RRB NTPC CBT -1
HELD ON 30/12/2020 (SHIFT- I)

1.If 3 men or 6 boys can complete a task in 20 days. How many days will 6 men and 8 boys take to do the same task?

(1) 6

(2) 10

(3) 16

(4) 15

ANS: 1
EXPLANATION: 3 Men = 6 boys
⇒1 Men = $\frac{6}{3}$ boys = 2 boys
6 men + 8 boys = 6×2 + 8 = 12 + 8 = 20 boys
$M_1D_1 = M_2D_2$
⇒ 6×20 = 20×D_2
⇒ $D_2 = \frac{6\times20}{20}$ = 6 Days

2.Which is the first nuclear reactor made in India?

(1) Apsara

(2) CIRUS

(3) Dhruva

(4) KAMINI

ANS: 1

EXPLANATION:

- **The first reactor in India is called "Apsara". It achieved criticality on August 4, 1956 and was the first research reactor in Asia to achieve criticality.**

- **Dr. Homi J Bhabha, known as the father of India's nuclear program, designed the Apsara reactor in 1955.**

- **The CIRUS reactor was commissioned on 10th July 1960. It was built in collaboration with Canada under the leadership of Dr. Homi Jahangir Bhabha.**
- **Dhruva Reactor is a 100 MW thermal research reactor located at the Bhabha Atomic Research Centre in Trombay, serving as a national facility for neutron beam research.**

- **The KAMINI reactor is a Uranium-233(irradiated thorium) fueled reactor used for the thermal neutron flux.**

3.The base of an isosceles triangle is 8 cm and one of its equal sides is 5 cm. The height of the vertex opposite to the base from the base is:

(1) 5 cm
(2) 3 cm
(3) 2 cm
(4) 4 cm

ANS: 2

EXPLANATION: Height of isosceles triangle

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

$$= \sqrt{5^2 - \frac{8^2}{4}} = \sqrt{25 - 16}$$

$$= \sqrt{9} = 3$$

4.Number 0.232323 can be written in rational form as:

1) $\frac{23}{99}$

2) $\frac{23}{990}$

3) $\frac{23}{999}$

4) $\frac{23}{9}$

ANS: 1

EXPLANATION: 0.232323 $= \overline{0.23} = \frac{23}{99}$

5.Invertebrates do NOT include:

(1) molluscs

(2) arachnids

(3) reptiles

(4) insects

ANS: 3

EXPLANATION:

- **An invertebrate is a creature that does not have a spine, for example insects, worms, octopus etc.**
- **The animal kingdom is divided into two groups: vertebrates and invertebrates.**
- **The word vertebrate means "having a backbone".**
- **Vertebrates are animals that have backbone.**
- **Scientists classify vertebrates into five classes:**

1. **Mammals**
2. **Fish**
3. **Birds**
4. **Reptiles**
5. **Amphibians**

6.Which of the following is composed of nerve fibres that mediate reflex actions and that transmit impulses to and from the brain?

(1) Heart

(2) Rib cage

(3) Spinal cord

(4) Muscles

ANS: 3

EXPLANATION:

- **The spinal cord is a part of the central nervous system.**

- **It is a long pipe-like structure arising from the medulla oblongata, part of the brain consisting of a collection of nerve fibres, running through the vertebral column of the back-bone.**
- **It is segmented with a pair of roots (dorsal and ventral roots) consisting of nerve fibres joining to form the spinal nerves.**
- **The rib cage, also known as the thoracic cage, is a cage-like structure of bones that protects the chest cavity and organs, and helps in breathing**
- **Muscles are part of the muscular system, which is an organ system that allows for movement, posture, and blood circulation.**

7.In the context of computers, tracker balls is a/an_____ device.

(1) storage

(2) processing

(3) input

(4) output

ANS: 3

EXPLANATION:

- **A trackball is considered an 'input device'**
- **The devices through which control signals are sent to a computer are termed as input devices.**
  Examples: mouse, scanner, touch screen, etc.
- **The device that receives data from a computer system for display, physical production etc is called output device**
  Example: monitor, projector, headphone, speaker, printer, etc
- **A storage device is a piece of hardware that can store, extract, or port data files and information.**

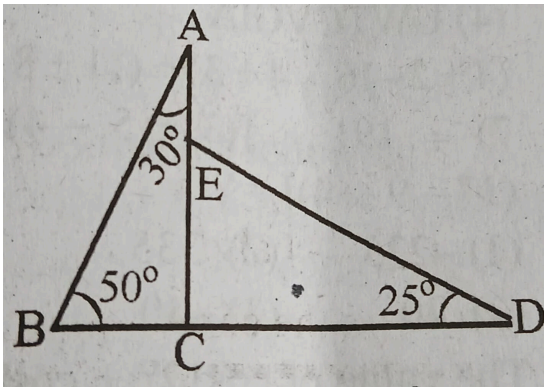
8.'Garden' is related to 'Gardener' in the same way as 'Museum' is related to
(1) Guide

(2) Curator

(3) Museology

(4) Artist
ANS: 2
EXPLANATION: Gardener is the person who works in a garden. Similarly, Curator is the person who works as incharge of the objects or works of art in a museum or an art gallery.

9.In the given diagram , if ∠BAC = 30° ,∠ABC = 50°, ∠CDE = 25°, then ∠AED is equal to:



1)105°
2)115°
3)75
4)95°
ANS: 1
EXPLANATION: ∠BAC = 30°
∠ABC = 50°
∠ACD = 30°+ 50° = 80°
∠DEC = 180° - (80°+ 25°)
= 180° - 105° = 75°
∠AED = 180° - 75°= 105°

10.The Nipah virus outbreak in 2018 took place in:
(1) Uttar Pradesh
(2) Karnataka
(3) Tamil Nadu
(4) Kerala
ANS: 4
EXPLANATION:

- **On 19 May 2018, a Nipah virus disease (NIV) outbreak was reported from Kozhikode district of Kerala, India. This is the first NIV outbreak in South India.**
- **Nipah is caused by a deadly, brain damaging virus of the same name that has made only rare appearances across the globe.**

- **It killed more than a hundred people when it first appeared in a Malaysian village called Sungai Nipah (hence the name) in 1998.**

11.Which state is the largest producer of gold in India?
(1) Telangana
(2) Karnataka
(3) Chhattisgarh
(4) Jharkhand
ANS: 2
EXPLANATION:

- **Kolar in Karnataka has deposits of gold in India.**
- **These mines are among the deepest in the world.**
- **The Copper deposits mainly occur in Singhbhum district in Jharkhand, Balaghat district in Madhya pradesh and Jhunjhunu and Alwar district in Rajasthan.**

12.Which of the following is NOT classified under Kingdom Animalia?

(1) Protozoa
(2) Metazoa
(3) Choanozoa
(4) Pipiens
ANS: 1
EXPLANATION:

- **Protozoans are unicellular, eukaryotic organisms. They are believed to be primitive relatives of animals.**
- **Metazoa, Choanozoa and Pipiens are classified under Kingdom Animalia. All multi -cellular animals besides sponges are metazoans.**
- **Choanozoa are funnel-shaped animals.**
- **Pipiens are classified under phylum Arthropoda,.**
- **Culex pipiens, commonly referred to as the common house mosquito, is a species of mosquito.**

13.The Bering Strait connects the:

(1) Mediterranean Sea and Atlantic Ocean

(2) Indian Ocean and Java Sea

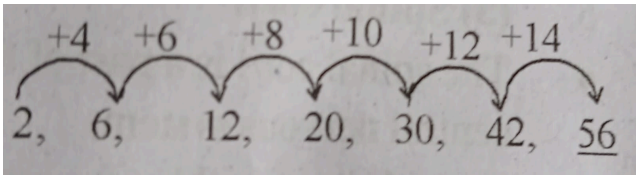
(3) Atlantic Ocean and Gulf of Hudson

(4) Arctic Ocean and Pacific Ocean

ANS: 4
EXPLANATION:

- **Linked to the Pacific Ocean through the narrow Bering Strait, the Arctic Ocean is bordered by Eurasia and North America. It becomes completely ice-covered during winter.**
- **The Strait of Gibraltar is a narrow strait that connects the Atlantic Ocean to the Mediterranean Sea and separates Europe from Africa.**
- **The Indian Ocean connects to the Java Sea, which is located near the island of Java, through the Sunda Strait.**
- **The "Gulf of Hudson" is not a separate body of water, but refers to the Hudson Bay, which is connected to the Atlantic Ocean through the Hudson Strait.**

14.Select the number from among the given options that can replace the question mark (?) in the following series.
2, 6, 12, 20, 30, 42, ?
(1) 50
(2) 56
(3) 52
(4) 60
ANS: 2
EXPLANATION:



15.One kilobyte is equal to bytes.

(1) 256

(2) 1024

(3) 2048

(4) 512
ANS: 2
EXPLANATION:

- **1 kilobyte is equal to 1024 bytes**
- **The unit symbol of bytes is KB.**

16.By selling an article for Rs. 138, a shopkeeper losses 8%. At what price should the article be sold to get a gain of 4%?
(1) Rs. 156

(2) Rs. 144

(3) Rs. 210

(4) Rs. 90
ANS: 1
EXPLANATION: $138\times \frac{100}{92}\times \frac{104}{100} = 156$

17.Which of the following is the administrative capital of South Africa?

(1) Cape Town

(2) Bloemfontein
(3) Pretoria
(4) Durban
ANS: 3
EXPLANATION:

- **South Africa has three capital cities: Executive - Pretoria, Judicial-Bloemfontein and Legislative - Cape Town.**
- **The administrative capital of South Africa is Pretoria.**
- **Pretoria was the capital of Apartheid South Africa and is situated in the northern province of Gauteng.**

18.Two dice are thrown simul-taneously and the sum of the numbers appearing on them is noted. What is the probability that the sum is 12?
A) $\frac{12}{36}$
B)36
C) $\frac{1}{36}$
D)3

ANS: C
EXPLANATION:

Two dice are thrown simultaneously, $n(s) = 6 \times 6 = 36$
E = Sum of numbers appearing on dice is 12 = {(6, 6)}
$n(E) = 1$
∴ Required probability
$= P(E) = \frac{n(E)}{n(s)} = \frac{1}{36}$

19.Which of the following is used in plastics?

(1) Butane
(2) Ethylene
(3) Krypton
(4) Ammonia
ANS: 2
EXPLANATION:

- **Ethylene is a key building block used in the production of most plastics, particularly polyethylene, which is formed by linking together ethylene molecules to create a polymer chain.**
- **Ethylene is one of the world's most important chemicals, with over 60% of the raw material produced being used in the plastics industry: HPDE, LDPE, PS and also PVC.**
- **Ethylene is also the key feed-stock for the production of ethylene oxide.**

20. Value of $\cos 1^\circ \cos 2^\circ \cos 3^\circ \ldots \cos 179^\circ$ is:

A)-1
B)1
C)0
D) $\frac{1}{2}$
ANS: C
EXPLANATION:

As $\cos 90^\circ = 0$
$\cos 1^\circ \cos 2^\circ \cos 3^\circ \ldots\ldots$
$\cos 179^\circ = 0$

21.Who founded the 'Slave Dynasty'?
(1) Nasir-ud-din Mahmud
(2) Razia Sultana

(3) Qutb-ud-din Aibak
(4) Ghiyas-ud-din Balban
ANS: 3
EXPLANATION:

- **The Indian slave dynasty lasted from 1206 to 1290.**
- **The slave dynasty was the first Muslim dynasty to rule India.**
- **It was founded by Sultan Qutb-ud-din Aibak.**
- **He began the construction of Qutb Minar in Delhi.**
- **Mauryan Dynasty: Founded by Chandragupta Maurya.**
- **Shunga Dynasty: Founded by Pushyamitra Shunga.**
- **Kanva Dynasty: Founded by Vasudeva**
- **Haryanka Dynasty: Considered one of the early major dynasties.**
- **Shishunaga Dynasty: Followed the Haryanka dynasty**
- **Nanda Dynasty: Preceded the Mauryan dynasty.**

22.Which of the following is the assumption for the claim that Pleasure is desirable?
(1) Everyone desires pleasure
(2) Everyone desires something
(3) Some persons desire pleasure
(4) Pleasure is essential
ANS: 3
EXPLANATION:

- **The statement "Pleasure is desirable" implies that at least some persons desire pleasure.**
- **Therefore, option (3) is the valid assumption. The use of the term "Everyone" in the option (1) makes it invalid.**

23.Who is the author of the book 'Republic'?
(1) TS Eliot
(2) Plato
(3) John Ruskin
(4) Leo Tolstoy
ANS: 2

EXPLANATION:

- **The book 'The Republic' was authored by Plato in around 375 B.C.**
- **It is considered as the world's most influential work on Political Theory and Philosophy.**
- **Plato was the Athenian philosopher during the Classical period of Ancient Greece.**
- **Eliot's most notable works include: The Waste Land (1922), Four Quartets (1943), and the play Murder in the Cathedral (1935).**
- **War and peace, is one of Tolstoy's most famous novels published between 1865 and 1869.**

24.On the first day 84500 people visited a trade fair. On the 4th day the number reduced to 16900. By what percentage people reduced on the 4th day?

(1) 80%

(2) 75%

(3) 0%

(4) 20%

ANS: 1

EXPLANATION:percentage reduction

$= \frac{84500 - 16900}{84500} \times 100 = 80\%$

25.Parshotam and Anjilka started moving in the opposite directions from the same place at a speed of 30 km/h and 3.5 km/h respectively. How far will they be from each other after 2.5 h?

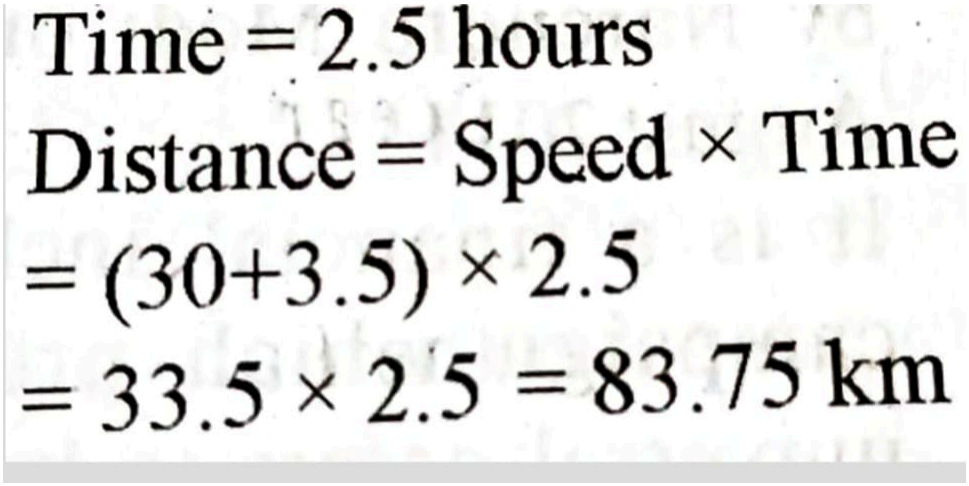
(1) 66.25 km

(2) 8.75 km

(3) 75 km

(4) 83.75 km

ANS: 4
EXPLANATION:



26.In the following expression which number should be added so that it becomes a complete square?
1+3+7+9 + 11 + 13
A)3
B)5
C)1
d)7
ANS: B
EXPLANATION: 1+3+7+9 + 11 + 13 = 44
49 is the nearest perfect square.
Number to be added = 49 - 44 = 5

27.The 2022 Commonwealth Games are scheduled to be held in:
(1) Perth
(2) Edinburg
(3) Birmingham
(4) Delhi
ANS: 3
EXPLANATION:

- **The 2022 Commonwealth Games will be held in Birmingham, England.**

- **The first Commonwealth Games were held in 1930 in Hamilton, Canada.**
- **The 2024 CommonWealth Games are scheduled to be held in Glasgow, Scotland.**
- **Sports like cricket, hockey, badminton, wrestling and rugby sevens, among others, have been axed from the official programme for the Commonwealth Games 2026.**

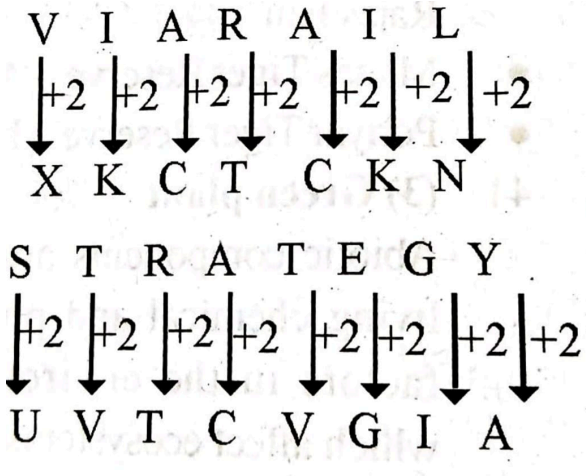
28.In a certain code language VIARAIL is written as XKCTCKN. How will STRATEGY be written as in that language?

(1) UVTCVGIZ

(2) UVTCVGIA

(3) UVTCVFIA
(4) UWTCVGIA

ANS: 2
EXPLANATION:



29.

$(4+2-16\div4+3)+(\{1+8\times 7)\div 19\}\times[(3+5-4)+(17-9\times4)]=?$

1)-225
2)335
3)40
4)-40
ANS: 4
EXPLANATION:

Given expression

$$= (4+2-4+3)+\left(57\times\frac{1}{19}\right)\times(4-19)$$

$$= (5)+3\times(-15)$$

$$= 5-45=-40$$

30.

The value of $\cos12^\circ+\cos84^\circ+\cos168^\circ+\cos96^\circ$ is:

A)-1

B)0
C)0.5
D)1
ANS: B
EXPLANATION:

$$\cos 12° + \cos 84° + \cos 168° + \cos 96°$$
$$= \cos 12° + \cos 84° + \cos (180° - \cos 12°) + \cos (180° - 4°)$$
$$= \cos° 12° + \cos 84° - \cos 12° - \cos 84° = 0$$

31.What is the smallest number which when increased by 3 is divisible by 27, 35, 25 and 21?

(1) 4728

(2) 317

(3) 4725

(4) 4722
ANS: 4
EXPLANATION:

3	27, 35, 25, 21
5	9, 35, 25, 7
7	9, 7, 5, 7
	9, 1, 5, 1

$LCM = 3 \times 5 \times 5 \times 7 \times 9 = 4725$

Required Number

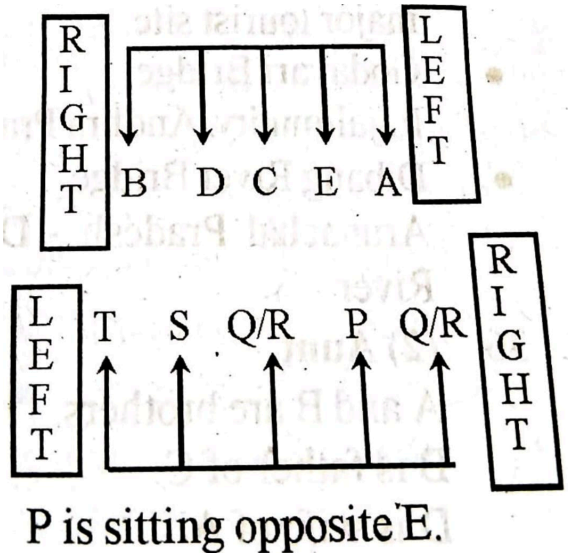
$= 4725 - 3$

$= 4722$

32.five girls P, Q, R, S and T are sitting in two rows opposite each other such that the boys are in one row and the girls are in one row. C is sitting in the centre and A is sitting on his left. D is sitting between B and C. T who is to the left of S is sitting opposite B who is two seats away from E. P is sitting between Q and R. Who is sitting opposite E?

(1) Q
(2) R

(3) P
(4) S
ANS: 3
EXPLANATION:



P is sitting opposite E.

33.What is the full form of DHCP in a networking system?

(1) Dynamic Host Configuration Protocol

(2) Data Host Control Panel

(3) Dynamic Host Control Point

(4) Display House Control Protocol

ANS: 1

EXPLANATION:

- **Dynamic Host Configuration Protocol (DHCP) is a network management protocol used to automate the process of configuring devices on IP networks.**
- **DHCP services exist for networks running Internet Protocol version 4 (IPv4), as well as version 6 (IPv6). The IPv6 version of the DHCP protocol is commonly called DHCPv6.**
- **The interaction between Dynamic Host Configuration Protocol (DHCP) clients and servers enables a client to obtain its IP address and corresponding configuration information from a DHCP server.**

34.If mean is 40 and standard deviation is 5 then C. V (Coefficient of variation) is

(1) 5%
(2) 20%

(3) 100%

(4) 12.5%
ANS: 4
EXPLANATION:

$$\text{Co-efficient of variation}$$
$$= \frac{\text{S.D}}{\text{Mean}} \times 100$$
$$= \frac{5}{40} \times 100\%$$
$$= 12.5\%$$

35.India's longest road-cum-rail bridge, connecting Assam and Arunachal Pradesh, is called the:
(1) Godavari Bridge

(2) Pamban Bridge

(3) Howrah Bridge

(4) Bogibeel Bridge
ANS: 4
EXPLANATION:

- **Bogibeel bridge is the longest combined rail and road bridge in India and second longest bridge in Assam over the Brahmaputra and makes it a major tourist site.**
- **Godavari Bridge**
  Rajahmudry, Andhra Pradesh
- **Dibang River Bridge**
  Arunachal Pradesh - Dibang River

36. If A is the brother of B. B is the father of C and D is the wife of A, then how is D related to C?

(1) Niece

(2) Aunt

(3) Nephew

(4) Uncle
ANS: 2
EXPLANATION: A and B are brothers.
B is the father of C.
D is the wife of A.
Therefore, D is the aunt of C.

37.Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first. letter-cluster..
ABCD: ZYXW : : GHIJ :?

(1) TSRQ

(2) PQRS

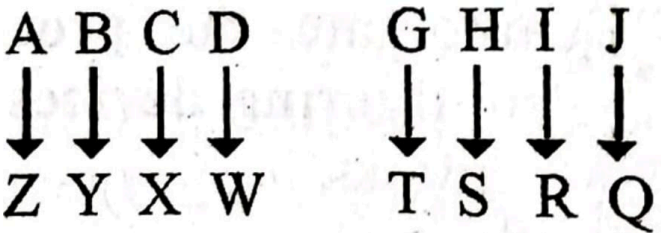
(3) MLKJ

(4) LMNO

ANS: 1
EXPLANATION:

A B C D E F G H I J K L M
Z Y X W V U T S R Q P O N

Pairs of opposite letters.



38.A shopkeeper sold two toys for Rs. 990 each. On the first toy he gained 10% and on the second he lost 10%. Find the total percentage gain or loss.

(1) 10% Gain

(2) 1% Loss

(3) 1% Gain

(4) 10% Loss
ANS:2
EXPLANATION:

$$\therefore \text{Total percentage} = \frac{10 \times 10}{100}\% = 1\% \text{ loss}$$

39.Which of the following welfare schemes' achievements have been recognised by the Guiness World Records?
(1) Pradhan Mantri Jan Dhan Yojana
(2) Pradhan Mantri Suraksha Bima Yojana
(3) Pradhan Mantri Kaushal Vikash Yojana
(4) Pradhan Mantri Krishi Sinchai Yojana
ANS: 1
EXPLANATION:

- **Pradhan Mantri Jan Dhan Yojana (PMJDY) was launched by Narendra Modi on 28th August 2014.**
- **It is a financial inclusion campaign which provides universal access to banking facilities.**
- **It has entered into Guinness book of World Records for opening most bank accounts in one week.**

40.Which of the following is situated in Jammu and Kashmir?

(1) Dachigam National Park

(2) Pakhal Wildlife Sanctuary

(3) Balpakram National Park
(4) Jaldapara National Park
ANS: 1
EXPLANATION:

- **Dachigam National Park is located in the Union Territory of Jammu and Kashmir.**
- **The name of the park literally stands for "ten villages" which could be in memory of the ten villages that were relocated for its formation.**
- **It is popular as the home of the rare and critically endangered Hangul or Kashmir stag.**
- **Corbett National Park - Uttarakhand**
- **Sundarbans National Park-West Bengal**
- **Sariska Wildlife Sanctuary- Rajasthan**

- **Manas Tiger Reserve - Assam**
- **Periyar Tiger Reserve - Kerala**

41.Which of the following is NOT an abiotic component?

(1) Sunlight

(2) Soil

(3) Green plant

(4) Water
ANS: 3
EXPLANATION: Abiotic components are non-living chemical and physical factors in the environment which affect ecosystems.
Biotic describes a living component of an ecosystem, for example organisms, such as plants and animals.

42.Which of the following is an ancient Buddhist text?
(1) Raghuvamsam
(2) Abhidharma Kosha
(3) Vishnu Purana
(4) Ritusamhara
ANS: 2
EXPLANATION:

- **Abhidharmakosha is a key text on the Abhidharma written in Sanskrit verse by Va-subandhu in the 4th or 5th century.**
- **It is a category of Buddhist scriptures, and the ideas contained in and based on them, that attempts to use Buddhist teachings to develop Buddhist ontology and theories of consciousness within the framework of the theory of salvation.**
- **The Vishnu Purana is an ancient text of Hinduism.**
- **Raghuvamsha is a Sanskrit mahakavya written by Sanskrit poet Kalidasa.**

- **Ritusamhara is a mini-epic in Sanskrit written by Kalidasa**

43.Find the length of the longest pole that can be placed in a room of dimensions

30 m × 15m × 10 m

(1) 33 m

(2) 18 m

(3) 31 m
(4) 35 m
ANS: 4
EXPLANATION: Length of the longest pole

$$= \sqrt{l^2 + b^2 + h^2}$$

$$= \sqrt{30^2 + 15^2 + 10^2}$$

$$= \sqrt{900 + 225 + 100}$$

$$= \sqrt{1225} = 35 \text{ meter}$$

44. A cuboid having the surface area of 3 adjacent faces as a, b, c has the volume:

(1) $a^3 b^3 c^3$

(2) $(abc)^{\frac{1}{3}}$

(3) abc

(4)$(abc)^{\frac{1}{2}}$

ANS: 4

EXPLANATION:

$$lb = a, bh = b, hl = c$$

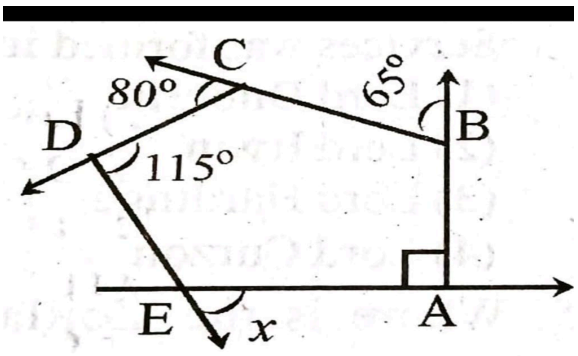
$$lb \times bh \times hl = abc$$

$$(lbh)^2 = abc$$

$$lbh = (abc)^{\frac{1}{2}}$$

$$\therefore \text{Volume of cuboid} = (abc)^{\frac{1}{2}}$$

45.In this given figure, value of x is:



A)70°

B)60°

C)65°

D)55°

ANS: B

EXPLANATION:

$\angle CBA = 180° - 65° = 115°$

$\angle BCD = 180° - 80° = 100°$

Sum of angles of a pentagon

$= (n-2) \times 180$

$= 3 \times 180 = 540°$

$\angle AED = 540° - (90° + 115° + 100° + 115°)$

$= 540° - 420° = 120°$

$\therefore x = 180° - 120° = 60°$

46.In which year did the disin-vestment process in Public Sector Enterprises in India start?

(1) 2000

(2) 1991

(3) 2018

(4) 1990

ANS: 2

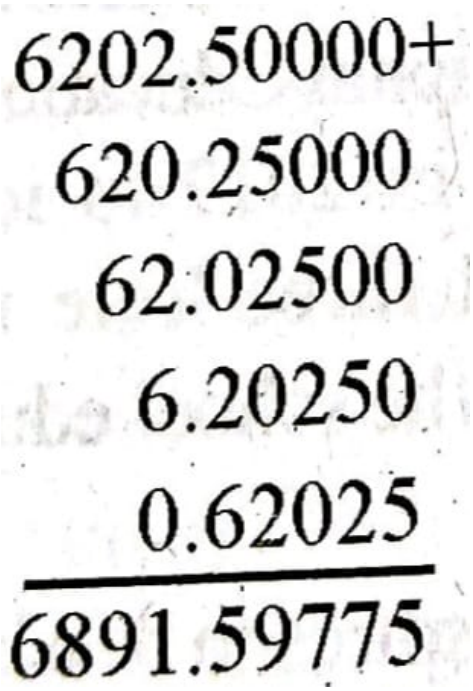
EXPLANATION:

- **The balance of payment (BoP) crisis in early 1990s changed the official narrative about PSUs from "temples of modern India" to "the government has no business to be in business".**
- **In order to bring the economy back on track, the PV Narasimha Rao government launched economic reforms by ending the era of license quota raj and encouraging privatisation.**
- **The disinvestment in public sector equity was undertaken in 1991.**

47.Solve the following. 6202.5 + 620.25 + 62.025 + 6.2025 +0.62025 = ?

(1) 6791.59775

(2) 6891.59775
(3) 6891.59675
(4) 5892.59775
ANS: 2
EXPLANATION:



48. 'Operation Greens' is a government scheme for:
(1) General price levels of crops
(2) Supply stabilisation of TOP crops (Tomato Onion Potato)

(3) Development of bamboo crops

(4) Research and investment in crop education

ANS: 2
EXPLANATION:

- **In the budget speech of 2018-19, a new Scheme "Operation Greens" was announced on the line of "Operation Flood", with an outlay of**

Rs. 500 crore to promote Farmer Producers Organizations, agri-logistics, processing facilities and professional management.

- Operation Greens seeks to stabilize the supply of Tomato, Onion and Potato (TOP) crops and to ensure availability of • TOP crops throughout the country round the year without price volatility

49.Which of the following is NOT related to Centre-State relations in India?

(1) Sarkaria Commission.

(2) Punchhi Commission

(3) Rajamannar Committee

(4) Kothari Commission

ANS: 4

EXPLANATION:

- **Kothari Commission was the sixth commission in India, but it was the first commission. formed on 14 July 1964 (post-Independence), mandated to comprehensively deal with the education sector of India.**
- **The education system at the national level was aligned in 10+2+3 pattern, as recommended by the Kothari Commission.**
- **The Punchhi Commission was constituted by the Government of India as a Commission on Centre State relations.**
- **It was constituted in 2007 under the chairmanship of Justice Madan Mohan Punchhi.**
- **The Rajamannar Committee was constituted by the Tamil Nadu Government to redistribute powers between the Centre and the states.**
- **It was constituted in 1971 under the chairmanship of Justice P.V. Rajamannar.**
- **The Sarkaria Commission was constituted by the Central Government as a Commission on Centre State relations.**

- **It was constituted in 1983 under the chairmanship of Ranjit Singh Sarkaria.**

50.The down fold in a rock is known as a/an;

(1) backline

(2) anticline

(3) crestline

(4) syncline

ANS: 4
EXPLANATION:

- **Folds typically occur in anticline - syncline pairs. The hinge is the point of maximum curvature in a fold.**
- **An upward fold is called an anticline, while a downward fold is called a syncline.**
- **A monocline is a simple bend in the rock layers so that they are no longer horizontal.**
- **If there is no movement on either side of a fracture, the fracture is called a joint.**

51.A sum of money amounts to ₹1600 in two years and ₹1700 in three years, at compounded interest, compounded annually. What is the rate of interest?

(1) 6%

(2) 7%

(3) 6.25%

(4) 6.5%

Ans: 3
Explanation:

Rate of compound interest

$$= \left[\frac{A_2 - A_1}{A_1} \times 100\right]$$

$$R = \frac{1700-1600}{1600} \times 100$$

$$= \frac{100}{1600} \times 100 = 6.25\%$$

52.Who was the founder of the Vishishtadvaita philosophy?

(1) Madhvacharya

(2) Ramanujacharya

(3) Vishnu Swami

(4) Nimbarka
Ans: 2
Explanation:

- **Vishnuswami was a Hindu religious leader who started the Rudrasampradaya.**
- **Madhvacharya was a Hindu philosopher and the chief proponent of the Dvaita school of Vedant.**

- **Nimbarka was a Hindu philosopher who founded Nimbarka Sampradaya**

53.If the difference between a number and its 25% is 24, then the number is:

(1) 34

(2) 28

(3) 32

(4) 40

Ans: 3
Explanation:

Let the number be x

$x - 25\%$ of $x = 24$

$$\Rightarrow x - \frac{25x}{100} = 24$$

$$\Rightarrow x - \frac{x}{4} = 24$$

$$\Rightarrow 4x - x = 24 \times 4$$

$$\Rightarrow x = \frac{24 \times 4}{3} = 32$$

54.Which state does NOT have a Vidhan Parishad (Legislative Council)?

(1) Maharashtra

(2) Kerala

(3) Telangana

(4) Karnataka

Ans: 2
Explanation:

- **The State Legislative Council, or Vidhan Parishad, is the upper house in those 6 states of India that have a bicameral state legislature. The lower house being the State Legislative Assembly. Its establishment is defined in Article 168 of the Constitution of India.**
- **Six States having a Legislative Council in India at present are Andhra Pradesh, Telangana, Uttar Pradesh, Bihar, Maharashtra and Karnataka.**
- **In 2020, Andhra Pradesh Legislative Assembly passed the resolution for abolition of the Legislative Council. This resolution is yet to be cleared by the Parliament of India to finally abolish the council.**
- **In 2019, Jammu & Kashmir Legislative Council was abolished through the J & K Reorganisation Bill, 2019, which reduced the State of J & K to the Union Territories of J & K and Ladakh.**

55.Which is India's first ever Innovative advanced Earth Observation Satellite launched in 2018?

(1) APPLE

(2) GSAT-7

(3) HysIS

(4) GSAT-2
Ans: 3
Explanation:

- **HysIS, the primary satellite of PSLV-C43 mission, weighing about 380 kg, is an earth observation satellite configured around ISRO's Mini Satellite-2 (IMS-2) bus.**
- **The primary goal of HysIS is to study the earth's surface in the visible, near infrared and shortwave infrared regions of the electromagnetic spectrum.**
- **GSAT-7 is an advanced communication satellite built by ISRO to provide a wide range of service spectrum from low bit rate voice to high bit rate data communication.**
- **GSAT-2 is a 2000 kg class experimental communication satellite onboard the second developmental test flight of India's Geosynchronous Satellite Launch Vehicle, GSLV-D2.**
- **The Ariane Passenger Payload Experiment (APPLE) was ISRO's first indigenous, experimental communication satellite**

56.Which of the following is a satellite based augmentation system of India?

(1) GAGAN

(2) JATAN

(3) NAG

(4) GAGAN SHAKTI
Ans: 1
Explanation:

- **ISRO implemented a Satellite Based Augmentation System for the Indian Airspace is called GAGAN.**
- **The primary objective of GAGAN is to establish a certifiable satellite based augmentation system for safety-of-life applications.**

- **Gagan Shakti is a military exercise undertaken by India to showcase its air dominance over the entire extended area of the Indian Ocean Region (IOR).**
- **NAG is an Indian third-generation, all-weather, fire-and-forget, lock-on after launch, anti-tank guided missile.**
- **JATAN is a virtual museum builder software, that enables the creation of a digital collection management system for Indian museums**

57.Find the number of all prime numbers less than 55?

(1) 18

(2) 16

(3) 17

(4) 15
Ans: 2
Explanation:
Prime numbers less than 55 are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53
No. of prime numbers less than 55 =16

58.The 'SATH-E' project is asso-ciated with which of the following fields?

(1) Communication

(2) Education
(3) Agriculture
(4) Transportation
Ans: 2
Explanation:

- **Project SATH-E, 'Sustainable Action for Transforming Human Capital-Education', was launched in 2017 to identify and build three 'role model' States for the school education sector.**
- **SATH-E aspires to be a 'saathi', to the educational system with the student and the teacher at its centre".**
- **After elaborate selection process, Jharkhand, Odisha and Madhya Pradesh were chosen.**
- **The first phase completed in 2020.**
- **Based on the requests received from all the three State Governments, the second phase of the project, SATH-E 2.0, was commenced by NITI Aayog for 2 years, from October 2020.**

59.Which of the following is a metalloid

(1) Lead
(2) Gold
(3) Silicon
(4) Bromine
Ans: 3
Explanation:

- **Metalloids can be defined as chemical elements whose physical and chemical properties fall in between the metal and the non metal categories.**
- **Boron, Germanium, Silicon, Antimony, Arsenic, and Tellurium are the six most widely recognized metalloids.**

60.India's scientific mission to observe and study the solar corona is called:

(1) Satnav
(2) Astrosat
(3) Aditya-L1
(4) Chandrayaan
Ans: 3
Explanation:

- **The Indian Space Research Organisation (ISRO) is preparing for its first scientific expedition to study the Sun, Aditya - L1. It would be placed into a point in space known as the L1 Lagrange point.**
- **Aditya - L1 will study the Sun's corona (Visible and Near infrared rays), Sun's photo-sphere (soft and hard X-ray), chromosphere (Ultra Violet), solar emissions, solar winds and flares, and Coronal Mass Ejections (CMEs), and will carry out round-the-clock imaging of the Sun.**
- **January 25, 2024-The 6-meter long magnetometer boom on the Aditya-L1 satellite has been successfully deployed.**
- **It is deployed in the Halo orbit at the Lagrange point L-1, on January 11, 2024. The boom had been in stowed condition for 132 days since the Aditya - L1 launch.**

61. Solve the following.

$(x-y)^3+(y-z)^3+(z-x)^3=?$

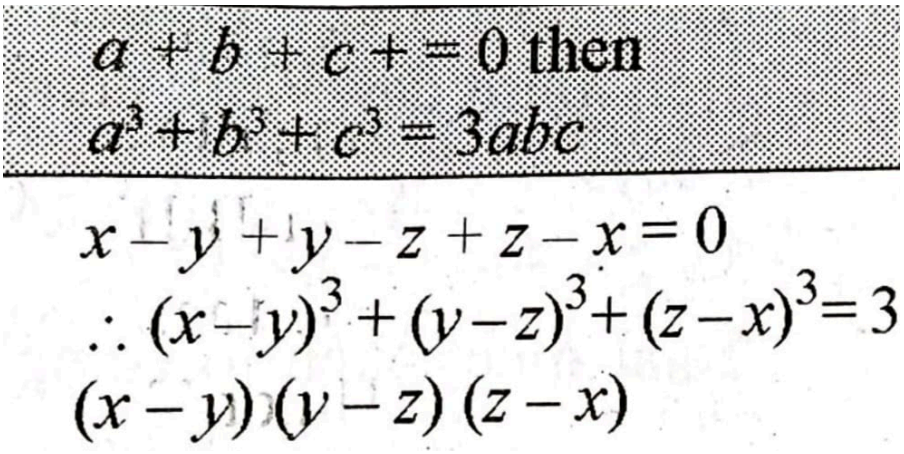
1) $3(x-y)(y-z)(z-x)$

2) $(x-y)(y-z)(z-x)$

3) $(x+y+z)(x^2+y^2+z^2)$

4)3xyz
Ans: 1

Explanation:



62.The Big Bang theory was propounded by:

(1) George Lemaitre

(2) Al-Biruni

(3) Thomas Gold

(4) Dr. Allen Sondes

Ans: 1
Explanation:

- **George Lamaitre is known as the father of the Big Bang theory.**

- **He was the first to theorize that the recession of nearby galaxies can be explained by an expanding universe, which was obser-vationally confirmed soon afterwards by Edwin Hubble.**
- **The Big Bang theory is an explanation of the early development of the Universe.**

- **According to this theory the Universe expanded from an extremely small, extremely hot, and extremely dense state.**
- **Since then it has expanded and become less dense and cooler.**
- **The Big Bang is the best model used by astronomers to explain the creation of matter, space and time 13.7 billion years ago.**

63.Who was the Viceroy when the Royal Commission on Civil Services was formed in 1912?

(1) Lord Dufferin

(2) Lord Irwin

(3) Lord Hardinge

(4) Lord Curzon
Ans: 3
Explanation:

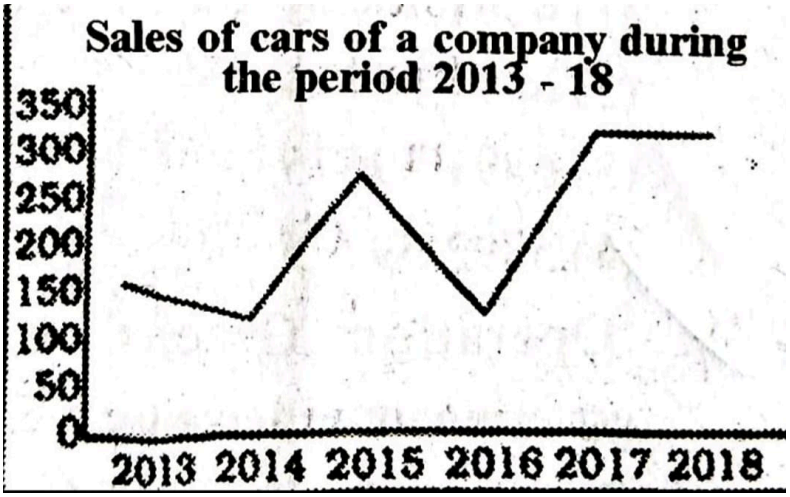
- **From 1910 to 1916, Lord Hardinge served as India's Viceroy.**
- **In 1913 a Royal Commission was formed to recommend reforms in the Public Service of British India.**
- **Lord Dufferin - (1884 - 1888) - The Third Burmese War (1885-86), Establishment of the Indian National Congress (1885).**
- **Lord Curzon (1899-1905) Appointment of Police Commission (1902), Appointment of Universities Commission (1902), Indian Universities Act (1904), Partition of Bengal (1905)**
- **Lord Irwin (1926-1931) - Simon Commission to India (1927), Harcourt Butler Indian States Commission (1927), Nehru Report (1928), Deepavali Declaration (1929), Lahore session of the Congress 1929, Dandi March and the Civil Disobedience Movement (1930), First Round Table Conference (1930), Gandhi-Irwin Pact (1931)**

64.Where is the 'Zojila tunnel Project' located?

(1) Uttar Pradesh
(2) Sikkim
(3) Jammu & Kashmir
(4) Odisha
Ans: 3
Explanation:

- **Zojila Tunnel-Jammu Kashmir: It is an under construction tunnel located to the north-east of Srinagar, on the Srinagar-Leh section of the NH 1.**
- **Nilgrar Tunnels: The Nilgrar-I is a twin tube tunnel of 433 m length each. The Nilgrar twin tunnel-II is of 1.95 Km length each. Nilgrar-I and Nilgrar-II tunnels are part of the 18 Km long approach road to Zojila west portal**
- **Chattergala Tunnel: It is an under construction road tunnel in Jammu and Kashmir.**
- **Pir Panjal Railway Tunnel: It is India's longest transportation railway tunnel measuring 11.2 km long. The tunnel link, which is the only broad gauge mountain railway in India, stretches through the Pir Panjal mountain range between Quazigund and Baramulla.**

65.From the given diagram, determine the difference between the total number of cars sold in the first three years and in the last three years.



A)1200
b)200
c)700
d)150
Ans: b
Explanation:
Total No. of Cars sold in first three years = 150 + 100 + 250 = 500
Total No. of cars sold in last three years=100+300+300=700
Required difference = 700-500 = 200

66. If '+' is replaced by '–', '×' is replaced by '+' and '–' by '×', then $28 + (5 \times 7) - \frac{9}{6}$ will be equal to:

a)15
b)8
c)20
d)10
Ans: d
Explanation:

$+ = -,\ \times = +,\ - = \times$

$$28 + (5\times 7) - \frac{9}{6}$$

$$\Rightarrow 28 - (5+7) \times \frac{9}{6}$$

$$\Rightarrow 28 - 12 \times \frac{9}{6} = \Rightarrow 28 - 18 = 10$$

67.Value of square root of $\frac{36.1}{102.4}$ is :

a) $\frac{19}{31}$

b) $\frac{19}{34}$

c) $\frac{19}{32}$

d) $\frac{61}{340}$

Ans: C

EXPLANATION:

$$\frac{36.1\times 10}{102.4\times 10} = \frac{361}{1024}$$

$$\Rightarrow \sqrt{\frac{361}{1024}} = \frac{19}{32}$$

68.The given table shows the number of formal learners, informal learners and illiterates, on the basis of gender, in the age group of 18-30 years in

village X near Delhi. Determine the ratio among the formal learners, informal learners and illiterates.

Formal Learners	Boys	39
	Girls	52
Informal Learners	Boys	65
	Girls	78
Illiterates	Boys	143
	Girls	169

A)7:24:11
B)11:24:7
3)11:7:24
D)7:11:24
ANS: D
EXPLANATION:
No. of formal learners = 39 +52=91
No. of informal learners= 65+78=143
No. of illiterates 143+169=312
Required ratio = 91:143:312
= 7:11:24

69.Where are the headquarters of the OECD located?

(1) Rome

(2) Geneva

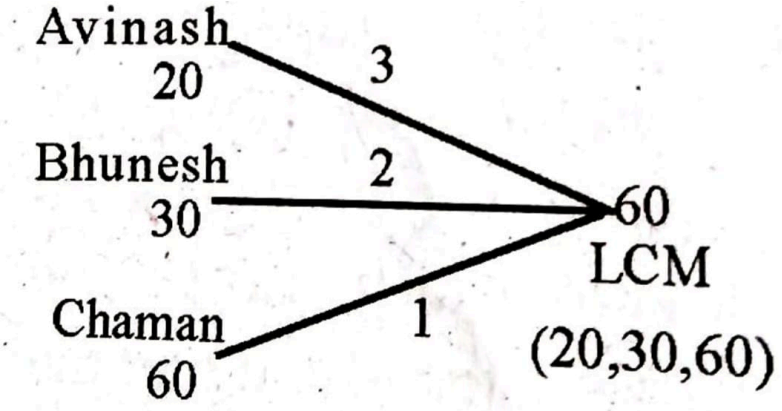
(3) Paris

(4) New York

ANS:3
EXPLANATION:

- **Organization for Economic Co-operation and Development (OECD) is an inter governmental economic organisation, founded to stimulate economic progress and world trade.**
- **It was founded in 1961 and headquartered in Paris, France.**

70.Avinash, Bhuvnesh and Chaman can complete a piece of work in 20,30 and 60 days respectively. In how many days can Avinash complete the work if he is assisted by Bhuvnesh and Chaman on every third day?
(1) 16
(2) 18
(3) 15
(4) 12
ANS: 3
EXPLANATION:



- **Avinash is assisted by Bhuvnesh and Chaman on every third day.**
  Work done in 3 days
  3×2+3+2+1 = 12
  Total time taken to complete the work $\frac{60}{12}$× 3 = 15 days

71.Lord Mahavira's original name is:

(1) Ananda

(2) Sariputta

(3) Vardhamana

(4) Siddhartha
ANS: 3
EXPLANATION:

- **Born as Vardhamana Mahavira, Lord Mahavira was the twenty fourth and last Jain Tirthankara according to Jain philosophy.**
- **He sat under a Sal free on the banks of river Rijupalika and attained the Kevala Jnana.**
- **Ananda and Shariputra were the early disciples of Buddha.**
- **Shariputra was a Brahman ascetic and famous early disciple of the Buddha**

72. In a game Rajesh lost $\frac{1}{3}$ of the his money in the first round of the game, in the second round he losses $\frac{3}{5}$ of his remaining money and in the third round he lost $\frac{4}{7}$ of the rest. He is left with what part of the original sum of money ?

A) $\frac{4}{45}$

B) $\frac{4}{35}$

C) $\frac{2}{5}$

D) $\frac{4}{15}$

ANS: B

EXPLANATION:

Let original sum of money $= x$

Loss in first round $= \frac{x}{3}$

Loss in Second round

$$= \left(x - \frac{x}{3}\right) \text{of } \frac{3}{5} = \frac{2x}{3} \times \frac{3}{5} = \frac{2x}{5}$$

Loss in third round

$$= \left(x - \frac{x}{3} - \frac{2x}{5}\right) \text{of } \frac{4}{7}$$

$$= \frac{4}{7} \times \left(\frac{15x - 5x - 6x}{15}\right)$$

$$= \frac{4}{7} \times \frac{4x}{15} = \frac{16x}{105}$$

Money left,

$$= x - \frac{x}{3} - \frac{2x}{5} - \frac{16x}{105}$$

$$= \frac{105x - 35x - 42x - 16x}{105}$$

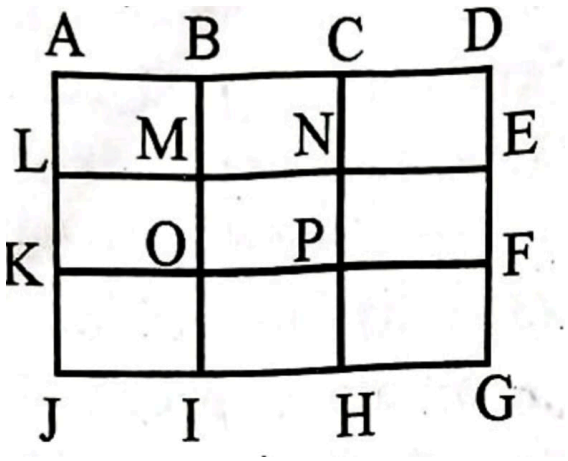
$$= \frac{12x}{105} = \frac{4x}{35}$$

$$\text{Required part} = \frac{4}{35}$$

73.How many rectangles are there in the given figure?

A)36
B)28
C)32
D)42
ANS: A

EXPLANATION:



Clearly there are 9 rectangles inside. The other rectangles are:
ACNL; BDEM; LNPK; MEFO; KPHJ; OFGI; ABOK; LMIJ; BCPO: MNHI; CDFP; NEGH: ACPK; BDFO; LNHJ; MEGI; ABIJ; BCHI; CDGH; ADEL; LEFK; KFGJ; ADFK;LEGJ; ACHJ; BDGI; ADGJ
Thus, there are altogether 36 rectangles in the given figure.

74.A metallic part of a machine is made from a mixture of copper, zinc and lead mixed in the ratio of 13: 6: 1. If the weight of zinc in this part is 90 kg, then the total weight of the part will be:

(1) 210 kg

(2) 195 kg

(3) 300 kg

(4) 285 kg

ANS: 3
EXPLANATION:

$$6k = 90$$

$$\Rightarrow k = \frac{90}{6} = 15$$

$$\therefore \text{ Total weight}$$

$$= 13k + 6k + k = 20k$$

$$= 20 \times 15 = 300 \text{ kg}$$

75.The sum of two numbers is 20 and their difference is 2.5. Ratio of these numbers will be:
(1) 3:5

(2) 9:7

(3) 2:7

(4) 7:9
ANS: 2
EXPLANATION:

Let the numbers be x and y

$x + y = 20$ _____ (1)

$x - y = 2.5$ _____ (2)

$(1) + (2) \Rightarrow x = \frac{22.5}{2}$

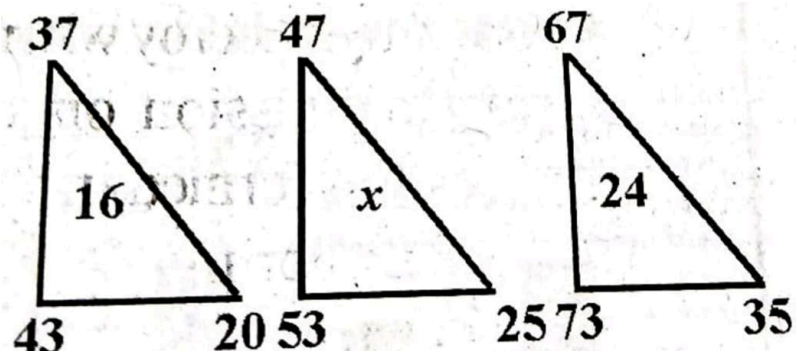
$y = 20 - \frac{22.5}{2} = \frac{40 - 22.5}{2}$

$= \frac{17.5}{2}$

Required ratio $= \frac{\frac{22.5}{2}}{\frac{17.5}{2}} = \frac{225}{175}$

$= \frac{9}{7} = 9:7$

76.Study the given pattern care-fully and select the number from among the given options that can replace x.



A)20
B)12
C)18
D)14
ANS: A
EXPLANATION:

$37+10=47:47+20=67$

$43+10=53:53+20=73$

$20+5=25:25+10=35$

$16+4=20;20+4=24$

77. Four natural resources are listed, out of which three are alike in some manner and one is different. Select the odd one.

(1) Wind
(2) Coal
(3) Solar
4)Water
ANS: 2
EXPLANATION:

- **Renewable resources will naturally replenish themselves over time.Nonrenewable will be gone forever once used.**
- **Fossil fuel sources, such as coal, petroleum, natural gas and nuclear energy are non -renewable energy resources.**
- **Sustainable energy resources are only the renewable energy sources like solar, wind, hydro-geothermal and biomass.**

78. 'Obey' is related to 'Disobey' in the same way as 'Appoint' is related to_____.

(1) Dissent
(2) Eliminate

(3) Dismiss

(4) Disappear

ANS: 3
EXPLANATION: 'Obey' is the antonym of 'Disobey'. Similarly, 'Appoint' is the antonym of 'Dismiss'.
79.Who wrote the great literary work "Mricchakatika"?

(1) Harsha

(2) Shudraka

(3) Bhaasa

(4) Kalidasa

ANS: 2
EXPLANATION:

- **Mrichchhakatika' or 'The Little Clay Cart' is an ancient Sanskrit play written by King Shudraka (Ujjayini) in around 3rd century A.D.**
- **It is one of the oldest of all the so far known Sanskrit plays in Indian Literature.**
- **Malavikagnimitram: This is Kalidas's first play, published in 1891. It is based on the reign of Pushyamitra Shunga.**
- **Harsha was a great writer and a poet. He wrote three plays: Priyadarshika, Ratnavali and Naganand.**
- **Plays of Bhasa : Charudatta, Pancharatra, Dutavakya, Urubhanga, Abhiseka etc.**

Sunila had $9\frac{1}{4}$ kg of flour to make bread with. If the recipe says that she needs $1\frac{1}{8}$ kg to make one loaf of bread, how many loafs can she make? Estimate to the nearest whole number.

80.

A)7

B)10

C)8

D)9

ANS: C

EXPLANATION:

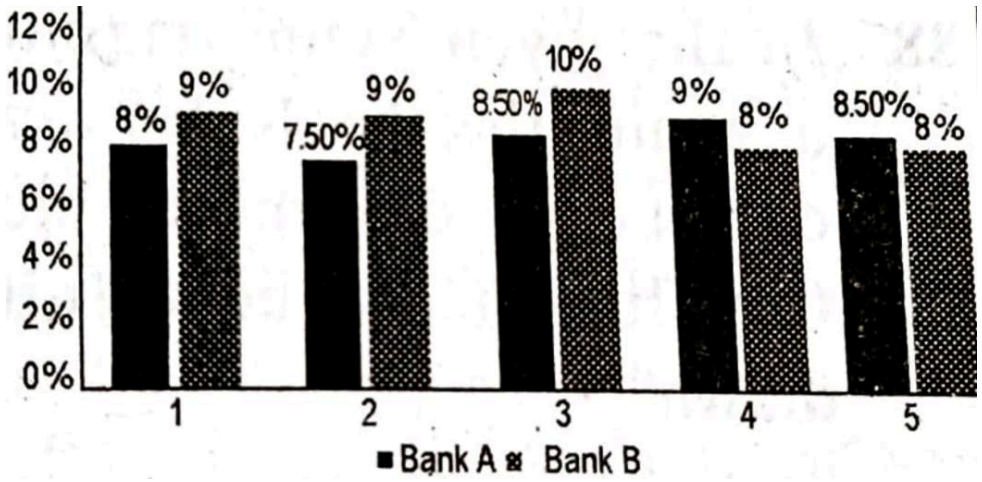
Number of loafs

$$= 9\frac{1}{4} \div 1\frac{1}{8} = \frac{37}{4} \div \frac{9}{8}$$

$$= \frac{37 \times 2}{9} = \frac{74}{9} = 8.22 \approx 8$$

81.The given chart gives interest rates offered on deposits by two banks A and B for a period of 5 years (1-5). What would be the difference in interest

amount earned in year 3, if a person had deposited Rs. 23 lakhs at the



A)Rs.37600
B)Rs.28800
C)Rs.34500
D)Rs.41200
ANS: C
EXPLANATION:

Deposited amount

= Rs. 23,00000

In year 3, Interest in Bank B

= 10% of 2300000 = 2,30,000

In year 3, Interest in Bank A

= 8.50% of 2300000

= Rs. 1,95,500

Required difference

= 2,30,000 – 1,95,500

= 34, 500

82.Which eminent person is associated with Bardoli?

(1) Sardar Vallabhbhai Patel

(2) Aurobindo Ghosh

(3) Mahavir

(4) Guru Nanak

ANS:1
EXPLANATION:

- **In 1928, Vallabhbhai Patel led the peasant movement in Bardoli, a taluk in Gujarat, against enhancement of land revenue known as the Bardoli Satyagraha.**
- **This movement was a success under the leadership of Vallabhbhai Patel.**
- **Bardoli Satyagraha - Sardar Vallabhbhai Patel, Kasturba Gandhi, Mani Ben Patel**
- **Kheda Satyagraha - Gandhiji, Sardar Vallabhai Patel, Indulal Yagnik, Shankarlal Banker**
- **Ahmedabad Mill Workers Strike - Gandhiji**
- **Salt Satyagraha - Gandhiji**

83.As of October 2020, who is the Chairman of the Fifteenth Finance Commission of India?
(1) Shaktikanta Das
(2) Vijay L. Kelkar
(3) AM Khusro
(4) NK Singh
ANS: 4
EXPLANATION:

- **Under Article 280 of the Constitution, the President of India is required to constitute a Finance Commission at an Interval of five years or earlier.**
- **The 15th Finance Commission was constituted by the President of India in November 2017, under the chairmanship of NK Singh.**
- **The 16th Finance Commission - Dr. Arvind Panagariya**
- **25th Chief Election Commissioner - Shri. Rajiv Kumar**
- **15th Comptroller and Auditor General of India- Shri.K Sanjay Murthy**
- **16th Attorney general of india (AGI)- R.Venkataramani**

84.Which is the 29th State of India created in 2014?

(1) Uttarakhand

(2) Jharkhand

(3) Telangana

(4) Sikkim

ANS: 3
EXPLANATION:

- **Telangana came into being on the 2nd of June, 2014 formed as the 29th State of India.**
- **The State has an area of 1,12,077sq. Km. And has a population of 3,50,03,674 (2011 Census).**
- **The Telangana region was part of the Hyderabad state from 17th September 1948 to 1st November 1956, until it was merged with Andhra State to form Andhra Pradesh.**
- **Telangana is surrounded by Maharashtra and Chhattisgarh in the North, Karnataka in the West and Andhra Pradesh in the South and East directions.**
- **Major cities of the State include Hyderabad, Warangal, Nizamabad, Nalgonda, Khammam and Karimnagar**

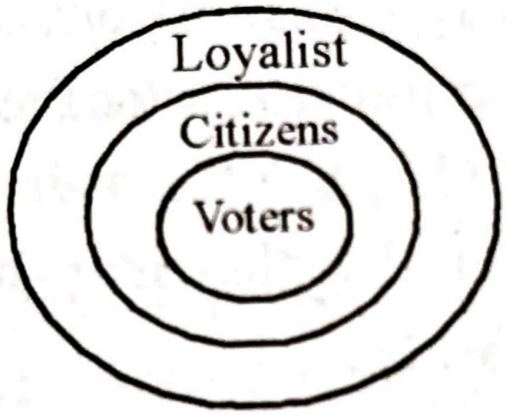
85.The Conclusion that follows from the Premises 'All voters are citizens' and 'All citizens are loyalists' is:

(1) All loyalists are citizens

(2) All voters are loyalists

(3) All citizens are voters

(4) All loyalists are voters
Ans: 2
Explanation:



Hence only (2) follows

86.Little knowledge is a dangerous thing' is a decision based on:

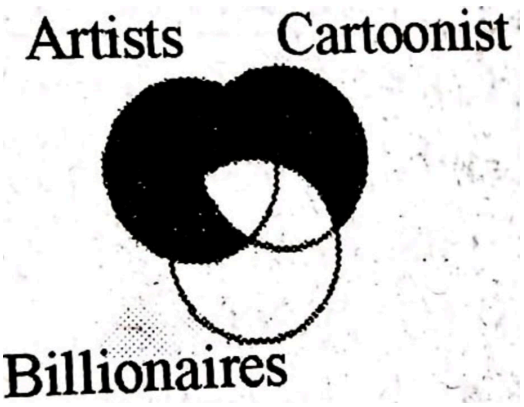
(1) Incomplete information may cause harm.

(2) Ignorance is bliss.

(3) Little things are dangerous

(4) Informal learning is not satisfactory.
Ans: 1
Explanation: The proverb 'Little knowledge is dangerous thing' expresses the idea that a small amount of knowledge can mislead people into thinking that they are more expert than they really are, which can lead to mistakes being made.

87.In the given Venn diagram, assuming that the shaded areas do not exist, determine which Conclusion can be validly drawn?



1) All billionaries are artists

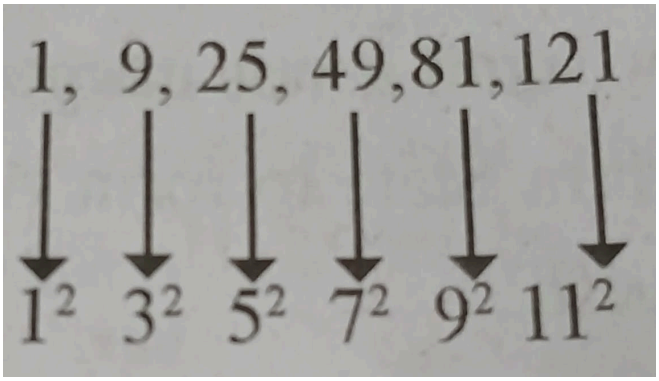
(2) All artists are cartoonists.

(3) No artists are billionaires.

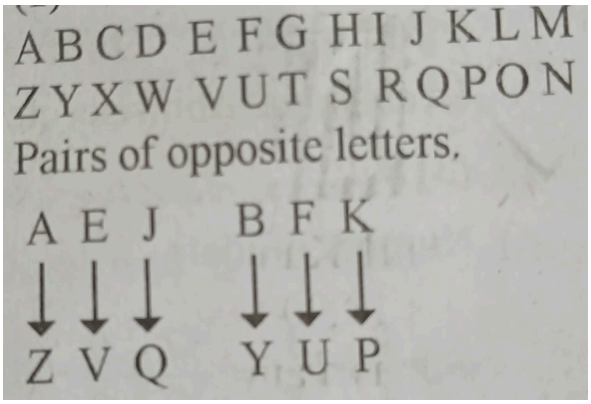
(4) All cartoonists are artists.

Ans: 2
Explanation: If the shaded areas do not exist, the following Conclusions may be valid:
(i) All artists are cartoonists.
(ii) All artists are billionaires.
(iii) All cartoonists are billionaires.

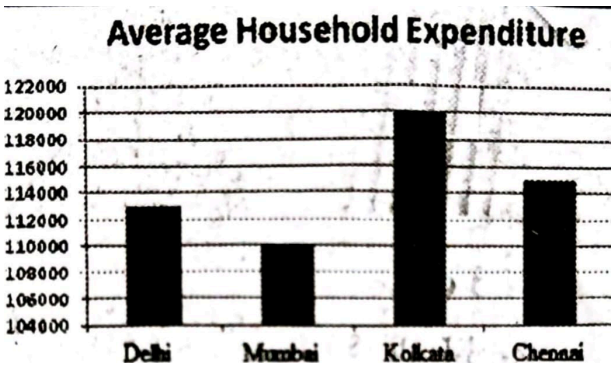
88.Select the number from among the given options that can replace the question mark (?) in the following series.
1, 9, 25, 49, 81,?
(1) 91
(2) 94
(3) 121
(4) 111
Ans: 3
Explanation:



89.Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.
AEJ: ZVQ :: BFK : ?
(1) YUP
(2) CGK
(3) LPT
(4) TPL
Ans: 1
Explanation:



90.The average household expen-diture in four metros Delhi, Mumbai, Kolkata and Chennai is given in the graph. What is the ratio of the highest average household expenditure to the lowest average household expenditure?



a)23:11
b)12:11
c)11:23
d)11:12
Ans: b
Explanation:

$$\text{Required ratio} = \frac{120000}{110000}$$

$$= \frac{120}{110} = \frac{12}{11} = 12 : 11$$

91.Four equipment are listed, out of which three are alike in some manner and one is different. Select the odd one.

(1) Test Tube

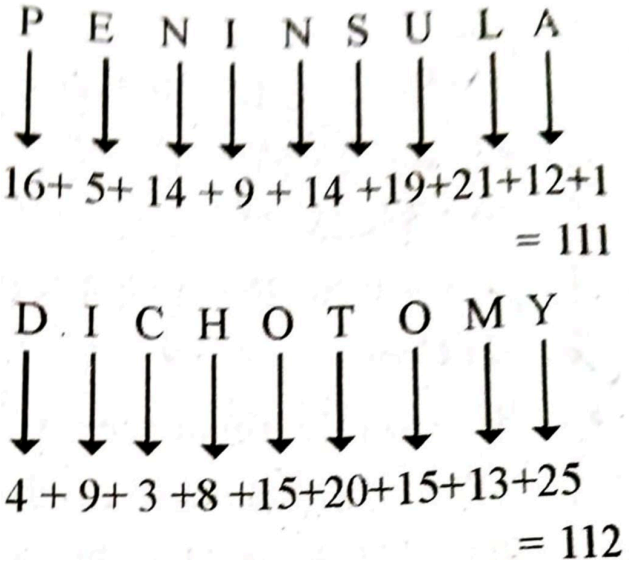
(2) Dropper

(3) Compass

(4) Beaker

ANS: 3
EXPLANATION: A compass is a device that shows the cardinal directions used for navigation and geographic orientation.
Test tube, Dropper and Beaker are made up of glass and are used in the chemical laboratory.

92.In a certain code language, PENINSULA is written as 111. How will DICHOTOMY be written as in that language?
(1) 212
(2) 112
(3) 121
(4) 222
ANS: 2
EXPLANATION: A= 1, B =2, Z = 26



93.Select the number from among the given options that can replace the question mark (?) in the following matrix.

14	12	10	8
10	8	2	4
8	14	6	16
12	18	14	?

(1) 10

(2) 16

(3) 20

(4) 18

ANS: 3

EXPLANATION:

First Column,

$14 + 8 = 10 + 12 = 22$

Second Column,

$12 + 14 = 8 + 18 = 26$

Third Column,

$10 + 6 = 2 + 14 = 16$

Fourth Column,

$8 + 16 = 4 + ? \Rightarrow ?$

$= 24 - 4 = 20$

94.The Conclusion that follows from the premises 'All horses are mammals' and 'No mammals are amphibians' is

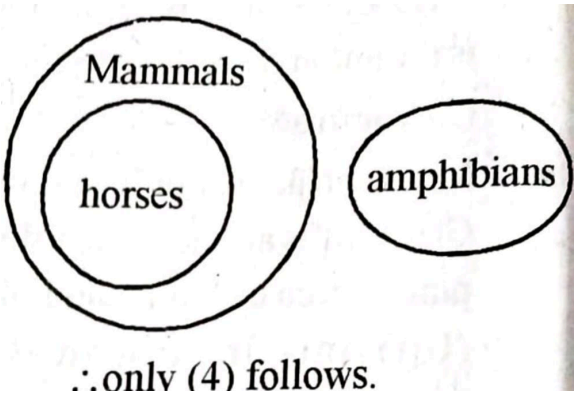
(1) Some horses are amphibians

(2) Every amphibian is a horse.

(3) All horses are amphibians

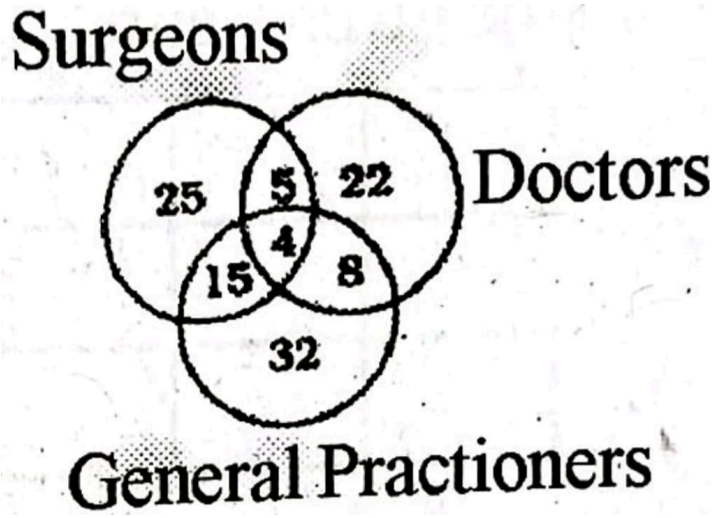
(4) No amphibians are horses.

ANS: 4
EXPLANATION:



∴only (4) follows.

95.From the given Venn diagram, find the number of doctors who are surgeons but not general practitioners.



(1) 8

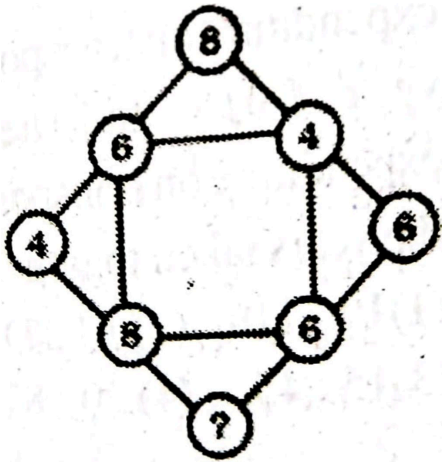
(2) 5

(3) 4

(4) 9
ANS: 2
EXPLANATION: Doctors who are surgeons but not general practitioners can be represented by the number common to the upper two circles but outside the lower circle. Such a number is '5'.

96.Select the number from among the given options that can replace the question mark (?) in the following series.
3, 13, 23, 43, 53, 73, 83, 103, 113,?
(1) 153
(2) 183
(3) 163
(4) 173
ANS: 3
EXPLANATION: Consecutive Prime Numbers ending with 3 are given. The next Prime Number ending with 3 is 163.

97.Study the given pattern care-fully and select the number that can replace the question mark.(?) in it



A)5
B)8
C)4
D)6
ANS: D
EXPLANATION:

The sum of three numbers of each side of the outer quadrilateral is 18

$4 + 6 + 8 = 18$

$8 + 4 + 6 = 18$

$4 + 8 + ? = 18$

$\Rightarrow ? = 18 - 12 = \boxed{6}$

$6 + 6 + ? = 18$

$\Rightarrow ? = 18 - 12 = \boxed{6}$

98. If A and C interchange their places, B and D interchange their places, E and G interchange their places and so on. then which letter will be the 7th to the left of T

(1) M

(2) L

(3) K

(4) I

ANS: 4
EXPLANATION: Position number of T =20%
T will Interchange position with
R, i.e., 18th position.
7th to the left of R⇒ K
K will Interchange position with I.
Thus, required answer would be I.

99.The following table shows the number of students appeared in an examination and the number of the students selected from different schools for admission in a well ranked university. Study the table carefully and answer the question that follows.

School	Appeared	Selected
ABC	1000	800
EFG	1200	1050
IJK	1500	1350
MNO	1100	900
QRS	900	750

In which of the following schools has there been the maximum percentage of selec-tion in university?

A)IJK

B)ABC

C)EFG

D)QRS

ANS: A

EXPLANATION:

Percentage of selected Students
From School IJK

$$=\frac{1350}{1500}\times 100=90$$

From School ABC

$$=\frac{800}{1000}\times 100=80\%$$

From School EFG

$$=\frac{1050}{1200}\times 100=87.5\%$$

From School QRS

$$=\frac{750}{900}\times 100=83.3\%$$

Percentage of selected students from school IJK for University is maximum.

100.Find the mean of the following data.
8, -2, 9,6,13,17,12
A)11
B)9
C)10
D)12
ANS: B
EXPLANATION:

Mean of 8, -2, 9, 6, 13, 17, 12

$$= \frac{8-2+9+6+13+17+12}{7}$$

$$= \frac{63}{7} = 9$$