Is India a member - Yes

BYJU'S



National Higher Education Regulatory Council (NHERC): common, single point regulator for the higher education sector

National Accreditation Council (NAC): a robust system of graded accreditation

Higher Education Grants Council (HEGC): funding and financing of higher education based on transparent criteria

General Education Council (GEC): frames expected learning outcomes – characteristics of degree



Goals of Higher Education in NEP 2020

- Revamping curriculum, pedagogy, assessment, and student support
- Integrity of faculty and institutional leadership positions
- Governance of HEIs by highly qualified independent boards having academic and administrative autonomy
- National Research Foundation to fund outstanding peer-reviewed research and to actively seed research in universities and colleges
- "Light but Tight" regulation ✓ ✓ ✓ ✓
- 4 verticals under **HECI** - NHERC, NAC, HEGC and GEC
- Promote Imaginative and flexible curricular structures
- Multiple entry and exit points- removing currently prevalent rigid boundaries & creating new possibilities for life-long learning;
- Reimagining Vocational and Teacher Educations



Who first coined the term andragogy?

The term “andragogy” was first coined all the way back in 1833 by a German teacher named Alexander Knapp in an effort to categorize and describe Plato's theory of education. 22 May 2017



GAGNE'S HIERARCHY OF LEARNING

9 levels of learning








- 1 Gaining attention ✓
- 2 Informing learners of the objective
- 3 Stimulating recall prior to learning
- 4 Presenting information
- 5 Providing guidance
- 6 Eliciting performance
- 7 Providing feedback ✓
- 8 Assessing Performance
- 9 Enhancing Preparation and Transfer ✓

1. Preparation

2. Instruction and Practice

3. Assessment and Transfer

Computer Generations

Generation	Device	Hardware feature	Characteristics	System names
First (1942-1959)		<ul style="list-style-type: none">▶ Vacuum Tubes▶ Punch Cards	<ul style="list-style-type: none">▶ Support machine language only▶ Very costly▶ Generate lot of heat▶ Huge size▶ Consumed lot of electricity	<ul style="list-style-type: none">▶ ENIAC▶ EDVAC▶ TBM 701
Second (1959-1965)		<ul style="list-style-type: none">▶ Transistors▶ Magnetic Tapes	<ul style="list-style-type: none">▶ Batch operating system▶ Faster, smaller and reliable than previous generation▶ Costly	<ul style="list-style-type: none">▶ Honeywell 400▶ CDC 1604▶ IBM 7030
Third (1965-1975)		<ul style="list-style-type: none">▶ ICs▶ Large capacity disk and Magnetic Tapes	<ul style="list-style-type: none">▶ Time Sharing OS▶ Faster, smaller and reliable cheaper▶ Easier to update	<ul style="list-style-type: none">▶ IBM 360/370▶ CDC 6600▶ PDP 8/11
Fourth (1975-1988)		<ul style="list-style-type: none">▶ ICs with VLSI Technology▶ Semiconductor Memory▶ Magnetic tapes and floppy as portable	<ul style="list-style-type: none">▶ Multiprocessing & GUI OS▶ Object oriented programs▶ Small, affordable, easy to Use▶ Easier to update	<ul style="list-style-type: none">▶ Apple II▶ VAX 9000▶ CRAY 1/2
Fifth (1988-Present)		<ul style="list-style-type: none">▶ ICs with ULSI Technology▶ Large capacity hard disk with RAID Support▶ Optical disks as portable read-only storage media▶ powerful servers, internet, Cluster computing	<ul style="list-style-type: none">▶ Powerful, cheaper, reliable, easy to use, portable▶ Rapid software development possible	<ul style="list-style-type: none">▶ IBM▶ Pentium▶ PARAM

Rhetorical Communication

Rhetorical : the communicator gives thought to the intended message and stimulates the receiver in a manner designed to achieve a specific result.

Rhetorical communication is simply a way to win over an audience.

Speaker/Source

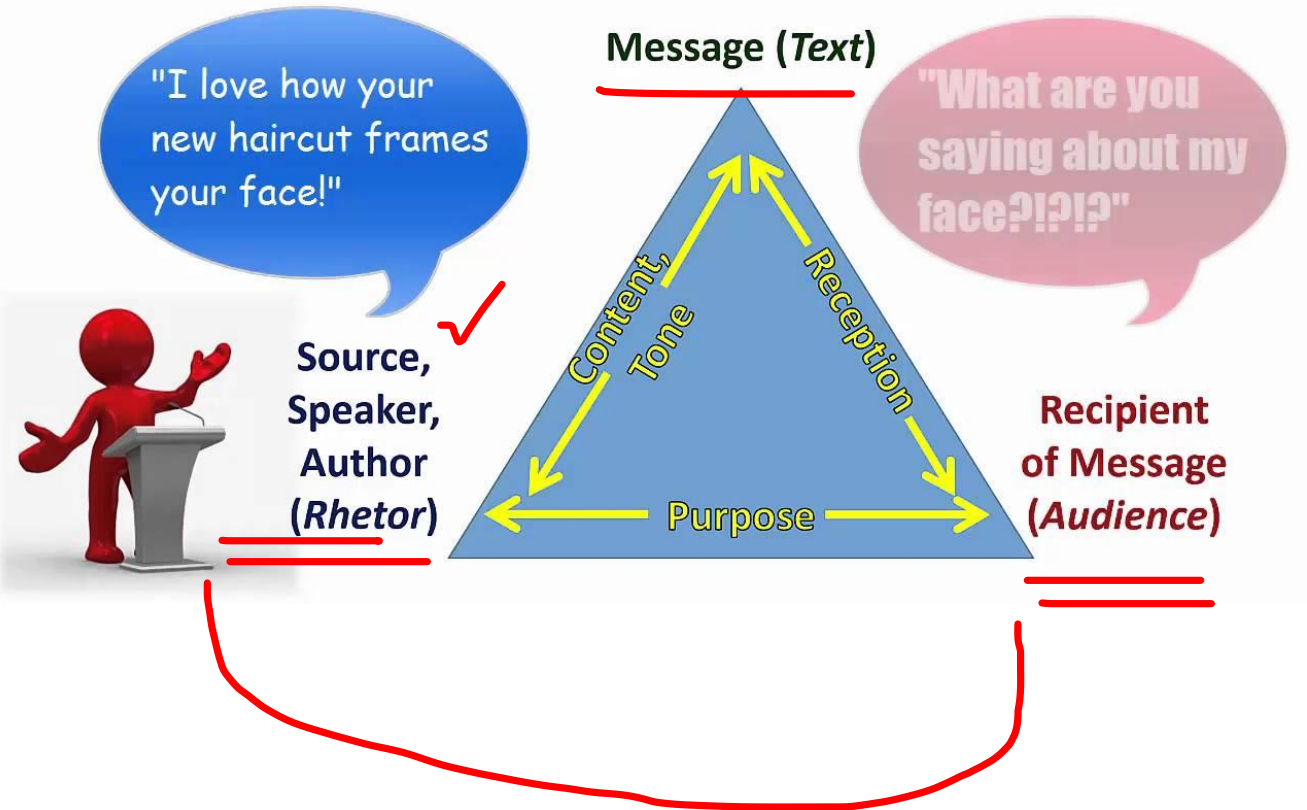


Audience/Receiver



Rhetorical Theory

The Rhetorical Triangle



Types of data on the basis of measurement

Scale	True Zero	Equal Intervals	Order	Category	Example
<u>Nominal</u>	No	No	No	Yes	<u>Marital Status, Sex, Gender, Ethnicity</u>
<u>Ordinal</u>	No	No	Yes	Yes	<u>Student Letter Grade, NFL Team Rankings</u>
<u>Interval</u>	No	Yes	Yes	Yes	<u>Temperature in Fahrenheit, SAT Scores, IQ, Year</u>
<u>Ratio</u>	Yes	Yes	Yes	Yes	<u>Age, Height, Weight</u>

Differences between measurements, true zero exists

Ratio Data

Quantitative Data

Differences between measurements but no true zero

Interval Data

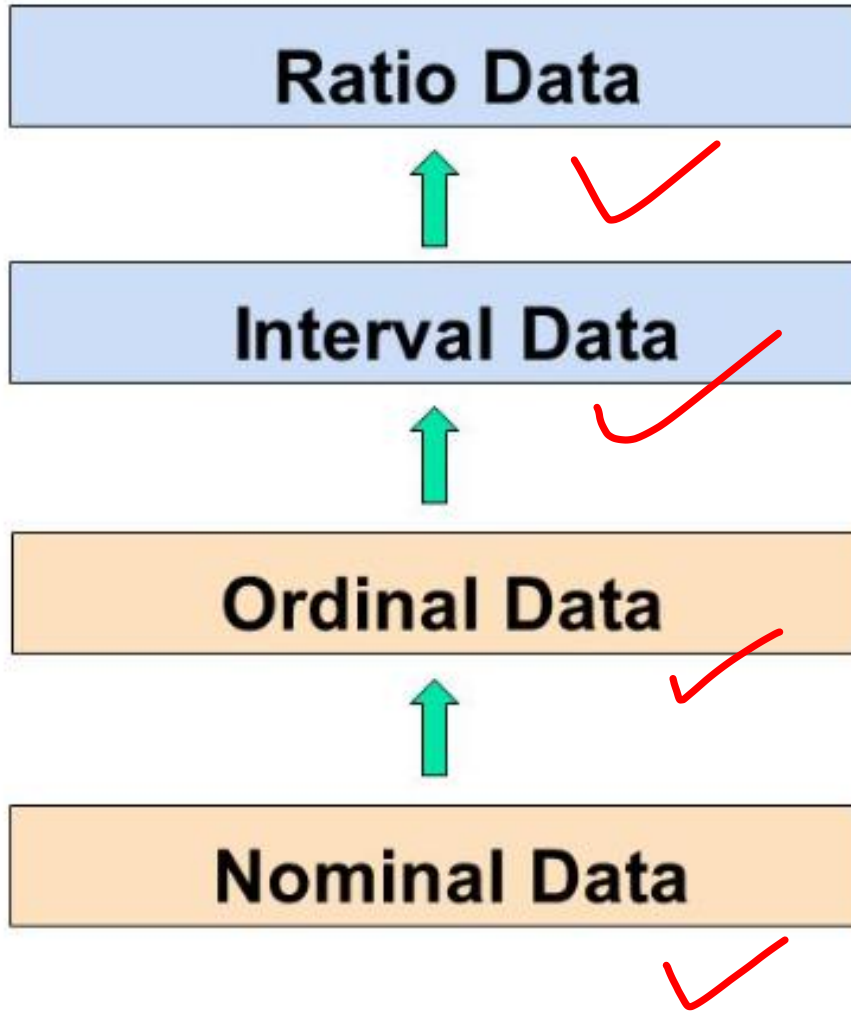
Ordered Categories (rankings, order, or scaling)

Ordinal Data

Qualitative Data

Categories (no ordering or direction)

Nominal Data



Ancient Universities

- ✓ • Nalanda University
- ✓ • Takshashila University
- ✓ • Vikramashila University
- ✓ • Valabhi University
- ✓ • Pushpagiri University
- ✓ • Odantapuri University
- ✓ • Somapura University
- ✓ • Ujjain University
- ✓ • Kanchi University

Located on the banks of river Kshipra, Ujjain played an important role in the education landscape of ancient India as it fostered linguistics, astronomy, astrology, arithmetic, classical arts, and liberal thinking.

Ujjain
Ujjain

उज्जयिणी

MOOC – SWAYAM – 4 QUADRANTS APPROACH

QUADRANT – 1 (E-TUTORIAL):

It contains Video and Audio contents in a structured type, along with the transcription of the video.

QUADRANT – 2 (E-Content):

Self-instructional material, E-books, Presentation, Web resources (Open source content) and Related links.

QUADRANT – 3 (DISCUSSION FORUM): Discussion forum for raising of doubts and clarifying them.

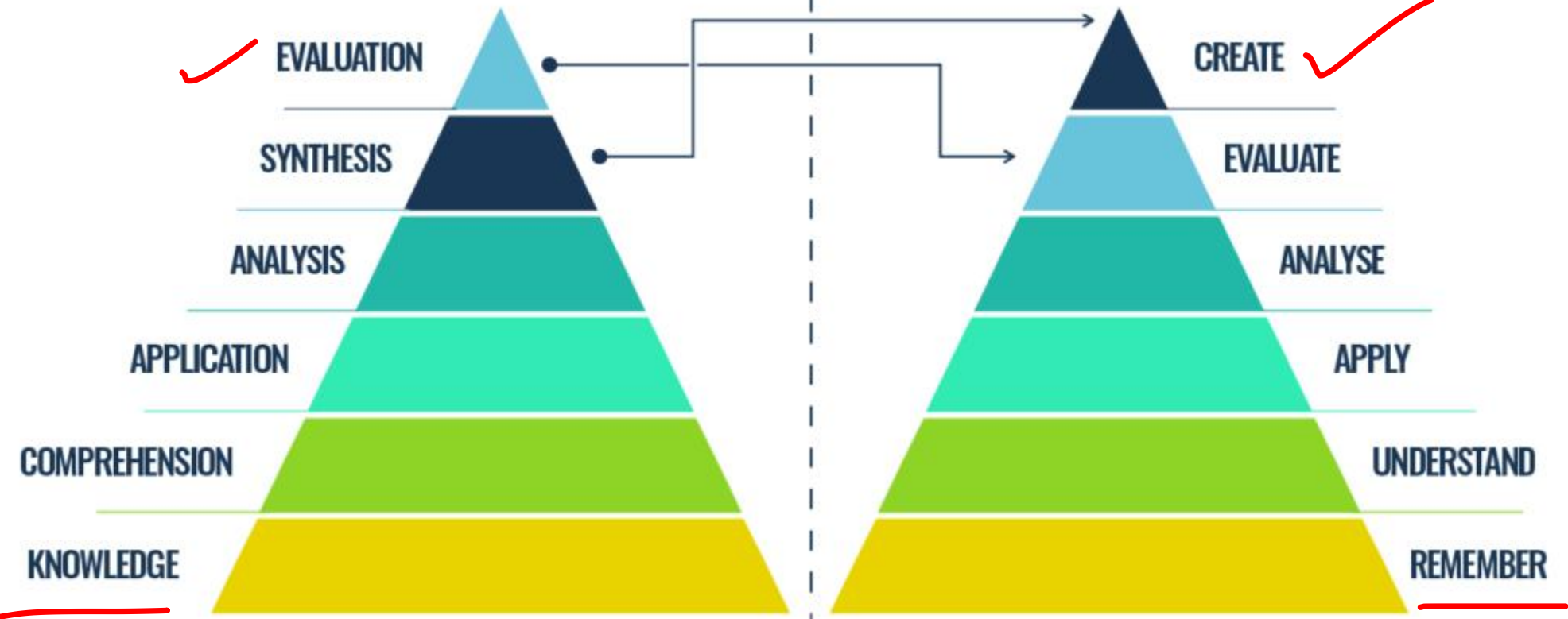
QUADRANT – 4 (ASSESSMENT): It contains problems and solutions, which could be in the form of Fill in the blanks, Match the following questions, Short answer questions and Paragraphs answer questions.

old Bloom

New

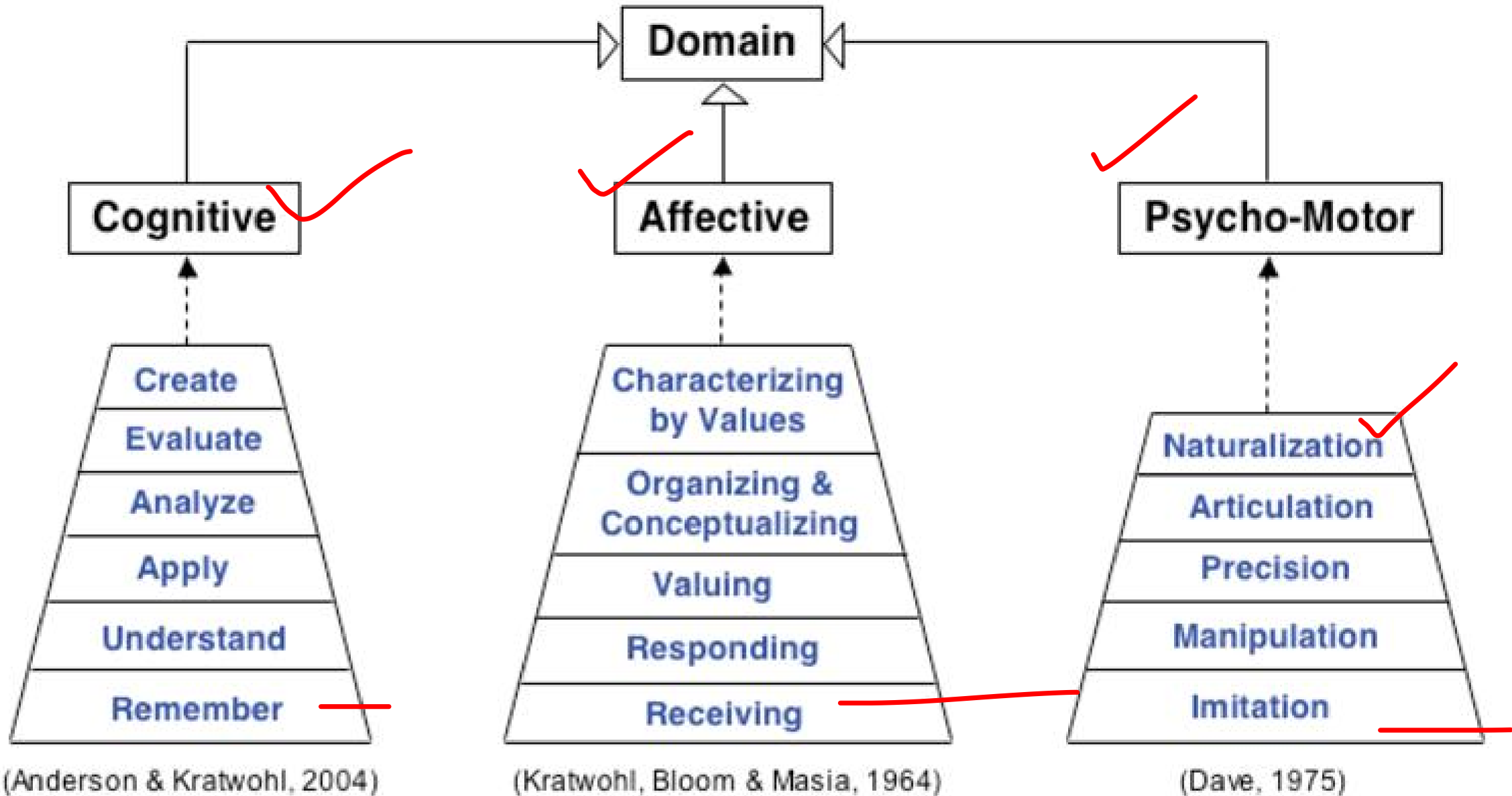
1956

2001



Noun → to Verb Form





Piaget's Theory of Cognitive Development

Important Ideas



Piaget's Four Stages of Cognitive Development

Sensorimotor ✓

From Birth to About Age Two



Reflexes Object Permanence Thumb Sucking Mobility
Children experience the world through senses and movement

Preoperational

From age Two up until age Seven



Pretend Object Representation Egocentric Curious
Children can think about things symbolically

Concrete Operation

From age Seven to Eleven Years



Classify Conservation Inductive Logic View of Others
Children begin to think logically about concrete events

Formal Operations

From age Twelve and Beyond



Abstract Scientific Thinker Identity Moral/Social Issues
Children understand the abstract and deductive reasoning

Overview

Theory describes the cognitive development in children



Four Stages Important Landmark Own Children

LIKE

SUBSCRIBE

Jean Piaget

Child's Education Philosophy & Biology Epistemology



Piaget is a Swiss psychologist famous for his work on child development and his Theory of Cognitive Development

Criticisms



Cultural Differences Stages Inconsistent Underestimated Lack Detail

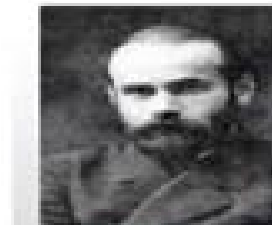
Piaget's Stages of Cognitive Development

Stage	Age range	What happens at this stage?
Sensorimotor	0-2 years old	Coordination of senses with motor responses, sensory curiosity about the world. Language used for demands and cataloguing. Object permanence is developed.
Preoperational	2-7 years old	Symbolic thinking, use of proper syntax and grammar to express concepts. Imagination and intuition are strong, but complex abstract thoughts are still difficult. Conservation is developed.
Concrete Operational	7-11 years old	Concepts attached to concrete situations. Time, space, and quantity are understood and can be applied, but not as independent concepts.
Formal Operational	11 years old and older	Theoretical, hypothetical, and counterfactual thinking. Abstract logic and reasoning. Strategy and planning become possible. Concepts learned in one context can be applied to another.

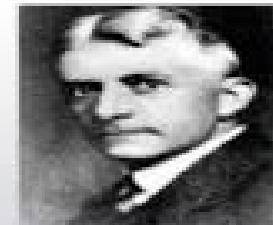
KOHLER'S Insight Theory Gestalt Theory (Insightful learning)

❖ Max Wertheimer is the father of Gestalt Theory.

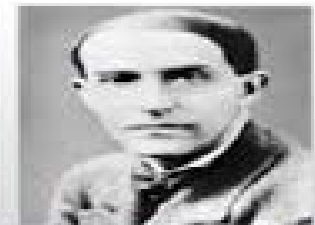
❖ Later on, Wertheimer's theory was further refined and developed by Kurt Kafka and Wolfgang Kohler.



Max Wertheimer (1880-1943)



Wolfgang Köhler (1891-1967)



Kurt Koffka (1886-1941)

❖ The term 'Gestalt' means a Whole, a total composition.

❖ According to this theory, an individual learns an object as a whole, not in parts. 'The whole is greater than the sum of its parts.'

❖ **Insight learning means** the sudden realization about a solution to a problem

2/5/21

Skinner's Operant Conditioning Theory

→ Theory was propounded by **B.F. Skinner** in 1938.

→ He was an **American Psychologist**

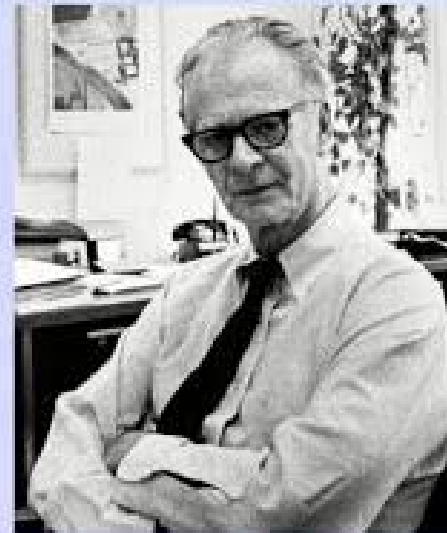
→ Skinner's early experiment were done using **rats**, later moved on to study **Pigeons**.

→ This theory also known as **Instrumental Conditioning**

Reinforcement or Punishment are used to either increasing or decreasing the probability that a behaviour will occur again in the future.

Operant Conditioning

In classical Conditioning response is automatic and involuntarily (Pulling hand back from a hot stove)

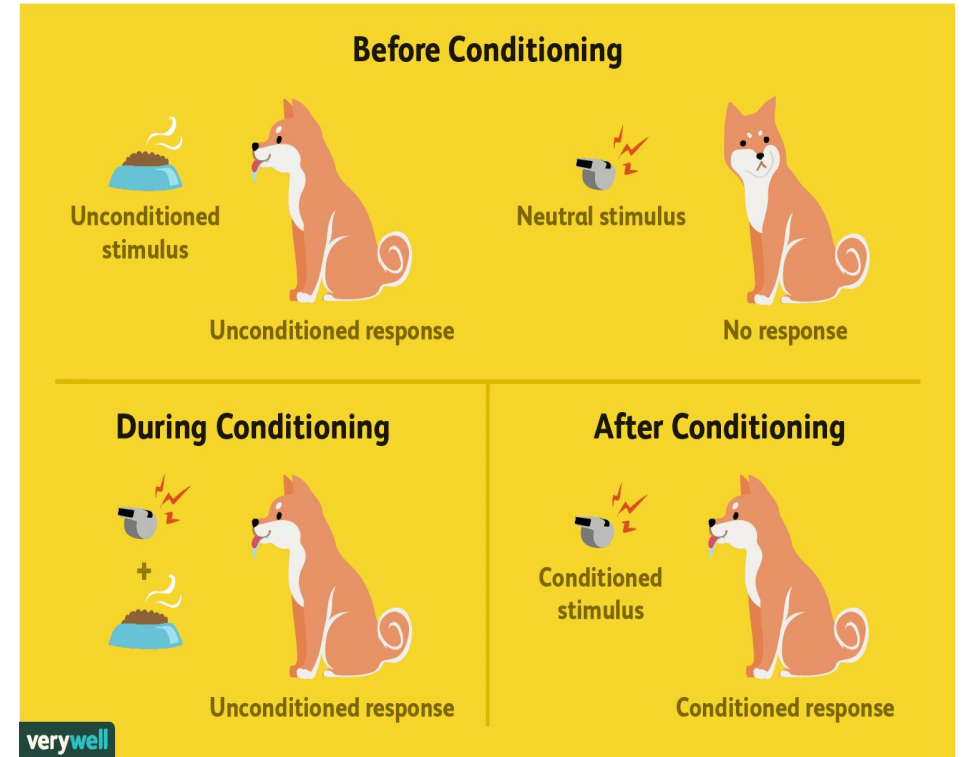


Classical Conditioning

- Pavlov was a physiologist.
- He was studying digestive system.
- It is a behaviorist theory.
- It talks about connection between stimulus and response.
- Being the first, it is also known as classical.



Ivan Pavlov



PENALTIES FOR PLAGIARISING

Levels of plagiarism

Level 0 | similarities up to 10%

Level 1 | similarities above 10% to 40%

Level 2 | similarities above 40% to 60%

Level 3 | similarities above 60%



Penalties in case of plagiarism in academic and research publications

Level 0 | minor similarities, no penalty

Level 1 | Shall be asked to withdraw manuscript

Level 2 | Shall be asked to withdraw manuscript, shall be denied a right to one annual increment, shall not be allowed to be a supervisor to any new master's, MPhil, PhD student/scholar for a period of two years

Level 3 | Shall be asked to withdraw manuscript, shall be denied a right to two successive annual increments, shall not be allowed to be a supervisor to any new masters, MPhil, PhD student/scholar for a period of three years

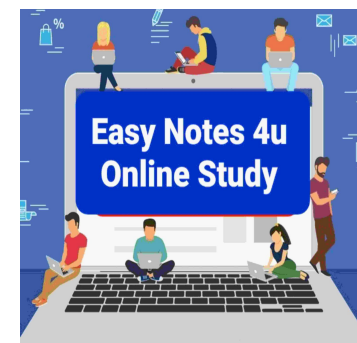
Penalties in case of plagiarism in submission of thesis and dissertations

Level 0 | minor similarities, no penalty

Level 1 | Student will be asked to submit revised script

Level 3 | Student's programme registration will be cancelled

Level 2 | Students will be barred from submitting revised script for one year



Elements of Style

MLA

and

APA

- Cross-referencing
 - Manuscript guidelines
 - In-text (parenthetical) citations
 - Works Cited (not a bibliography)
- Supporting documents (if required):
- annotated bibliography
 - footnotes and/or endnotes
- Cross-referencing
 - Manuscript guidelines
 - In-text (parenthetical) citations
 - References (not a bibliography)
- Supporting documents (if required):
- author note
 - abstract
 - footnotes
 - appendix: brief materials (descriptions, lists, details, etc.)

There are many different citation styles

MLA

- Modern Language Association ✓
- Used in most Humanities courses
- Emphasis placed on **authorship** of source

APA

- American Psychological Association
- Used in most Social Sciences courses
- Emphasis placed on **date** of source creation

CMS

- Chicago Manual of Style ✓
- Used in most History courses
- Emphasis placed on **origin** of source

- To learn more about these citation styles visit:
<https://owl.english.purdue.edu/owl/resource/949/01/>
- To learn more about how many different citation styles there are visit:
<http://subjectguides.library.american.edu/content.php?pid=81965&sid=990852>

RANSOMWARE



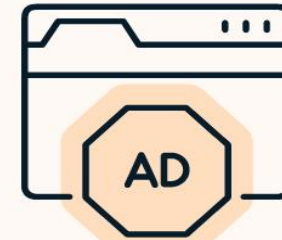
Blackmails you

SPYWARE



Steals your data

ADWARE



Spams you with ads

✓ Types of Malware

✓ WORMS



Spread
across computers

TROJANS

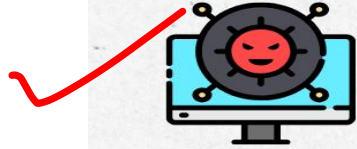


Sneak malware
onto your PC

✓ BOTNETS



Turn your PC
into a zombie



VIRUS

- Viruses attach themselves to the legitimate programs and **replicate** when the infected programs runs.
- E.g. Stuxnet (2010)



TROJAN HORSE

- **Disguises** themselves as legitimate software.
- Once inside a system, they **create a backdoor** for attackers
- E.g. Zeus



RANSOMWARE

- **Encrypts** files on a victim's system and **demand a ransom** for decryption keys.
- E.g. AKIRA



ROOTKITS

- Are designed to **conceal malicious software** and processes.
- Operates stealthily within a compromised system.
- E.g. Sony BMG Rootkit (2005)



BOTNETS

- **Networks of infected computers** controlled remotely by a single entity.
- E.g. Mariposa

WORM

- Programs that **replicate & spread** across a network independently.
- Don't need to attach to files, unlike viruses.
- E.g. Conficker (2008)



SPYWARE

- **Secretly monitors** user activities, capturing keystrokes, browsing habits, and personal information.
- E.g. Pegasus



ADWARE

- Adware displays **unwanted advertisements** on a user's computer, often in the form of pop-up ads.
- E.g. Superfish



KEYLOGGERS

- **Records keystrokes** on a computer to capture sensitive information like passwords, credit card numbers, and personal data.
- E.g. DarkTequila

Types of Environmental Pollution

Air ✓

Definition

Air pollution is changing the composition of air by addition of harmful gases or dust particles into it

Cause

Release of poisonous gases, greenhouse gases from vehicles and factories, dust particles from construction work

Effects

It causes many diseases such as asthma and bronchitis.

Water ✓

Definition

Water pollution is the contamination of water sources by releasing harmful substances in it

Cause

Dumping of wastewater, harmful chemicals sewage, and garbage in the rivers or lakes, bathing and washing of clothes in lakes or rivers

Effects

It cause diseases like jaundice, dysentery, typhoid, cholera, etc.

Soil ✓

Definition

Soil pollution is the release of harmful substances in the fertile soil, which make it infertile.

Cause

Excessive use of fertilizer and pesticides. Deforestation and dumping of garbage and harmful chemicals from factories

Effects

Make land infertile for agricultural purposes. Also cause diseases.

© Selftution.com

Noise ✓

Definition

Noise pollution is any sound that is above comfort level and unpleasant.

Cause

Horns of vehicles, loud speakers and music, bursting of crackers, machinery & construction work.

Effects

It is harmful to the ears and can cause stress, anxiety, and disturbance in sleep

Light ✓

Definition

Light pollution is the excessive use of artificial lights for the illumination of urban areas

Cause

street lamps, shopping mall lights, neon signs, and illuminated signboards, exterior lights found in most homes/businesses

Effects

It disrupts the natural patterns of wildlife like hunting and navigation, and obscures the stars in the night sky.

8. Arrange the following sections of a research dissertation in correct sequence.

शोध निबंध के निम्न अनुभागों को सही क्रम में व्यवस्थित कीजिए—

- A. Acknowledgement/अभिस्वीकृति
- B. Research Methods/शोध विधियाँ
- C. Discussion/विचार-विमर्श
- D. Literature review/साहित्य समीक्षा

Choose the correct answer from the options given below:

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए—

- (a) A, B, C, D
- (b) B, D, C, A
- (c) D, B, C, A
- (d) A, D, B, C

Ans.(d): शोध निबंध के निम्न अनुभागों का सही क्रम है—

- अभिस्वीकृति (Acknowledgement)
- साहित्य समीक्षा (Literature Review)
- शोध विधियाँ (Research Methods)
- विचार-विमर्श (Discussion)

Arrange the following fractions in increasing order:

निम्न भिन्नो को बढ़ते क्रम में व्यवस्थित कीजिये।

A. $\frac{14}{17}$

B. $\frac{11}{13}$

C. $\frac{7}{9}$

D. $\frac{16}{19}$

Choose the correct answer from the options given below:

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए-

(a) C, A, B, D

(b) C, A, D, B

(c) A, D, C, B

(d) B, C, A, D



34. A 500m long train running at a speed of 100 m/s crosses a tunnel in 10s. What is the length of the tunnel?

एक 500 मीटर लंबी रेलगाड़ी 100 मीटर/सेकंड की गति से चलते हुए एक सुरंग को 10 सेकंड में पार करती है। सुरंग की लंबाई कितनी है?

- (a) 200 m/200 मीटर (b) 500 m/500 मीटर
(c) 800 m/800 मीटर (d) 1000 m/1000 मीटर

Ans.(b): रेलगाड़ी की लंबाई = 500 मीटर

माना, सुरंग की लंबाई = l

चाल = 100 मीटर/सेकंड

समय = 10 सेकंड

$$\text{चाल} = \frac{\text{दूरी}}{\text{समय}} \Rightarrow 100 = \frac{500 + l}{10}$$

$$1000 = 500 + l$$

$$\text{सुरंग की लंबाई} = l = 500$$



31. A researcher computes sample correlation coefficients r_1, r_2, r_3 and r_4 from the four different samples and obtains 0.97, 0.95, 0.10 and 0.03, respectively, as their p-values. The correlation coefficient significant at 5% level is: एक अनुसंधानकर्ता चार अलग-अलग प्रतिदर्शों से प्रतिदर्श सहसंबंध गुणांकों r_1, r_2, r_3 , और r_4 की गणना करता है और उनके p- मात्र क्रमशः 0.97, 0.95, 0.10 और 0.03 प्राप्त करता है। तो कौन सा सहसंबंध गुणांक 5% स्तर पर सार्थक है?

- (a) r_1 (b) r_2
(c) r_3 (d) r_4

Ans. (d) : सहसंबंध गुणांक एक सांख्यिकीय अवधारणा है जो एक सांख्यिकीय प्रयोग में प्राप्त अनुमानित और वास्तविक मूल्यों के बीच संबंध स्थापित करने में मदद करता है। सहसंबंध गुणांक का परिकल्पित मान पूर्वानुमानित और वास्तविक मानों के बीच सटीकता बताता है। एक अनुसंधानकर्ता चार अलग-अलग प्रतिदर्शों से प्रतिदर्श सहसंबंध गुणांको r_1, r_2, r_3 और r_4 की गणना करता है और उनके P- मात्र क्रमशः 0.97, 0.95, 0.10, और 0.03 प्राप्त करता है। तो r_4 सहसंबंध गुणांक 5% स्तर पर सार्थक है।

Correlation Coefficients (r) along with their respective P-values are given identify the two most significant correlation coefficients from the following./नीचे सहसंबंध गुणांक (r) और उससे संबंधित p मान दिए गए हैं। निम्नलिखित में से दो सबसे अधिक सार्थक सहसंबंध पहचानिए।

A. $r = 0.77, p = 0.25$

B. $r = -0.61, p = 0.01$

C. $r = 0.41, p = 0.59$

Choose the correct answer from the options given below.

नीचे दिए गए विकल्पों में से सही उत्तर चुनें :

- (a) A and B only/केवल A और B
(b) A and C only/केवल A और C
(c) B and D only/केवल B और D
(d) C and D only/केवल C और D

Ans. (c) : सहसंबंध गुणांक एक सांख्यिकीय अवधारणा है जो एक सांख्यिकीय प्रयोग में प्राप्त अनुमानित और वास्तविक मूल्यों के बीच संबंध स्थापित करने में मदद करता है। सहसंबंध गुणांक का मान हमेशा -1 और +1 के बीच होता है। उपर्युक्त में से सबसे अधिक सार्थक सहसंबंध :-

$r = -0.61, P = 0.01$

$r = -0.37, P = 0.03$ है।

24. Ujjain, in ancient India, was famous for the study of/प्राचीन भारत में उज्जैन निम्न में से किसके अध्ययन के लिए प्रसिद्ध था?

- (a) Veterinary science/पशु चिकित्सा विज्ञान
- (b) Chinese philosophy/चीनी दर्शन
- ✓ (c) Astronomy/खगोलशास्त्र
- (d) Community work/सामुदायिक कार्य

Ans. (c) : प्राचीन भारत में उज्जैन खगोलशास्त्र के लिए प्रसिद्ध था। उज्जैन शहर ने प्राचीन भारत के शिक्षा परिदृश्य में एक महत्वपूर्ण भूमिका निभाई क्योंकि इसने भाषा विज्ञान, ज्योतिष, अंकगणित, शास्त्रीय कला और उदार सोच को बढ़ावा दिया। खगोलशास्त्र के अंतर्गत सूर्य सिद्धान्त जैसे उत्कृष्ट लेख उज्जैन शहर में ही लिखे गये थे।

27. Consider the base - 10 number 100. In base -6, it would be represented as.

आधार (बेस) - 10 की संख्या 100 लीजिए। आधार-6 में निम्न में से किस रूप में प्रदर्शित होगी?

(a) $(442)_6$

(b) $(200)_6$

(c) $(242)_6$

(d) $(244)_6$

Ans. (d) : प्रश्नानुसार,

6	100	
6	16	4
6	2	4
	0	2

Q

अतः $\Rightarrow (100)_{10} = (244)_6$



31. The purpose of theory is to generate hypotheses that can be tested and that will thereby allow explanation of laws to be assessed. The above statement refers to the principle of./सिद्धान्त का उद्देश्य ऐसी परिकल्पनाएं तैयार करना होता है जिनका परीक्षण क्रिया जा सकता है और जिनकी सहायता से नियमों की व्याख्या का मूल्यांकन किया जा सकता है। उक्त कथन का अभिप्राय किस सिद्धान्त से है?

- (a) Objectivism/वस्तुनिष्ठवाद
- (b) Constructionism/रचनावाद
- (c) Inductivism/आगमनवाद
- (d) Deductivism/निगमनवाद

Ans. (d) : निगमनवाद :- एक निगमनात्मक तर्क सामान्य परिसर से शुरू होता है और तार्किक अर्थ के माध्यम से एक विशिष्ट निष्कर्ष पर आता है। उदाहरण के लिए गणित पढ़ाते समय शिक्षक एक थ्योरी का परिचय देता है और थ्योरी के नियम और सूत्र के बारे में बताता है और छात्रों को दिए गए सूत्र का उपयोग करके समस्याओं को हल करने के लिए कहा जाता है।

निगमनवाद सिद्धान्त का उद्देश्य ऐसी परिकल्पनाएं तैयार करना होता है जिनका परीक्षण किया जा सकता है और जिनकी सहायता से नियमों की व्याख्या की मूल्यांकन किया जा सकता है।

9. The mean and standard deviation of 75 observations are 45 and 10, respectively. If 2 is added to each observation, the new mean and standard deviation will be.

75 प्रेक्षणों के माध्य व मानक विचलन क्रमशः 45 व 10 है। यदि प्रत्येक प्रेक्षण में 2 का योग कर दिया जाए, तो नये माध्य व मानक विचलन क्या होंगे?

- (a) 47, 12 (b) 47, 14
(c) 47, 10 (d) 46, 12

Ans. (c) : माध्य = $45+2 = 47$ ✓

मानक विचलन = 10 ✓

∴ किसी आँकड़े का मानक विचलन मूल में किसी भी परिवर्तन से स्वतंत्र है तथा माध्य मूल में परिवर्तन की मात्रा के बराबर ही परिवर्तित हो जाता है।

सूची I/List I (Internet Term)/ (इंटरनेट पद)	सूची-II/ List-II (Definition)/(परिभाषा)
A. HTTP	I. A unique address given to a device on a network. It is provided by the manufacturer नेटवर्क पर किसी यंत्र का प्रदत्त विशिष्ट पता। यह विनिर्माता द्वारा दिया जाता है।
B. URL	II. The main protocol that governs the transmission of data using the internet/ इंटरनेट के प्रयोग से डेटा प्रेषण को शासित करने वाला मुख्य प्रोटोकॉल
C. MAC Address/ MAC एड्रेस	III. An address given to each device on a network. It is provided by the network नेटवर्क पर प्रत्येक यंत्र को प्रदत्त पता। यह नेटवर्क द्वारा दिया जाता है।
D. IP Address / IP एड्रेस	IV. The website address that is typed into the address bar एड्रेस बार में टंकित वेबसाइट एड्रेस

Ans. (a) : सही सुमेलित है:-	
सूची I (इंटरनेट पद)	सूची II (परिभाषा)
A. HTTP ✓	इंटरनेट के प्रयोग से डेटा प्रेषण को शासित करने वाला मुख्य प्रोटोकॉल
✓ B. URL	एड्रेस बार में टंकित वेबसाइट एड्रेस
✓ C. MAC एड्रेस	नेटवर्क पर किसी यंत्र का प्रदत्त विशिष्ट पता। यह विनिर्माता द्वारा दिया जाता है।
✓ D. IP एड्रेस	नेटवर्क पर प्रत्येक यंत्र को प्रदत्त पता। यह नेटवर्क द्वारा दिया जाता है।

6. Which of the following are true about Persistent Organic Pollutants (POPs)? दीर्घस्थायी कार्बनिक प्रदूषकों (पी ओ पी) के संबंध में निम्नलिखित में से कौन से सही हैं?

- (A) They are extremely widespread and occur from tropics to Arctic/ये अत्यधिक व्यापक है और उष्णकटिबंध से आर्कटिक तक मौजूद हैं।
- (B) They often accumulate in food webs and reach toxic concentrations/ये अक्सर खाद्य जाल में संचित होते हैं और विषाक्त संकेन्द्रण तक पहुँचते हैं।
- (C) Volatile Organic Compounds (VOCs) are examples of POPs/वाष्पशील कार्बनिक यौगिक (वी ओ सी) पी ओ पी के उदाहरण हैं।
- (D) They are widely used as flame retardants and in deodorants./लौ मंदकों के रूप में और निर्गंधीकारकों में इनका व्यापक प्रयोग होता है।
- (E) Some chemicals used in making non-stick waterproof and stain-resistant products are categorized as POPs.
न चिपकने वाले, जलावरोधक और दागरोधी उत्पादों में प्रयुक्त कुछ रसायनों को पी ओ पी के रूप में श्रेणीबद्ध किया जाता है।

Choose the correct answer from the options given below:

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए:

- (a) (A), (B), (C) and (D) Only
केवल (A), (B), (C) और (D)
- (b) (B), (C), (D) and (E) Only
केवल (B), (C), (D) और (E)
- (c) (A), (B), (D) and (E) Only
केवल (A), (B), (D) और (E)
- (d) (A), (C) and (E) Only/ केवल (A), (C) और (E)

Ans. (c) : दीर्घकालिक या दीर्घस्थायी कार्बनिक प्रदूषक (POPs) एक रासायनिक पदार्थ हैं, जिनकी विशेषताएँ इस प्रकार हैं-

- * पर्यावरण में दीर्घकाल तक उपस्थिति
- * मानव स्वास्थ्य तथा पर्यावरण पर प्रतिकूल प्रभाव
- * सजीवों के फैटी एसिड में संचित हो जाते हैं।
- * ये अत्यधिक व्यापक है और उष्णकटिबंधीय क्षेत्रों से आर्कटिक तक मौजूद है।
- * ये अक्सर खाद्य जाल में संचित होते हैं और विषाक्त संकेन्द्रण तक पहुँचते हैं।
- * लौ-मंदकों के रूप में और निर्गंधीकारकों में इनका व्यापक प्रयोग होता है।
- * न चिपकने वाले, जलावरोधक और दागरोधी उत्पादों में प्रयुक्त कुछ रसायनों को पीओपी के रूप में श्रेणीबद्ध किया जाता है।

Note : दीर्घस्थायी कार्बनिक प्रदूषकों के उदाहरण- डाइ-ऑक्सिन, पॉलीक्लोरीनेटेड बाइफेनिल्स (PCBs), फ्यूरोन, ऑर्गेनोक्लोरीन कीटनाशक आदि जबकि वाष्पशील कार्बनिक यौगिक (VOCs) दीर्घस्थायी कार्बनिक प्रदूषक नहीं हैं।

List-I (Graphical User Interface Term) सूची- I ग्राफिकल यूजर इंटरफेस टर्म		List-II (Description) सूची- II विवरण	
A	Window विन्डो	I	Represents a folder or a program-can be seen within a window or free standing on screen एक फोल्डर या प्रोग्राम का प्रतिनिधित्व करता है एक विन्डो के भीतर या स्क्रीन पर मुक्त खड़ा देखा जा सकता है।
B	Icon आइकन	II	Contains lists of options for a certain program एक निश्चित प्रोग्राम के लिए विकल्पों की सूची शामिल है।
C	Menu मेनू	III	User to select menu options/icons/close/open windows मेनू/खोलना/बंद/आइकन विकल्पों का चयन करने के लिए उपयोग किया जाता है।

D	Pointer प्वाइंटर	IV	Represents an area on the screen that displays information for a specific program स्क्रीन पर एक क्षेत्र का प्रतिनिधित्व करता है जो एक विशिष्ट कार्यक्रम के लिए जानकारी प्रदर्शित करता है।
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43. Arrange the following scales of measurement from the simplest to the most evolved.

मापन की निम्नलिखित मापनियों को सबसे अधिक सरल से सबसे अधिक विकसित के क्रम में रखें।

A. Ordinal/क्रमिक

B. Nominal/नामिक

C. Ratio/अनुपात

D. Interval/अंतराल

Choose the correct answer from the options given below :

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

(a) A, B, C, D

(b) B, C, A, D

(c) C, D, B, A

(d) B, A, D, C

Ans. (d) : मापन की निम्नलिखित मापनियों का सबसे अधिक सरल से सबसे अधिक विकसित क्रम निम्न है :-

- नामिक
- क्रमिक
- अंतराल
- अनुपात

10. Identify the measure of central tendency.

केन्द्रीय प्रवृत्ति के मापों को पहचानिए—

- A. Arithmetic mean/अंकगणितीय माध्य
- B. Median/माध्यिका
- C. Range/परास (सीमा)
- D. Mode/बहुलक (मोड)
- E. Second decile/द्वितीय दशमक

Choose the correct answer from the options given below./नीचे दिए गए विकल्पों में से सबसे उपयुक्त उत्तर का चयन कीजिए—

- (a) A, B & C only/केवल A, B और C
- (b) A, B & D only/केवल A, B और D
- (c) A, B, D & E only/केवल A, B, D और E
- (d) A, B, C, D & E/केवल A, B, C, D और E

Ans. (b) : निम्नलिखित विकल्पों का संबंध केन्द्रीय प्रवृत्ति के मापों से है।

- अंकगणितीय माध्य
- माध्यिका
- बहुलक (मोड)



Thanks For Watching

Real ✓

