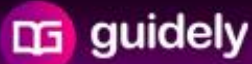


## RRB NTPC Memory Based Model Paper Based on Jan 04 Exam



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#### General Knowledge

1) Who is the ICC Cricketer of the year 2020?

- a) Rohit Sharma
- b) Virat Kohli
- c) Mahendra Singh Dhoni
- d) Hardik Pandya

**Answer: B**

The ICC Awards are an annual set of sports awards for international cricket, which recognise and honour the best international cricket players of the previous 12 months. Virat Kohli was the ICC Cricketer of the year 2020.

2) Where is headquarter of DRDO located?

- a) New-Delhi
- b) Maharashtra
- c) Andhra Pradesh
- d) West-Bengal

**Answer: A**

The Defence Research and Development Organisation (DRDO) is an agency under the Department of Defence Research and Development in Ministry of Defence of the Government of India, charged with the military's research and development, headquartered in Delhi, India.

3) Pokhran Test was held in which year?

- a) 1974
- b) 1978
- c) 1981
- d) 1988

**Answer: A**

Smiling Buddha (Pokhran-I) was the assigned code name of India's first successful nuclear bomb test on 18 May 1974. The bomb was detonated on the army base Pokhran Test Range (PTR), in Rajasthan, by the Indian Army.

4) Bile Juice is secreted by which of the following organ?

- a) Liver
- b) Kidney
- c) Pharynx
- d) Small intestine

**Answer: A**

Bile is a fluid that is made and released by the liver and stored in the gallbladder. The bile is then released into the first section of the small intestine where it helps your body to break down and absorb fats from food.

5) Which of the following statement is incorrect with regard to Simon commission?

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- a) It was laid under the chairmanship of Sir John Simon
- b) Simon Commission came to India in the year 1926
- c) Commission was strongly opposed by many in India
- d) Lala Lajpat rai died after police beating during the protest

**Answer: B**

The Indian Statutory Commission, commonly referred to as the Simon Commission, was a group of seven British Members of Parliament under the chairmanship of Sir John Simon. The commission arrived in British India in 1928. The Commission was strongly opposed by many in India. Prominent Indian nationalist Lala Lajpat Rai led a protest in Lahore. He suffered a police beating during the protest, and died of his injuries on 17th November, 1928.

**6) Sardar Sarovar Dam is on which river?**

- a) Narmada
- b) Indus
- c) Kaveri
- d) Mahanadi

**Answer: A**

The Sardar Sarovar Dam is a concrete gravity dam built on the Narmada river in Kevadiya near Navagam, Gujarat in India. The foundation stone of the project was laid out by Prime Minister Jawaharlal Nehru on 5th April 1961.

**7) Consider the following statements regarding Pradhan Mantri Suraksha Bima Yojana-**

- 1) It is accidental insurance scheme started in the year 2015
- 2) Amount of premium is Rs. 12 per annum for each member
- 3) Available to the people between 18-50 years of age with bank accounts

**Which of the above statements is not correct?**

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Only 3

**Answer: D**

Pradhan Mantri Suraksha Bima Yojana is a government-backed accident insurance scheme in India started in the year 2015. Pradhan Mantri Suraksha Bima Yojana is available to people between 18 and 70 years of age with bank accounts. It has an annual premium of ₹12 exclusive of taxes.

**8) What is the chemical formula of Laughing Gas ?**

- a)  $\text{CH}_3\text{COOH}$
- b)  $\text{CH}_4$
- c)  $\text{N}_2\text{O}$
- d)  $\text{C}_2\text{H}_5\text{OH}$

**Answer: C**

Nitrous oxide, commonly known as laughing gas is a chemical compound, an oxide of nitrogen with the formula  $\text{N}_2\text{O}$ . At room temperature, it is a colourless

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non-flammable gas, with a slight metallic scent and taste.

**9) Which session of the Indian National Congress was presided by Mahatma Gandhi?**

- a) Delhi
- b) Surat
- c) Lahore
- d) Belgaum

**Answer: D**

The Indian National Congress held its thirty-ninth session at Belgaum on the 26th & 27th Dec ,1924. Gandhiji was the president of the Congress only on one occasion and the session was held in Belgaum.

**10) Indian Rebellion of 1857 was started on which date?**

- a) 19 April
- b) 10 May
- c) 22 August
- d) 31 January

**Answer: B**

The Indian Rebellion of 1857 (10 May 1857 – 1 Nov 1858) was a major uprising in India in 1857–58 against the rule of the British East India Company, which functioned as a sovereign power on behalf of the British Crown.

**11) National Technological day is celebrated on which date?**

- a) 11<sup>th</sup> May
- b) 17<sup>th</sup> June
- c) 21<sup>st</sup> April
- d) 19<sup>th</sup> December

**Answer: A**

May 11 is observed as the National Technology Day. This day marks the anniversary of Pokhran nuclear tests of 1998 and India's technological advancements in this space.

**12) Gandhisagar Dam is on which of the following river?**

- a) Krishna
- b) Narmada
- c) Chambal
- d) Koshi

**Answer: C**

The Gandhi Sagar Dam is one of the four major dams built on India's Chambal River. The dam is located in the Mandsaur, Neemuch districts of the state of Madhya Pradesh.

**13) Which among the following fundamental right refers to the concept that one's personal information is protected from public scrutiny?**

- a) Right to Constitutional Remedies
- b) Right to Equality
- c) Right to Privacy
- d) Cultural and Educational Rights

**Answer: C**

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The Right to privacy is protected as an intrinsic part of the right to life and personal liberty under Article 21 and as a part of the freedoms guaranteed by Part III of the Constitution. The right to privacy is an element of various legal traditions to restrain governmental and private actions that threaten the privacy of individuals.

**14) Which of the following was the first bank established in India in the year 1770?**

- a) General Bank of India
- b) Bank of Calcutta
- c) Bank of Hindustan
- d) Imperial Bank of India

**Answer: C**

Bank of Hindustan was the first bank of India, It was established in 1770 and liquidated in 1829–32 and the second bank was General Bank of India, established in 1786. This bank was established at Calcutta under European management.

**15) Which of the following is the India's longest tunnel road?**

- a) Atal Road Tunnel
- b) Pir Panjal Railway Tunnel
- c) Dr Syama Prasad Mookerjee Road Tunnel
- d) Sangaldan Railway Tunnel
- e) Rapuru Railway Tunnel

**Answer: C**

Dr. Syama Prasad Mookerjee Tunnel, also known as Chenani-Nashri Tunnel, is a road tunnel in Jammu

and Kashmir, India. It is located in the Lower Himalayas, on National Highway 44. It is India's longest road tunnel with a length of 9.28 km.

**16) What is the length of the Atal tunnel?**

- a) 9.02 km
- b) 7.33 km
- c) 8.16 km
- d) 6.88 km

**Answer: A**

Atal Tunnel is a highway tunnel built under the Rohtang Pass in the eastern Pir Panjal range of the Himalayas on the Leh-Manali Highway in Himachal Pradesh, India. At a length of 9.02 km, it is the longest tunnel in the world and is named after former Prime Minister of India, Atal Bihari Vajpayee.

**17) MNREGA act was passed in which year?**

- a) 2005
- b) 2002
- c) 2001
- d) 1999

**Answer: A**

Mahatma Gandhi Employment Guarantee Act 2005 is an Indian labour law and social security measure that aims to guarantee the 'right to work'. This act was passed in September 2005 under the UPA government of Prime Minister Dr. Manmohan Singh.

**18) What is the capital of Indonesia?**

- a) Jakarta

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- b) Havana
- c) Cairo
- d) Prague

**Answer: A**

Indonesia is a country in Southeast Asia and Oceania, between the Indian and Pacific oceans. The country's capital, Jakarta, is the second-most populous urban area in the world.

**19) URL, link address on the internet stands for\_\_\_\_\_.**

- a) Universal Resource Locator
- b) Uniform Resource Locator
- c) Unique Resource Language
- d) Uniform Registered Link

**Answer: B**

A URL (Uniform Resource Locator) is a unique identifier used to locate a resource on the internet. It is also referred to as a web address. URLs consist of multiple parts including a protocol and domain name that tell a web browser how and where to retrieve a resource.

**20) Which is one of the oldest stone structures in India, and an important monument of Indian Architecture?**

- a) Buddhist Monuments at Sanchi
- b) Elephanta Caves
- c) Pattadakal Monuments
- d) Rani Ki Vav

**Answer: A**

The Great Stupa at Sanchi is one of the oldest stone structures in India, and an important monument of Indian Architecture. It was originally commissioned by the emperor Ashoka in the 3rd century BCE. Its nucleus was a simple hemispherical brick structure built over the relics of the Buddha.

**21) Which is the first country to send man on Moon?**

- a) Russia
- b) United Kingdom
- c) United States
- d) Japan

**Answer: C**

The first human-made object to touch the Moon was the Soviet Union's Luna 2, on 13 September 1959. The United States' Apollo 11 was the first crewed mission to land on the Moon, on 20 July 1969.

**22) Lingaraja Temple is located in which of the following Indian state?**

- a) Odisha
- b) Maharashtra
- c) Andhra Pradesh
- d) Tamil Nadu

**Answer: A**

Lingaraja Temple is a Hindu temple dedicated to Shiva and is one of the oldest temples in Bhubaneswar, the capital of the Indian state of Odisha.

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23) Deepa Karmakar is associated with which game?

- a) Table-Tennis
- b) Cricket
- c) Badminton
- d) Gymnastics

**Answer: D**

Dipa Karmakar is an Indian artistic gymnast. She represented India at the 2016 Summer Olympics in Rio de Janeiro, becoming the first Indian female gymnast ever to compete in the Olympics, and the first Indian gymnast to do so in 52 years.

24) What is the rank of India in the Human Development Index 2020?

- a) 131<sup>st</sup>
- b) 177<sup>th</sup>
- c) 165<sup>th</sup>
- d) 101<sup>st</sup>

**Answer: A**

Human Development Index is the measure of a nation's health, education, and standards of living. Out of 189 countries, India has ranked 131 on the Human Development Index 2020 prepared by the United Nations Development Programme (UNDP).

25) Where is the hypothalamus located in the human body?

- a) Heart
- b) Stomach
- c) Brain

d) Kidney

**Answer: C**

The hypothalamus is located on the undersurface of the brain. It lies just below the thalamus and above the pituitary gland, to which it is attached by a stalk. It is an extremely complex part of the brain containing many regions with highly specialised functions.

26) Who was the first chief justice of Independent India?

- a) H.J Kania
- b) Bhuvaneshwar Prasad Sinha
- c) P. B. Gajendragadkar
- d) Amal Kumar Sarkar

**Answer: A**

Sir Harilal Jekisundas Kania was the first Chief Justice of India. He served as the Chief Justice of India from 1950 to 1951.

27) Poona pact 1932, that granted new rights to the untouchables was signed between whom?

- a) Jawaharlal Nehru and Mahatma Gandhi
- b) B.R Ambedkar and Mahatma Gandhi
- c) B.R Ambedkar and Lala Lajpat rai
- d) Bal Gangadhar Tilak and Mahatma Gandhi

**Answer: B**

The Poona Pact refers to an agreement between B. R. Ambedkar and Mahatma Gandhi on the reservation of electoral seats for the depressed

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classes in the legislature of British India government. It was made on 24 September 1932 at Yerwada Central Jail in Poona, India and was signed by Mahatma Gandhi and B.R Ambedkar.

**28) Which among the following prime minister ruled for only 13 days?**

- a) Gulzarilal Nanda
- b) Lal Bahadur Shastri
- c) Morarji Ranchhodji Desai
- d) Chaudhary Charan Singh

**Answer: A**

Gulzarilal Nanda was an Indian politician and economist who specialized in labour issues. He was the Acting Prime Minister of India for two short periods following the deaths of Jawaharlal Nehru in 1964 and Lal Bahadur Shastri in 1966.

**29) Where is the headquarter of UNICEF located?**

- a) Paris, France
- b) New York, United States
- c) Vienna, Austria
- d) Washington DC, United States

**Answer: B**

UNICEF, is a United Nations agency responsible for providing humanitarian and developmental aid to children worldwide. It is headquartered in New York, United States.

**30) When was the All India Muslim League established?**

- a) 1907
- b) 1901
- c) 1905
- d) 1906

**Answer: D**

The All-India Muslim League was a political party established in 1906 in British India. Its strong advocacy for the establishment of a separate Muslim-majority nation-state, Pakistan, successfully led to the partition of India in 1947 by the British Empire.

**31) UNO has how many member countries?**

- a) 193
- b) 195
- c) 188
- d) 172

**Answer: A**

The United Nations member states are the 193 sovereign states that are members of the United Nations (UN) and have equal representation in the UN General Assembly. The UN is the world's largest intergovernmental organization.

**32) What is the name of Iran's new currency?**

- a) Toman
- b) Euro
- c) Dollar
- d) Rand

**Answer: A**

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The Iranian toman is a superunit of the official currency of Iran, the rial. One toman is equivalent to ten rials.

**33) Which cricketer is known by the name "Little Master"?**

- a) Sunil Gavaskar
- b) Sachin Tendulkar
- c) Kapil Dev
- d) Rahul Dravid

**Answer: A**

Sunil Manohar Gavaskar is an Indian cricket commentator and former cricketer representing India and Bombay from the early 1970s to the late 1980s. He is nicknamed as "Little Master".

**34) Which enzyme is helpful in the digestion of protein?**

- a) Pepsin
- b) Amylase
- c) Protease
- d) Lipase

**Answer: A**

Pepsin is an endopeptidase that breaks down proteins into smaller peptides. It is produced in the chief cells of the stomach lining and is one of the main digestive enzymes in the digestive systems of humans and many other animals, where it helps digest the proteins in food.

**35) Which among the following is the outermost layer of earth?**

- a) Crust
- b) outer core
- c) mantle
- d) inner core

**Answer: A**

The crust is the outermost layer of the earth's surface which accounts for less than 1% of the Earth's volume. It is made up of different types of rocks: igneous, metamorphic, and sedimentary rocks.

**36) Where was Lord Mahavir born?**

- a) Bihar
- b) Uttar Pradesh
- c) Rajasthan
- d) Andhra Pradesh

**Answer: A**

Mahavira was the 24th Tirthankara of Jainism. He was the spiritual successor of 23rd Tirthankara Parshvanatha. He was born in the early part of the 6th century BCE into a royal Kshatriya Jain family in Bihar, India.

**37) Who is the present CEO of Apple?**

- a) Garo H. Armen
- b) Devin Wenig
- c) Tim Cook
- d) Mark Hurd

**Answer: C**



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Timothy Donald Cook is an American business executive, philanthropist and engineer. Cook is the chief executive officer of Apple Inc., and previously served as the company's chief operating officer under its cofounder Steve Jobs.

**38) Right to Information (RTI), an act of the Parliament of India was imposed in which year?**

- a) 2006
- b) 2002
- c) 2005
- d) 2000

**Answer: C**

Right to Information (RTI) is an act of the Parliament of India which sets out the rules and procedures regarding citizens' right to information. This law was passed by Parliament of India on 15 June 2005 and came fully into force on 12 October 2005.

**39) When was the 3rd battle of Panipat fought?**

- a) 1761
- b) 1766
- c) 1755
- d) 1745

**Answer: A**

The Third Battle of Panipat took place on 14 January 1761 at Panipat, between the Maratha Empire and the invading Afghan army of, supported by three Indian allies—the Rohilla, Afghans of the Doab region, and Shuja-ud-Daula.

**40) Part of the eye which controls the amount of light entering into it is called\_\_\_\_\_.**

- a) Iris
- b) Sclera
- c) Retina
- d) Pupil

**Answer: A**

The colored circular membrane in the eye just behind the cornea is called the iris. It controls the amount of light entering the eye through the pupil.

### Logical reasoning

1. In the following question, select the related word from the given alternatives.

Mars : Planet :: Argon : ?

- a) Noble gas
- b) Metal
- c) Halogen
- d) Metalloid

**Answer: A)**

Mars is a planet.

Argon is a Noble gas.

2. If '+' represents '×', '-' represents '+', '×' represents '÷' and '÷' represents '-', then find the value of the following expression.

$$6 \div 8 \times 2 - 4$$

- a) 12
- b) 24
- c) 18

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d) 6

Answer: D)

Solution:

+	-	×	÷
×	+	÷	-

Given:  $6 \div 8 \times 2 - 4$

After replacing, we get:

$$6 - 8 \div 2 + 4$$

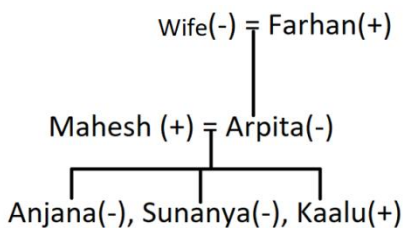
$$= 6 - 4 + 4$$

$$= 6$$

3. Anjana and Sunanya are the only daughters of Mahesh. Sunanya's grandmother is wife of Farhan who is father of Arpita. Arpita has a son Kaalu. How is Farhan related to Anjana?

- a) Grandfather
- b) Father
- c) Daughter
- d) Granddaughter

Answer: A)



Farhan is grandfather of Anjana.

4. In the following question below are given some statements is followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all

the conclusions and then decide which of the given conclusion logically follows the given statements.

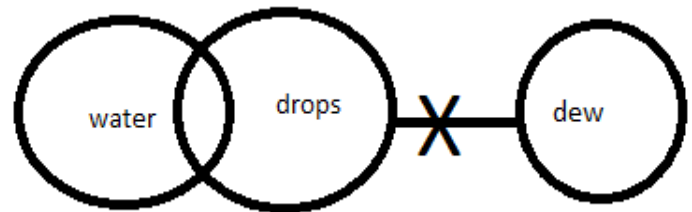
**Statements:**

- I. Some water is drops
- II. No dew is drop

**Conclusions:**

- I. Some drop is not dew
  - II. No drop is water
- a) Only conclusion I follows
  - b) Only conclusion II follows
  - c) Both the conclusion follows
  - d) Neither conclusion I nor II follows

Answer: A)



- I. Some drop is not dew - True
- II. No drop is water - False

Only conclusion I follows.

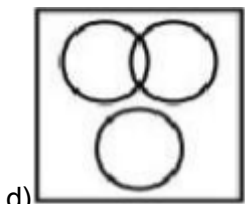
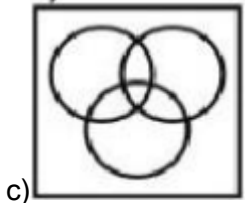
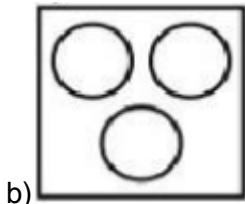
5. Identify the diagram that represents the relationship among the given classes.

Cricket, Hockey, Indoor games

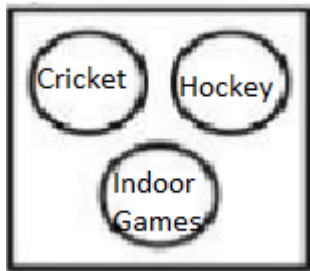


a)

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Answer: B)



Cricket and Hockey are name of outdoor games.

6. In the following question there are given some statements followed by conclusions that can be drawn from them. Choose the conclusion which appeals to you to be the most correct.

Anamika is taller than Deepika. Shruti is taller than Deepika. Therefore, Deepika is shorter than Anamika.

- a) False
- b) True
- c) Probably False
- d) Can't say

Answer: B)

Anamika is taller than Deepika.

Anamika > Deepika

Deepika is shorter than Anamika - True

7. 'Facebook' is related to 'Twitter' in the same way as 'Telegram' is related to '\_\_\_\_\_'.  
\_\_\_\_\_

- a) Chat
- b) Message
- c) WhatsApp
- d) Instagram

Answer: C)

Facebook and Twitter are social networking sites.

Telegram and WhatsApp are messaging applications.

8. In the following question select the related number from the given alternatives.

24 : 90 :: 88 : ?

- a) 270
- b) 330
- c) 360
- d) 420

Answer: B)

$$(24 \times 4) - (24 \div 4) = 96 - 6 = 90$$

$$(88 \times 4) - (88 \div 4) = 352 - 22 = 330$$

9. In this question, two statements are given followed by two conclusions. Choose the Conclusion(s) which best fit(s) logically.

**Statements:**

- 1) Some A are B

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2) Some B is not C

**Conclusions:**

I. Some C is not B

II. Some B are A

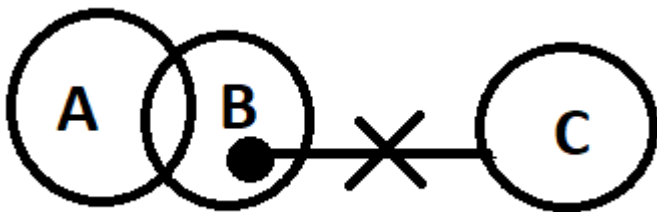
a) Only conclusion II follows

b) Only conclusion I follows

c) Either conclusion I or II follows

d) None of the conclusion follows

Answer: A)



I. Some C is not B - False

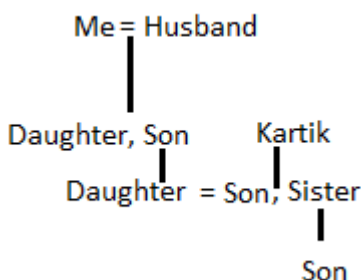
II. Some B is A - True

Only conclusion I follows.

10. If my son's daughter is the daughter-in-law of Kartik, then how is Kartik's daughter's son is related to my husband's only son?

- a) Son
- b) Grandmother
- c) Grandson
- d) Nephew

Answer: C



The son of Kartik's daughter is grandson of my husband's only son.

11. Select the option that is related to the third term in the same way as the second term is related to the first term.

Force : dyne :: Energy : ?

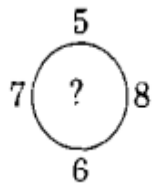
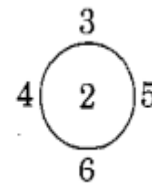
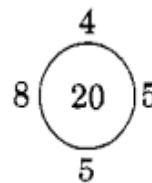
- a) Watt
- b) Erg
- c) Joule
- d) Coulomb

Answer: B)

The CGS unit of force is dyne.

The CGS unit of Energy is erg.

12. Identify the rule in the given number arrangement and find the number to replace the question mark.



- a) 28
- b) 32
- c) 12
- d) 26

Answer: D)

$$(8 \times 5) - (4 \times 5) = 20$$

$$(4 \times 5) - (3 \times 6) = 2$$

$$(7 \times 8) - (6 \times 5) = 26$$

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13. Choose the one which is different from the others.

- a) Calcium
- b) Aluminium
- c) Sodium
- d) Nitrogen

Answer: D)

All except Nitrogen are metals.

Nitrogen is a non-metal.

14. If '+' represents 'x', '-' represents '÷', 'x' represents '+' and '÷' represents '-', then find the value of the following expression:

$$17 + 6 \times 13 \div 8$$

- a) 100
- b) 109
- c) 107
- d) 117

Answer: C)

+	-	x	÷
x	÷	+	-

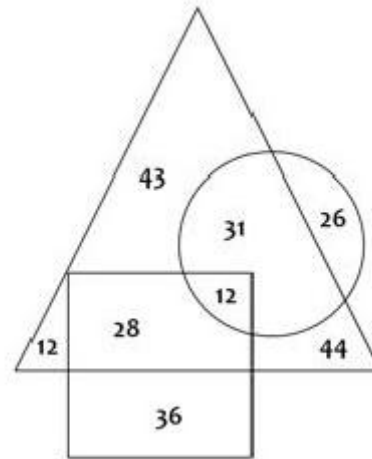
$$17 \times 6 + 13 - 8$$

$$= 102 + 5$$

$$= 107$$

**Direction (15 – 17):** Study the diagram given below and answer the questions based on it.

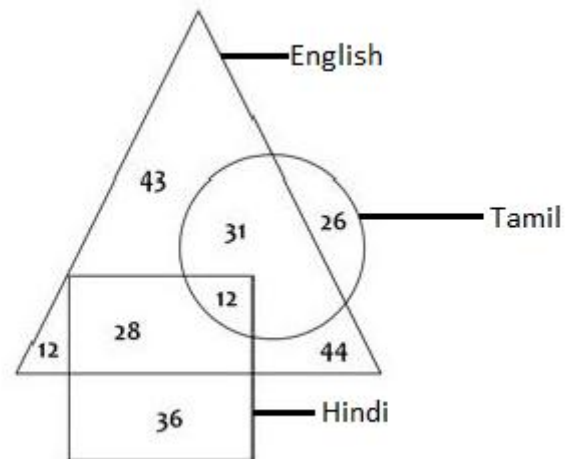
If triangles represents persons who can speak English, Circle represents persons who can speak Tamil and Square represents persons who can speak Hindi.



15. Find the ratio of person who can speak only Tamil and who can speak all the three languages.

- a) 1/2
- b) 13/6
- c) 26/13
- d) 6/13

Answer: B)



The number of person who can speak only Tamil = 26

People who can speak all the three languages = 12

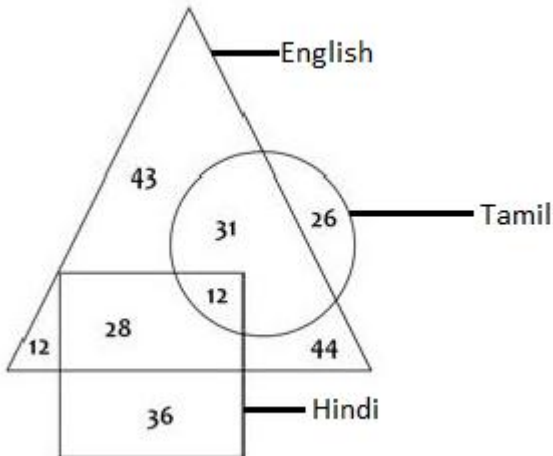
$$\text{Ratio} = 26/12 = 13/6$$

16. What is the difference between the people who can speak English and Hindi?

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- a) 98
- b) 71
- c) 76
- d) 94

Answer: D)

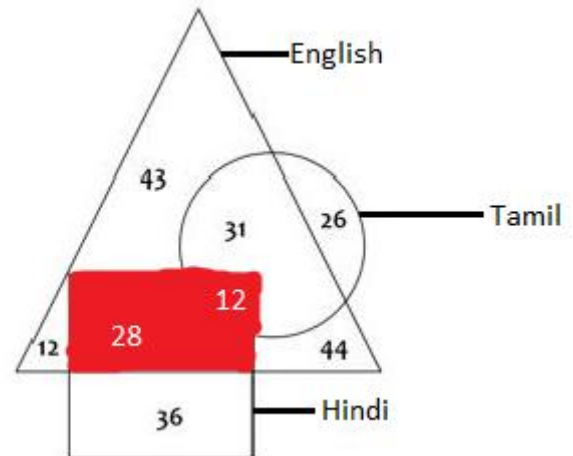


People who can speak English =  $(43 + 12 + 44 + 31 + 12 + 28) = 170$   
 People who can speak Hindi =  $(28 + 12 + 36) = 76$   
 Difference =  $170 - 76 = 94$

17. How many people can speak both Hindi and Tamil?

- a) 12
- b) 40
- c) 28
- d) None of these

Answer: B)



People who can speak both Hindi and Tamil =  $28 + 12 = 40$

18. In this question, a statement is given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

**Statement:**

All employees in company XYZ are paid well.

**Conclusions:**

- I. Employees of the company XYZ earn not less than 10 LPA.
- II. All the employees of company XYZ are financially happy.

- a) Only conclusion I follows
- b) Only conclusions II follows
- c) Both I and II follow
- d) Neither of them follows

Answer: D)

I. Employees of the company XYZ earn not less than 10 LPA.

False.

All employees in company XYZ are paid well no data is given about how much are they paid.

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II. All the employees of company XYZ are financially happy.

False.

All employees in company XYZ are paid well does not guarantees that all the employees of company XYZ are financially happy.

19. An assertion (A) and a reason (R) are given below.

**Assertion (A):** Leaves are green in colour.

**Reason (R):** Chlorophyll, a green pigment is present in leaves.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true, but R is false.
- d) Both A and R are false.

Answer: A)

Leaves are green in colour because of the green pigment is present in leaves called chlorophyll.

20. If RELATIVE = TGNCVKXG, then COUSIN = \_\_\_\_\_.

- a) EQWKUP
- b) EWQUKP
- c) EQUWKP
- d) EQWUKP

Answer: D)

$$\begin{array}{ll}
 R + 2 = T & C + 2 = E \\
 E + 2 = G & O + 2 = Q \\
 L + 2 = N & U + 2 = W \\
 A + 2 = C & S + 2 = U \\
 T + 2 = V & I + 2 = K \\
 I + 2 = K & N + 2 = P \\
 V + 2 = X \\
 E + 2 = G
 \end{array}$$

21. If GUAVA = %\$#@#, JOKER = (\*&!+, then JAVA = \_\_\_\_.

- a) )#@#
- b) (#@#
- c) @#)#
- d) @#(#

Answer: B)

G	U	A	V	A
%	\$	#	@	#

J	O	K	E	R
(	*	&	!	+

J	A	V	A
(	#	@	#

22. In this question, a statement is given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

**Statement:**

In some of the tier- II cities of India, transportation is one of the major problems.

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**Conclusions:**

I. Lack of transportation facility is the only problem in rural areas.

II. All tier- II cities are not well connected.

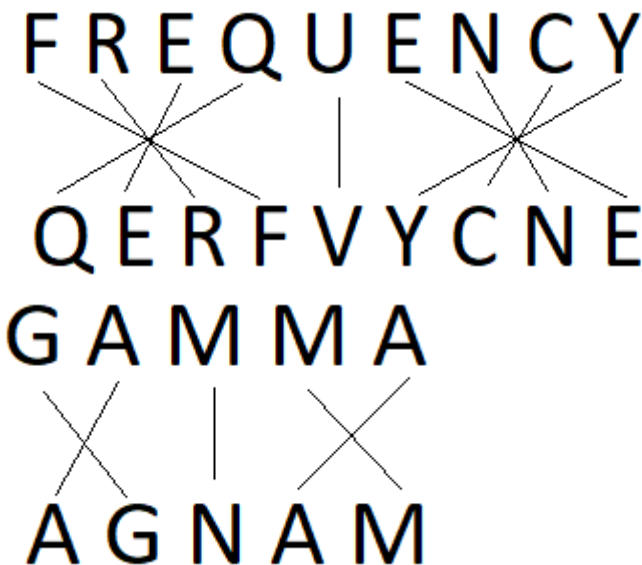
- a) Only conclusion I follows
- b) Only conclusions II follows
- c) Both I and II follow
- d) Neither of them follows

Answer: D)

23. If the code for FREQUENCY is QERFFYCNE then what is the code for GAMMA?

- a) AGNAM
- b) AGMAM
- c) AGMMA
- d) AGAMM

Answer: A)



Middle letters are replaced by their reverse letter.

24. Rearrange the jumbled letters to make a meaningful word and then select the one which is different.

- a) ORIN
- b) RCOPRE
- c) SDNA
- d) GLDO

Answer: C)

- a) ORIN - IRON
- b) RCOPRE - COPPER
- c) **SDNA - SAND**
- d) GLDO - GOLD

All option except 'SAND' are name of metals.

25. In this question, two statements are given followed by two conclusions. Choose the Conclusion(s) which best fit(s) logically.

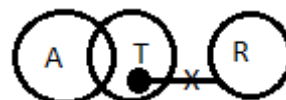
**Statements:**

- 1) Some A are T
- 2) Some T is not R

**Conclusions:**

- I. Some T are not A
- II. Some A are not T
- a) Only conclusion I follows
- b) Only conclusion II follows
- c) Either conclusion I or II follows
- d) None of the conclusion follows

Answer: D)



I. Some T are not A - False



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II. Some R are not T - False

None of the conclusion follows.

26. Find the missing term in the series.

SWO, UUR, WSU, YQX, ?

- a) AOA
- b) AAO
- c) AOY
- d) AYO

Answer: A)

$S + 2 = U$ ;  $U + 2 = W$ ;  $W + 2 = Y$ ;  $Y + 2 = A$

$W - 2 = U$ ;  $U - 2 = S$ ;  $S - 2 = Q$ ;  $Q - 2 = O$

$O + 3 = R$ ;  $R + 3 = U$ ;  $U + 3 = X$ ;  $X + 3 = A$

27. Select the alternative that does not have a similar relationship as the given pair.

Love : Hate

- a) Friend : Foe
- b) Dark : Light
- c) Anger : Vexation
- d) Despair : Hope

Answer: C)

All pair are antonym.

Except 'Anger : Vexation' is synonym pair.

28. An assertion (A) and a reason (R) are given below.

**Assertion (A):** Penguins are birds, found in the hottest regions of the earth.

**Reason (R):** Birds in hot regions do not have wings.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true, but R is false.
- d) Both A and R are false.

Answer: D)

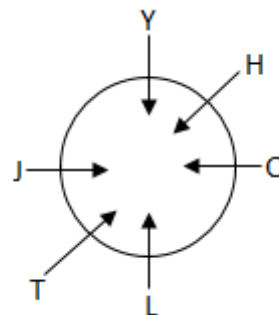
**Direction (29-30):** Read the information given below and answer the questions based on it.

Six people Y, L, O, J, H and T are sitting around a circular table facing the centre.

1. L is to the immediate right of T.
  2. J and O are facing each other. Y is not an immediate neighbour of O.
  3. H is second to the left of J.
29. Who among the following is sitting between Y and O?

- a) J
- b) H
- c) L
- d) T

Answer: B)



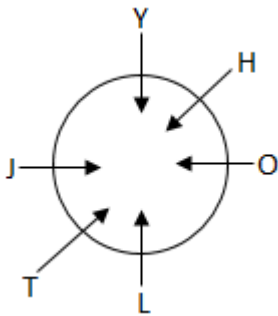
H is sitting between Y and O.

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30. Who among the following is sitting 2<sup>nd</sup> to the left of Y?

- a) H
- b) T
- c) J
- d) O

Answer: D)



O is sitting 2<sup>nd</sup> to the left of Y.

**Mathematics**

1.  $x + \frac{1}{x} = 9$  then  $x^2 + \frac{1}{x^2} = ?$

- a. 79
- b. 82
- c. 81
- d. 80

Answer : A

$$x + \frac{1}{x} = 9$$

Squaring both side

$$x^2 + \frac{1}{x^2} + 2 = 81$$

$$x^2 + \frac{1}{x^2} = 81 - 2 = 79$$

2.  $\frac{\sin 23}{\cos 67} + \frac{\cos 67}{\sin 23} = ?$

- a. 1
- b. 2
- c. 3
- d. 4

Answer : B

$$\frac{\sin 23}{\cos 67} + \frac{\cos 67}{\sin 23} = \frac{\sin 23}{\sin 23} + \frac{\sin 23}{\sin 23} = 1 + 1 = 2$$

3.  $\sqrt{3^n} = 729$  then  $n = ?$

- a. 10
- b. 12
- c. 8
- d. 4

Answer : B

$$\sqrt{3^n} = 729$$

$$3^{n/2} = 3^6$$

$$n/2 = 6$$

$$n = 12$$

4. A man bought a watch at a discount of 25% on marked price. 140% of the price at which he bought the watch is 120 more than the marked price.

What is the price at which he bought the watch?

- a. 1800
- b. 2000
- c. 2100
- d. 1500

Answer: A

Let marked price be x.

According to question,

$$140\% \text{ of } 75\% \text{ of } x - x = 120$$

$$x(1.40 \times 0.75 - 1) = 120$$

$$x(0.05) = 120$$

$$x = 120/0.05 = 2400$$

Price at which he bought the watch = 0.75 of 2400 = 1800

5. If  $(xy)^2 + \frac{1}{(xy)^2} = 83$  the find the value of  $xy - \frac{1}{xy}$ .

- a. 9

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b. 12

c. 8

d. 4

Answer: A

$$(xy)^2 + \frac{1}{(xy)^2} = 83$$

$$(xy)^2 + \frac{1}{(xy)^2} - 2 = 83 - 2$$

$$(xy - \frac{1}{xy})^2 = 81$$

$$xy - \frac{1}{xy} = 9$$

6. If  $x = y - z$ , then find the value of  $x^3 - y^3 + z^3$ .

a.  $3xyz$

b.  $-2xyz$

c.  $-3xyz$

d.  $xyz$

Answer: C

$$x = y - z$$

$$\text{Or, } x - y + z = 0$$

$$\text{Or, } x + (-y) + z = 0$$

We know that  $a + b + c = 0$  then  $a^3 + b^3 + c^3 = 3abc$

$$\text{So, } x^3 + (-y)^3 + z^3 = 3x(-y)z = -3xyz$$

$$\text{Hence, } x^3 - y^3 + z^3 = -3xyz$$

7. ABCD is a cyclic quadrilateral. Then find out  $\cos^2 A - \cos^2 \beta - \cos^2 C + \cos^2 D$ .

a. 1

b. 2

c. 0

d. -1

Answer: C

$$\cos^2 A - \cos^2 \beta - \cos^2 C + \cos^2 D$$

$$= \cos^2(180 - C) - \cos^2 \beta - \cos^2 C + \cos^2(180 - B)$$

[Since, sum of opposite angle of cyclic quadrilateral is  $180^\circ$ ]

$$= \cos^2 C - \cos^2 \beta - \cos^2 C + \cos^2 B$$

= 0

8. If a boat running at 16 km/h in still water goes downstream 48 km and comes back in 6 hr 24 min, then find the speed of stream.

a. 3 km/h

b. 2 km/h

c. 5 km/h

d. 4 km/h

Answer: D

Let speed of stream be  $x$

Then according to question,

$$48/(16 + x) + 48/(16 - x) = 6 + 24/60$$

$$48 [(16 - x + 16 + x)/256 - x^2] = 6.4$$

$$48 \times 32/6.4 = 256 - x^2$$

$$240 - 256 = -x^2$$

$$x^2 = 16$$

$$x = 4 \text{ km/h}$$

9. A can do 20% work in 2 days, with B he can complete the work in 8 days. Time taken by B to complete the work alone will be..

a. 40 days

b. 20 days

c. 21 days

d. 15 days

Answer: A

A can do full work (100%) in  $= 2 \times 5 = 10$  days

$$1 \text{ day work of B} = 1/8 - 1/10 = 1/40$$

B can do full work in  $= 40$  days

10.  $18\%$  of  $350 + x = 27\%$  of  $450$

a. 55.5

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- b. 58.5
- c. 56.5
- d. 50.5

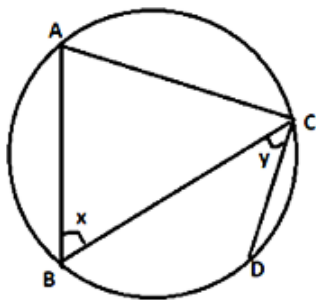
Answer: B

$$18\% \text{ of } 350 + x = 27\% \text{ of } 450$$

$$63 + x = 121.5$$

$$x = 58.5$$

11. In the given figure, ABC is a triangle in which  $AB = AC = 5 \text{ cm}$ , and area of triangle  $ABC = (25\sqrt{3})/4 \text{ cm}^2$ . If angle BCD is half of angle A, then find the value of  $(x + y)$ .



- a)  $90^\circ$
- b)  $80^\circ$
- c)  $100^\circ$
- d)  $105^\circ$

Answer: A

In triangle ABC,

$$\text{Area of triangle } ABC = (1/2) \times AB \times AC \times \sin(A)$$

$$(25\sqrt{3})/4 = (1/2) \times 5 \times 5 \times \sin(A)$$

$$\sin a) = \sqrt{3}/2$$

$$A = 60^\circ$$

Since,  $AB = AC$

$$\text{So, angle } ABC = \text{angle } ACB = x = 60^\circ$$

$$\text{So, } y = 60^\circ / 2 = 30^\circ$$

$$\text{Therefore, } (x + y) = (60 + 30) = 90^\circ$$

12. A shopkeeper sold an article at 20% profit for Rs. 480, but later he realized that the profit percentage was calculated on the selling price of the article. Find the actual profit percentage earned by the shopkeeper.

- a) 24%
- b) 22.5%
- c) 25%
- d) None of these

Answer: C

Let the cost price of the article be Rs. 'x'.

According to question,

$$(480 - x)/480 = 0.2$$

$$480 - x = 96$$

$$x = \text{Rs. } 384$$

So, cost price of the article = Rs.384

$$\text{Actual amount of profit earned} = 480 - 384 = \text{Rs.}96$$

$$\text{Actual profit percentage earned} = (96/384) \times 100 = 25\%$$

13. A shopkeeper sold an article of costs Rs. 2720 at a profit of 10% after allowing two successive discounts of 12% and 15%. Find the marked price of the article.

- a) Rs. 4000
- b) Rs. 4400
- c) Rs. 4200
- d) Rs. 3800

Answer: A

Let the marked price of the article be Rs. 'x'.

$$\text{Selling price of the article} = 1.1 \times 2720 = \text{Rs. } 2992$$

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Overall discount given by the shopkeeper =  $[12 + 15 - \{(12 \times 15)/100\}] \% = 25.2\%$

According to question,

$$0.748 \times x = 2992$$

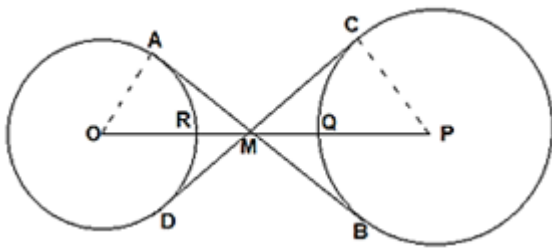
$$x = \text{Rs. } 4000$$

So, the marked price of the article is Rs. 4000.

14. A point M, lying on the line joining the centers of two circles of different radii, is distant from their circumferences by 3 cm and 4 cm. The transverse common tangents of the two circles passing through point M intersect each other at  $90^\circ$ . Find the length of the transverse tangent.

- $7(\sqrt{2} + 1)$
- $7(\sqrt{2} - 1)$
- $105(\sqrt{2} - 1)$
- Cannot be determined

Answer: A



Since angle  $AMD = 90^\circ$ , and  $AMO = \text{angle } AOM = 45^\circ$

$$\text{Then, } \sin(45^\circ) = 1/\sqrt{2} = AO/(OR+RM)$$

$$(OR+RM)/AO = \sqrt{2}$$

$$OR/AO + RM/AO = \sqrt{2}$$

$$1 + 3/AO = \sqrt{2} \text{ (Since, } OR = OA = \text{radius)}$$

$$\text{Thus, } AO = 3/(\sqrt{2} - 1)$$

$$\text{Similarly, } \sin(45^\circ) = 1/\sqrt{2} = CP/(PQ+QM)$$

$$\text{Thus, } CP = 4/(\sqrt{2} - 1)$$

Thus, distance between their centers =  $OR + RM + QM + PQ$

$$= 3/(\sqrt{2} - 1) + 3 + 4 + 4/(\sqrt{2} - 1)$$

$$= 14 + 7\sqrt{2}$$

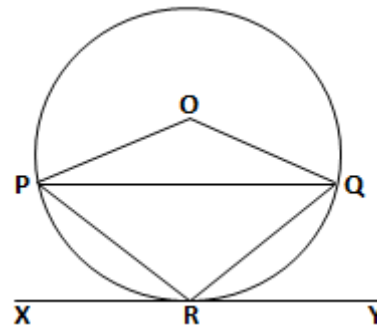
$$\text{Length of the transverse tangent} = \sqrt{(d^2 - (r_1 + r_2)^2)}$$

$$= \sqrt{((14 + 7\sqrt{2})^2 - ((3/\sqrt{2} - 1) + (4/(\sqrt{2} - 1)))^2)}$$

$$= \sqrt{((14 + 7\sqrt{2})^2 - (7\sqrt{2} + 7)^2)}$$

$$= 7(\sqrt{2} + 1)$$

15. In the following figure, O is the center of the given circle and angle  $PRX = 45^\circ$  and angle  $QRY = 35^\circ$ . Find the measure of angle  $OQP$ .



- $15^\circ$
- $10^\circ$
- $20^\circ$
- $17^\circ$

Answer: B

Angle  $PRX + \text{Angle } PRQ + \text{Angle } QRY = 180^\circ$  (Linear angles)

$$45^\circ + \text{Angle } PRQ + 35^\circ = 180^\circ$$

$$\text{Angle } PRQ = 100^\circ$$

Angle subtended by PQ in the other segment of the circle =  $180^\circ - 100^\circ = 80^\circ$

Then, angle  $POQ = 160^\circ$ .

Then, angle  $OPQ + \text{angle } OQP + \text{angle } POQ = 180^\circ$  (Angle sum property).

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Since, OP and OQ are the radii of the same circle,  
Angle OPQ = Angle OQP = 10°.

16. The difference between the amounts obtained by investing a sum at compound interest of 8% p.a. for two years and the same amount at simple interest of 5% p.a. for three years is Rs. 574. Find the total sum invested in both.

- a) Rs. 70000
- b) Rs. 42000
- c) Rs. 35000
- d) Rs. 21000

Answer: A

Let the principal amount deposited on one be Rs. 'P'.

According to question,

$$(P \times (1 + (R/100))^t) - (P + ((P \times r \times t) / 100)) = 574$$

$$(P \times (1.08)^2) - (P + (P \times 0.05 \times 3)) = 574$$

On solving the above equation, we get P = Rs. 35000.

Total sum invested in both = 2 × 35000 = Rs. 70000.

17. Find the value of  $\{1 + (1/\cot^2(55^\circ) - \sec^2(35^\circ) + (1/\sin^2(55^\circ) - \operatorname{cosec}^2(55^\circ))\}$

- a) 2
- b) -1
- c) 1
- d) 0

Answer: D

$$\{1 + (1/\cot^2(55^\circ) - \sec^2(35^\circ) + (1/\sin^2(55^\circ) - \operatorname{cosec}^2(55^\circ))\}$$

$$= \{1 - \sec^2(35^\circ) + 1/\cot^2(55^\circ) + 1/\sin^2(55^\circ) - \operatorname{cosec}^2(35^\circ)\}$$

$$= -\tan^2(35^\circ) + \tan^2(55^\circ) + \operatorname{cosec}^2(55^\circ) - \operatorname{cosec}^2(35^\circ)$$

$$= -\tan^2(35^\circ) + \tan^2(55^\circ) + \sec^2(35^\circ) - \sec^2(55^\circ)$$

$$= [\sec^2(35^\circ) - \tan^2(35^\circ)] - [\sec^2(55^\circ) - \tan^2(55^\circ)]$$

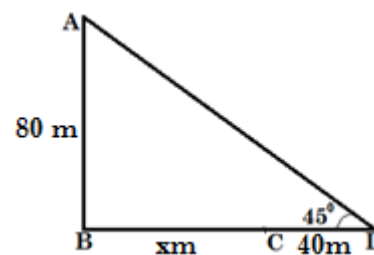
$$= 1 - 1$$

$$= 0$$

18. Govind is standing at the top of the building of height 80 metres. He saw his friend Sachit standing some metres away from the building on the ground. If Sachit moves 40 metres away from the building, the angle of elevation to the top of the building changes to 45°, then find the distance between the building and the point where Sachit was initially standing.

- a)  $40\sqrt{3}$  metres
- b) 40 metres
- c) 50 metres
- d) None of these

Answer: B



Let AB be the height of the building and Sachit is initially standing at point C.

Let BC = 'x' m

$$\tan(45^\circ) = 80/(x + 40)$$

$$x + 40 = 80$$

$$x = 40 \text{ m}$$

So, the required distance is 40 meters.

19. The average rainfall from Monday to Thursday is 85 mm and the average rainfall from Thursday to Sunday is 100 mm. If the rainfall on

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Thursday is 61 mm, then find the average rainfall in the week.

- a) 97 mm
- b) 98 mm
- c) 95 mm
- d) 96 mm

Answer: A

Total rainfall from Monday to Thursday =  $85 \times 4 = 340$  mm

Total rainfall from Thursday to Sunday =  $100 \times 4 = 400$  mm

Total rainfall in the week =  $340 + 400 - 61 = 679$  mm

Required average rainfall in the week =  $679/7 = 97$  mm

20. A rectangle of length 16 cm has an area of  $192 \text{ cm}^2$ . If the radius of the sphere is equal to the breadth of the rectangle, then find the volume of the sphere. [Use  $\pi = 3$ ]

- a)  $5878 \text{ cm}^3$
- b)  $5644 \text{ cm}^3$
- c)  $7432 \text{ cm}^3$
- d)  $6912 \text{ cm}^3$

Answer: D

Given, Length of rectangle = 16 cm

Area of rectangle =  $192 \text{ cm}^2$

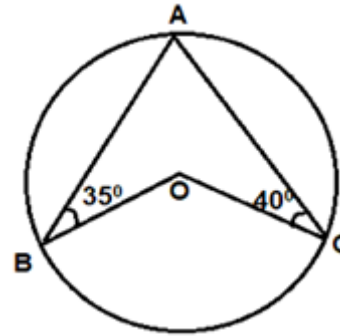
Breadth of rectangle =  $192/16 = 12$  cm

Volume of sphere =  $(4/3) \times \pi \times r^3$

=  $(4/3) \times 3 \times 12^3$

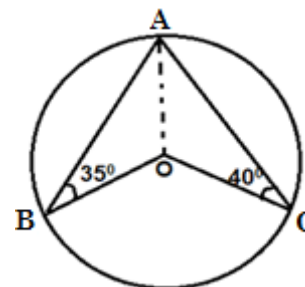
=  $6912 \text{ cm}^3$

21. In the given figure, O is the centre of the circle. If angle ABO =  $35^\circ$  and angle ACO =  $40^\circ$ , then find the value of angle BOC.



- a)  $135^\circ$
- b)  $140^\circ$
- c)  $150^\circ$
- d)  $145^\circ$

Answer: C



Since,  $OA = OB = OC = \text{radius}$

So, angle BAO =  $35^\circ$  and angle CAO =  $40^\circ$  (Angles corresponding to equal sides)

So, angle BAC =  $75^\circ$

Therefore, angle BOC =  $2 \times \text{angle BAC}$

=  $2 \times 75^\circ = 150^\circ$

22. The total surface area of the cylinder is  $1104 \text{ cm}^2$ . If the cost of painting the curved surface area of the cylinder is Rs. 2520 at the rate of Rs.  $3.5/\text{cm}^2$ , then find the radius of the cylinder. [Use  $\pi = 3$ ]

- a) 12 cm
- b) 7 cm

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c) 9 cm

d) None of these

Answer: D

Total surface area of the cylinder = 1104 cm<sup>2</sup>

Curved surface area of the cylinder =  $2520/3.5 = 720$  cm<sup>2</sup>

So,  $2\pi rh + 2\pi r^2 - 2\pi rh = 1104 - 720$

$2\pi r^2 = 384$

$r^2 = 384/6 = 64$

$r = 8$  cm

So, the radius of the cylinder is 8 cm.

23. If  $(p - q) = 8$ , then what is the value of  $q^3 - p^3 + 24pq$ ?

a) 729

b) 512

c) -512

d) -343

Answer: C

$p^3 - q^3 = (p - q)^3 + 3pq \times (p - q)$

$p^3 - q^3 = 8^3 + 3pq \times 8$

$p^3 - q^3 - 24pq = 512$

$q^3 - p^3 + 24pq = -512$

24. A work was assigned to me, my sister and my brother. I did 10% of the work, my sister did 20% of the remaining work and then my brother did 25% of the still remaining. What percentage of the work is yet to be completed?

a) 45%

b) 54%

c) 48%

d) 55%

Answer: B

Remaining work =  $(0.75) \times (0.80) \times (0.90) = 0.54$  or 54%

25. After two successive discounts of 10% and 12%, an article is sold for Rs. 6732. What is the marked price of the article?

a) Rs. 8500

b) Rs. 8600

c) Rs. 8400

d) Rs. 8250

Answer: A

The effective discount on giving successive discounts of 10% and 12% can be calculated as-  
 $10 + 12 - (10 \times 12)/100 = 20.80\%$

Let the marked price of the article be Rs. 'x'.

$0.792x = 6732$

$x = \text{Rs. } 8500$

So, the marked price of the article is Rs. 8500.

26. Train A of length 250 m crosses a pole in 25 seconds. Train B travelling at the same speed crosses a 400 m long platform in 1 minute. Find the time taken by train B to cross train A, if the train A is stationary.

a) 45 seconds

b) 42 seconds

c) 40 seconds

d) 48 seconds

Answer: A

Speed of train A =  $250/25 = 10$  m/sec

So, speed of train B = 10 m/sec

Let the length of train B be 'x' m.



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Then,  $(x + 400)/10 = 60$

$x = 200$  m

Total length of both trains =  $(250 + 200) = 450$  m

So, time taken by train B to cross train A =  $450/10 = 45$  seconds

27. Vishal was going from point A to point B, which is 50 km apart, against the stream. At the same time, Abhishek was going from point B to point A at the same speed. Find the speed of the current, if both of them meet at a distance of 18 km from point A and speed of Vishal's boat in still water was 30 km/hr.

- a) 7.5 km/hr
- b) 6 km/hr
- c) 8.4 km/hr
- d) 9 km/hr

Answer: C

Let speed of the current be 'x' km/hr.

Then, speed of Vishal's boat =  $(30 - x)$  km/hr

And, speed of Abhishek's boat =  $(30 + x)$  km/hr

According to the question,

$$18/(30 - x) = (50 - 18)/(30 + x)$$

$$540 + 18x = 1500 - 50x - 540 + 18x$$

$$50x = 420$$

$$x = 8.4 \text{ km/hr}$$

So, the speed of the current is 8.4 km/hr.

28. Mr. X spent 30% of his monthly income in health services, 20% on rent and 40% of the remaining monthly income on education of his children and he deposited rest of the amount in the bank for 2 years at 10% compound interest. If he

received interest of Rs. 5040, then find the monthly income of Mr. X.

- a) Rs. 70000
- b) Rs. 80000
- c) Rs. 72000
- d) Rs. 84000

Answer: B

Let the monthly income of Mr. X be Rs. 'x'.

Amount spent on health services = Rs. '0.3x'

Amount spent on rent = Rs. '0.2x'

Remaining amount =  $x - 0.3x - 0.2x =$  Rs. '0.5x'

Amount spent on education = 40% of 0.5x = Rs. '0.2x'

Remaining amount =  $0.5x - 0.2x =$  Rs. '0.3x'

According to question,

$$5040 = 0.3x \times [(1.1)^2 - 1]$$

$$5040 = 0.3x \times 0.21$$

$$0.063x = 5040$$

$$x = \text{Rs. } 80000$$

29. What is the smallest value that must be added to 709, so that the resultant is a perfect square?

- a) 8
- b) 12
- c) 20
- e) 32

Answer: C

$$25^2 = 625$$

$$26^2 = 676$$

$$27^2 = 729 > 709$$

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Therefore,  $729 - 709 = 20$  must be added to make it a perfect square.

30. If  $12A = 16B = 15C$ ; find A:B:C.

a) 12:16:15

b) 15:16:12

d) 20:15:16

d) 16:15:20

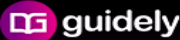
Answer: C

**Given**

$12A = 16B = 15C = \text{let } (240)$

$A = 20, B = 15, C = 16$

$A : B : C = 20 : 15 : 16$

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