



MANAV RACHNA INTERNATIONAL SCHOOL

Scholarship Test Paper

For

Students Studying in Grade –IX (Session 2022-23)

Moving to Grade X - Session 2023-24

Date: 26.11.2022

Duration: 2 Hours

M.M.: 100

KINDLY FILL IN THE DETAILS

Name: _____
Father's Name: _____
Mother's Name: _____
Examination Centre: Manav Rachna International School _____
Name and Signature of the Invigilator: _____

GENERAL INSTRUCTIONS:

This paper is divided into 4 sections

SECTION – A: Logic and Reasoning: 20 marks (Each question carries 2 marks)

SECTION – B: English: 20 marks (Marks have been mentioned against the questions)

SECTION – C: Math: 30 marks (Each question carries 1 mark)

SECTION – D: Science: 30 marks (Each question carries 1 mark)

- All sections are compulsory.
- Read each question carefully before answering.
- **Objective Questions need to be tick marked in the question paper itself and submitted.**
- **Subjective Questions need to be attempted in the answer sheets provided and submitted.**

SECTION A LOGIC AND REASONING

- Q1. A postman was returning to the post office which was in front of him in north. When the post office was 100 meters away, he turned to his left and moved 50 meters to deliver his last letter in Shanti villa. He then moved in the same direction for 40 meters, turned to his right and moved 100 meters. How many meters was he away from the post office?
a) 0 b) 90 c) 150 d) 100
- Q2. In a certain code language COMPUTER is written as RFUVQNPC. How will MEDICINE be written in that code language?
a) MFEDJJOE b) EOJDEJFM c) MFEJDJOE d) EOJDJEFM
- Q3. What should come in place of question mark (?) in the following number series?
132 156 ? 210 240 272
a) 196 b) 182 c) 199 d) 204

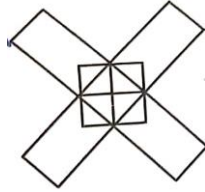
Q4. Find out the two signs to be interchanged for making following equation correct
 $5 + 3 \times 8 - 12 / 4 = 3$

- a) + and – b) – and / c) + and * d) + and /

Q5. In a queue of girls, Deepali is eighth from the right and Neha is twelfth from the left. When Deepali and Neha interchange positions, Neha becomes twenty -first from the left. Which of the following will be Deepali's position from the right?

- a) 21st b) 5th c) 17th d) 13th

Q6. How many rectangles does the following figure have? Select the correct option from the given alternatives.

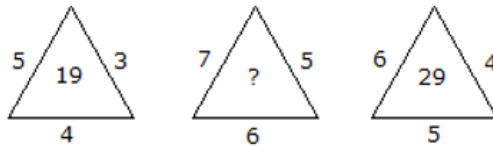


- a) 10 b) 12 c) 13 d) 14

Q7. To fill a tank, 25 buckets of water is required. How many buckets of water will be required to fill the same tank if the capacity of the bucket is reduced to two-fifth of its present?

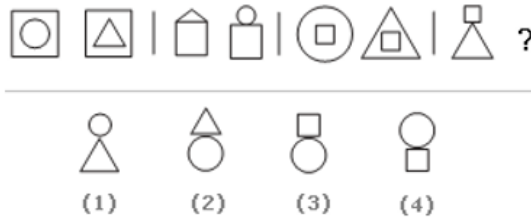
- a) 10 b) 35 c) 62.5 d) Cannot be determined

Q8. Which one will replace the question mark?



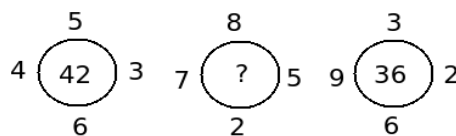
- a) 25 b) 37 c) 41 d) 47

Q9. Look carefully at the sequence of the symbols to find the pattern. Select the correct pattern.



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

Q10. Find the missing number:



- a) 50 b) 51 c) 48 d) 53

SECTION B
ENGLISH

Q1. Read the passage given below carefully and answer the questions that follow. (10 Marks)

The Indian media and entertainment industry is growing at a rapid pace. It is expected that the top 10 global list will soon enlist the Indian media and entertainment industry. The television segment accounted for the largest share in this market. However, OTT services, which are included in the digital segment are all set for disruption and are set to overtake the segment of print and films by the year 2025.

Though the OTT solutions are at a nascent stage, the services have been widely accepted in India. Online video providers see India as a great opportunity. The price of satellite and cable is very low in India and this is a major hindrance for the OTT services, as this limits the revenues from subscriptions. Television has deep penetration in rural India and there is still a long way to go for OTT solutions before television gets completely replaced by digital content distribution.

OTT content is easy to download directly and can be viewed by the users on demand using the Internet. The viewers can use any connected device like personal computers, smartphones, smart TVs, etc.

Amazon Prime Video, Netflix, Zee5, are some of the major players in this segment.

With these OTT solutions, Indian viewers no longer need to wait for blockbuster movies to release on the big screen. The shrinking time gap between the release of a movie in theatres and its availability on OTT platforms is giving the OTT providers an edge.

Today's viewers have access to mobile data at low tariffs, internet at high bandwidth, and smartphones with the best technology. The urge and wish to consume content while on-the-go is growing rapidly and this has created a huge opportunity for the OTT providers in India. As per the reports, in the year 2019, in only 9 months, 30 million users from rural India accessed the Internet for the first time. The video OTT market in India was valued at INR 42.5 Billion in FY 2019 and it is estimated to reach INR 237 Billion by FY 2025.

The untapped market is beyond what can be captured by a handful of players and that's the reason behind a high density of companies and start-ups in the OTT solutions space.

1. What does the author envisage in the opening paragraph? (2)
2. In paragraph 2, the author expresses his perspective that _____ (2)
3. The OTT providers have an upper hand in India because _____ (2)
4. Mention any two advantages of OTT content as discussed in paragraph 3. (2)
5. The expression 'The untapped market' (Paragraph 7) means the _____ (1)
a) market is ready for big changes.
b) market has reached an advanced stage.
c) market is largely unexploited so far.
d) there are no players in the market.
6. The antonym of 'disruption' (paragraph 1) is _____ (1)
a) disarray b) bollix c) sustenance d) severance

Q2. Writing Task**(10 Marks)**

While some believe that the present Generation is the most diverse, educated and idealistic generation, there are others who feel that this generation is most lazy, coddled and disconnected. Write a paragraph in 150 - 200 words on the topic 'Digging in to the Minds of Current Generation'.

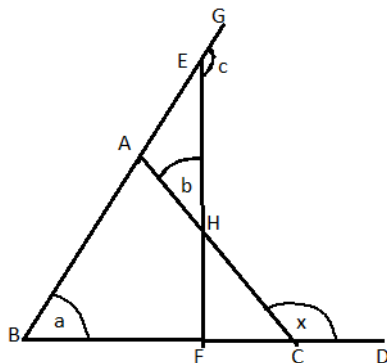
OR

"Social networks such as Twitter, Facebook, and Google hold the potential to alter civic engagement, thus essentially hijacking democracy, by influencing individuals toward a particular way of thinking."

Using the given stimulus, write a paragraph in 150 - 200 words on the topic 'Impact of Online Platforms on Democracy'.

**SECTION C
MATH**

- Q1. If $\sqrt{15 - x\sqrt{14}} = \sqrt{8} - \sqrt{7}$, then the value of x is
 a) 0 b) 1 c) 2 d) 4
- Q2. If $x^2 + y^2 + z^2 = 2(x - y - z) - 3$, find the value of $2x - 3y + 4z$.
 a) 0 b) 1 c) 2 d) 3
- Q3. 5 chairs cost as much as 12 stools, 7 stools as much as 2 tables, 3 tables as much as 2 sofas. If the cost of 15 sofas be ₹ 2625. Then the cost of a chair is:
 a) ₹ 85 b) ₹ 80 c) ₹ 75 d) ₹ 105
- Q4. In the following figure, the value of 'x' is _____

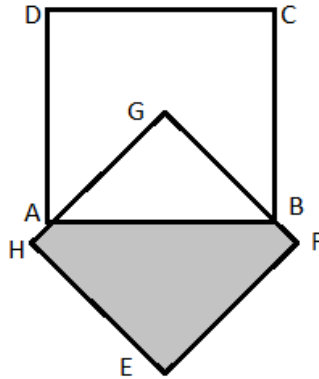


- a) $180^0 - a + b + c$ b) $180^0 - b + a + c$
 c) $180^0 - c + a + b$ d) None of these
- Q5. If the bisectors of the acute angles of a right triangle meet at O, then the angle at O between the two bisectors is
 a) 45^0 b) 95^0 c) 135^0 d) 90^0

Q6. In two triangles ABC and DEF, angle A = angle D. The sum of the angles A and B is equal to the sum of the angles D and E. If BC = 6cm and EF = 8cm, find the ratio of the areas of the triangles, ABC and DEF.

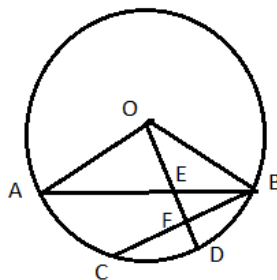
- a) 3 : 4 b) 4 : 3 c) 9 : 16 d) 16 : 9

Q7. Squares ABCD and EFGH are congruent, AB = 10cm, and G is the centre of square ABCD. The area of the shaded region in the plane is _____



- a) 100 cm² b) 125 cm² c) 75 cm² d) 175 cm²

Q8. In the figure, O is the centre of the circle. BC = OA, ∠OAB = 20° and ∠AED = 120°, then the value of ∠CFD___



- a) 50° b) 60° c) 70° d) 80°

Q9. A conical tent has 60 angle at the vertex. The ratio of its radius and slant height is :

- a) 1: 2 b) 1 : 3 c) 1 : √2 d) 1 : √3

Q10. The average age of m boys is b years and n girls is c years. Find the average age of all together.

- a) $\frac{mb - nc}{m - n}$ b) $\frac{mb - nc}{m + n}$ c) $\frac{mb + nc}{m + n}$ d) $\frac{mb + nc}{m - n}$

Q11. Probability of getting 53 Sundays and Mondays in a leap year is:

- a) $\frac{1}{365}$ b) $\frac{2}{365}$ c) $\frac{1}{7}$ d) $\frac{2}{7}$

Q12. If $2^a = 3^b = 6^c$ then

- a) $c = \frac{ab}{a+b}$ b) $c = \frac{a+b}{ab}$ c) $c = \frac{a-b}{a+b}$ d) $c = \frac{a+b}{a-b}$

Q13. $(1-\frac{1}{3})(1-\frac{1}{4})(1-\frac{1}{5})\dots\dots(1-\frac{1}{n}) =$

- a) $\frac{1}{n}$ b) $\frac{2}{n}$ c) $\frac{3}{n}$ d) $\frac{4}{n}$

Q14. If $x^2 - 1$ is a factor of $ax^4 + bx^3 + cx^2 + dx + e$ then

- a) $a + b + e = c + d$ b) $a + b + c = d + e$
 c) $b + c + d = a + e$ d) none of these

Q15. The rectangular sheet of metal, x cm by y cm has a square of side z cm cut from each corner. The sheet is then bent to form a tray of depth z cm. The volume of tray is

- a) $z(x-z)(y-z)$ cu.cm b) xyz cu.cm
 c) $z(x-2z)(y-2z)$ cu.cm d) $(x+y)z$ cu.cm

Q16. If $x^2 - 1$ is a factor of $ax^4 + bx^3 + cx^2 + dx + e$ then

- a) $a + b + e = c + d$ b) $a + b + c = d + e$
 c) $b + c + d = a + e$ d) none of these

Q17. In a right triangle with sides a and b and hypotenuse H , the altitude drawn on hypotenuse is p , then

- a) $a + b = H + p$ b) $ab = H \cdot p$ c) $ap = bH$ d) $a^2 + b^2 = H^2 + p^2$

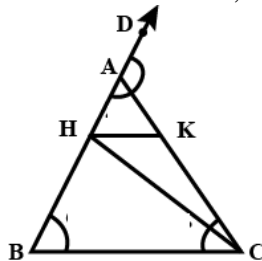
Q18. If the graph of the equation $3x + 5y = 15$ cuts the coordinate axis at P and Q then hypotenuse of right triangle POQ is of the length

- a) $\sqrt{17}$ units b) 5 units c) $\sqrt{34}$ units d) 18 units

Q19. A and B are friends. A is elder to B by 5 years. B's sister C is half the age of B while A's father D is 8 years older than twice the age of B. If the present age of D is 48 years, they find the present ages of A, B and C respectively (in years)

- a) 50, 25, 20 b) 40, 20, 15 c) 20, 15, 10 d) 25, 20, 10

Q20. If $\angle DAK = 140^\circ$, $AB = AC$ and $CH = CB$ and $HK \parallel BC$, then $\angle HCK =$



- a) 30° b) 35° c) 40° d) 45°

- Q21. In ΔPQR median MQ and NR intersect at O . If ar (ΔOQR) is 14 cm^2 the ar($PMON$) will be
 a) 7 cm^2 b) 14 cm^2 c) 21 cm^2 d) 28 cm^2

Q22. $\sqrt{\sqrt{3} - \sqrt{4 + \sqrt{5} + \sqrt{17 - 4\sqrt{15}}}} = \underline{\hspace{2cm}}$

- a) 1 b) $\sqrt{-1}$ c) -1 d) $\sqrt{5}$

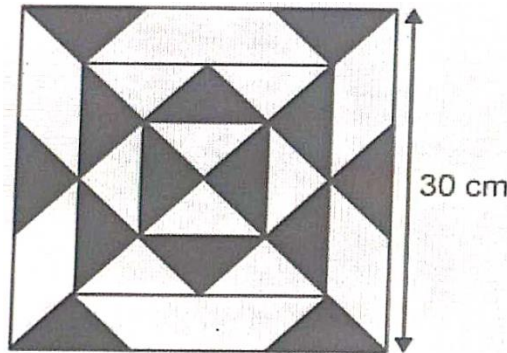
- Q23. If $x = \frac{a-b}{a+b}$, $y = \frac{b-c}{b+c}$, $z = \frac{c-a}{c+a}$, then the value of $\frac{(1+x)(1+y)(1+z)}{(1-x)(1-y)(1-z)}$ is

- a) abc b) $a^2b^2c^2$ c) 1 d) -1

- Q24. A circle is passing through three vertices of a rhombus of side 8cm and its centre is the fourth vertex of the rhombus. Find the length of the longest diagonal of the rhombus (in cm)

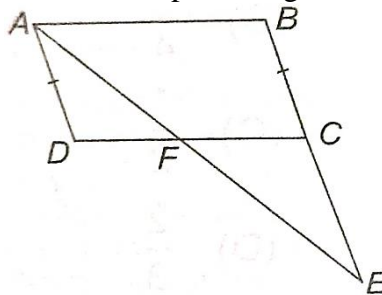
- a) $8\sqrt{3}$ b) $4\sqrt{3}$ c) $6\sqrt{3}$ d) $2\sqrt{3}$

- Q25. The design on a tile is made of isosceles triangles. The side lengths of the triangles are 6 cm, 6 cm and 8 m. How much area of the tile is black?



- a) 24 cm^2 b) $9\sqrt{7} \text{ cm}^2$ c) 90 cm^2 d) $112\sqrt{5} \text{ cm}^2$

- Q26. ABCD is a parallelogram in which BC is produced to E such that $CE = BC$. AE intersects CD at F. If area of ADFA is 3 cm^2 , then find the area of parallelogram ABCD.

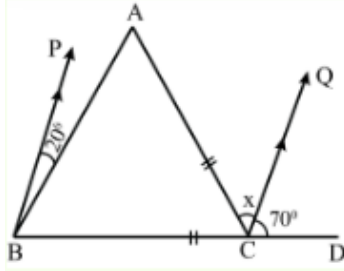


- a) 6 cm^2 b) 12 cm^2 c) 9 cm^2 d) 18 cm^2

- Q27. The value of 'y' if $4^{2y-1} - 16^{y-1} = 384$

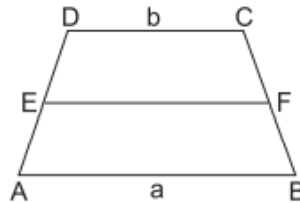
- a) $\frac{7}{4}$ b) $\frac{11}{4}$ c) $\frac{11}{4}$ d) $\frac{13}{4}$

Q28. In figure if $BP \parallel CQ$ and $AC = BC$, then the measure of x is ____



- a) 100° b) 40° c) 20° d) 300

Q29. In the given figure, ABCD is a trapezium in which $AB \parallel DC$ such that $AB = a$ cm and $DC = b$ cm. If E and F are the midpoints of AD and BC respectively then $\text{ar}(ABFE) : \text{ar}(EFCD)$ is _____.



- a) $a:b$ b) $(a+3b) : (3a+b)$
 c) $(3a+b) : (a+3b)$ d) $(2a+b) : (3a+b)$

Q30. The average monthly income of certain agricultural workers is S and that of other workers is T . The numbers of agricultural workers are 11 times that of the other workers. Then the average monthly income of all the workers is ____

- a) $\frac{S+T}{2}$ b) $\frac{S+11T}{2}$ c) $\frac{1}{11S} + T$ d) $\frac{11S+T}{12}$

**SECTION D
SCIENCE**

Q1. An unripe green fruit changes colour when it ripens. The reason being:

- a) Chromoplasts changes to chlorophyll b) Chromoplasts changes to chromosomes
 c) Chromosomes changes to chromoplasts d) Chloroplast changes to chromoplasts

Q2. Select the odd group from the following.

- a) Chlamydomonas, Paramecium, bacteria b) Fungi, Plants, Animals
 c) Sperm, Neuron, Amoeba d) Schleiden, Schwann, Virchow

Q3. Select the incorrect statement.

- a) Osmosis is a slow process, occurs down the concentration gradient and does not expend energy.
 b) Electron microscope uses very high voltage electricity. It uses electromagnets instead of glass lenses and a beam of electrons instead of light.

- c) A semipermeable membrane does not allow both solvent and solute molecules to pass through it.
- d) Active transport of materials is rapid and usually occurs against the concentration gradient involving carrier proteins and energy in the form of ATP.

Q4. Which of the following are correctly matched?

- (i) Dense regular connective tissue - Blubber
- (ii) Cartilage – Pinnae of Ear
- (iii) Areolar Tissue- Packaging tissue
- (iv) Cuboidal Epithelium- Kidney tubules epithelium
- (v) Cardiac muscle- Branched and multinucleate
- (vi) Striated Muscle-Unbranched and uninucleate

- a) (ii), (iii) and (iv) only
- b) (ii), (iv) and (vi) only
- c) (iii) and (iv) only
- d) (iii) and (v) only

Q5. Assertion (A): Endoplasmic reticulum acts as an intracellular transport system.

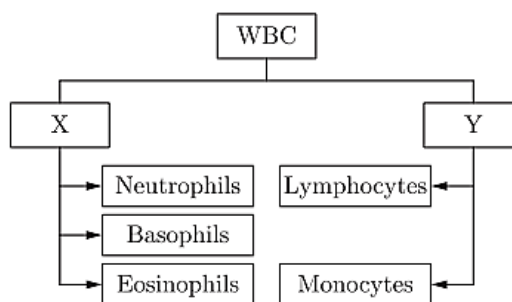
Reason (R): It transports products of cell to the outside and RNA into the cytoplasm from nucleus.

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

Q6. A bomb of mass 3mkg explodes into two pieces of mass m kg and 2m kg. If the velocity of m kg mass is 16 m/s, the total kinetic energy released in the explosion is:

- a) 192 mJ
- b) 96 mJ
- c) 384 mJ
- d) 768 mJ

Q7. Identify X and Y in the given flow chart.



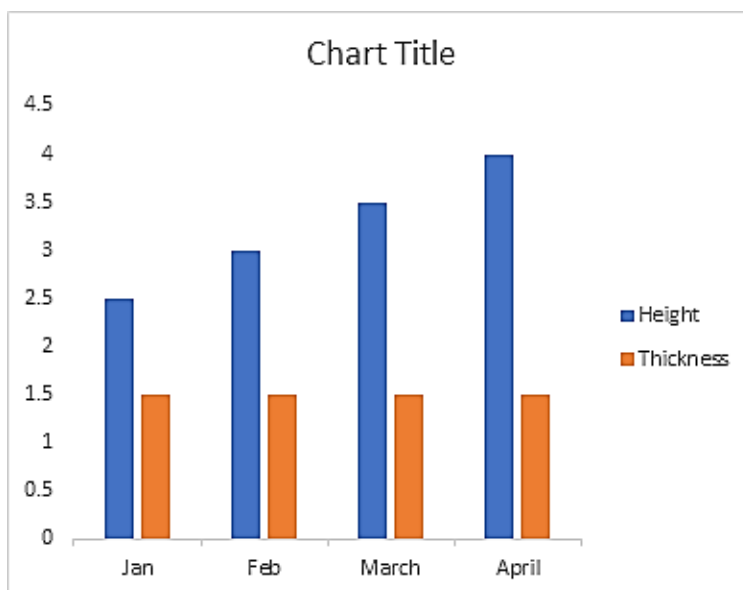
- a) X-Erythrocytes, Y-Leucocytes
- b) X-Granulocytes, Y-Granulophils
- c) X-Granulocytes, Y-Agranulocytes
- d) X-Agranulophils, Y-Granulocytes

Q8. Assertion (A): Vascular or conductive tissue is a distinctive feature of complex plants.

Reason (R) : Vascular tissue has made survival of complex plants possible in terrestrial environment.

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

- Q9. The given graph shows the growth of a plant in terms of its height and thickness
 Fill in the blanks based on the graphical information:
 In the plant, ____ (i)____ meristem is working while ____ (ii)____ meristem is not Working



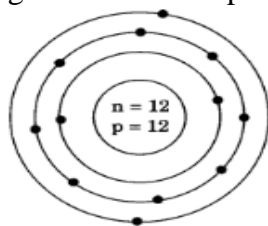
- a) (i) lateral (ii) apical
 b) (i) intercalary (ii) apical
 c) (i) apical (ii) lateral
 d) (i) lateral (ii) intercalary
- Q10. In order to obtain the good quality and quantity of yield in dairy and poultry farming which of the following management practices should be followed?
 i. Proper housing facilities having hygienic conditions
 ii. Preventing the entrance of sunlight into the cattle farms
 iii. Prevention and control of diseases and pests
 iv. Maintenance of proper temperature
- a) (i) and (iii) b) (i), (ii) and (iii) c) (i), (iii) and (iv) d) All of the above
- Q11. Match the following

| Column I | | Column II | |
|----------|---------------------|-----------|--------------------|
| A. | Adipose Tissue | I | Fibreless matrix |
| B. | Cuboidal Epithelium | II | Abundant fat cells |
| C. | Hyaline cartilage | III | Thyroid follicles |
| D. | Blood | IV | Tracheal rings |

Choose the correct answer from the option

- a) A- II; B-I; C-IV; D-III b) A-II; B-III; C-IV; D-I
 c) A-I; B-II; C-III; D-IV d) A-II; B-III; C-I; D-IV
- Q12. The atomicities of ozone, sulphur, phosphorus and argon are respectively:
 a) 8, 3, 4 and 1 b) 1, 3, 4 and 8 c) 4, 1, 8 and 3 d) 3, 8, 4 and 1

- Q13. Boiling points of a few gases found in air are given below:
- | Gas | Krypton | Neon | Nitrogen | Oxygen |
|--------------------------------------|---------|------|----------|--------|
| Boiling point ($^{\circ}\text{C}$) | -152 | -246 | -196 | -183 |
- If liquid mixture is fractionally distilled, the order of gases distilling out is
- a) Krypton, Neon, Nitrogen, Oxygen b) Neon, Nitrogen, Oxygen, Krypton
 c) Nitrogen, Neon, Oxygen, Krypton d) Oxygen, Neon, Nitrogen, Krypton
- Q14. If 1.4g of calcium oxide is formed by the complete decomposition of calcium carbonate, then the amount of calcium carbonate taken and the amount of carbon dioxide formed will be respectively:
- a) 2.2g and 1.1g b) 1.1g and 2.5g c) 2.5g and 1.1g d) 5.0g and 1.1g
- Q15. The ion of an element has 3 positive charges. Mass number of the atom is 27 and the number of neutrons is 14. What is the number of electrons in the ion?
- a) 13 b) 10 c) 14 d) 16
- Q16. Two nuclides X and Y are isotonic to each other with mass number 70 and 72 respectively. If the atomic number of X is 34, then that of Y would be
- a) 32 b) 34 c) 36 d) 38
- Q17. A has 13 protons, 13 electrons and 14 neutrons. B has 12 protons, 12 neutrons and 12 electrons. Formula of nitride formed by A and B are respectively
- a) AN, BN b) A_3N , BN_3 c) AN, B_3N_2 d) AN, B_2N_3
- Q18. As the pressure of the system changes, boiling points can change in which direction?
- a) increase b) decrease c) both d) neither
- Q19. The size of colloidal particles ranges between
- a) $10^{-7} - 10^{-8}$ cm b) $10^{-9} - 10^{-11}$ cm c) $10^{-4} - 10^{-7}$ cm d) $10^{-2} - 10^{-3}$ cm
- Q20. Mixture of sand and sulphur may best be separated by:
- a) Fractional crystallization from aqueous solution
 b) Magnetic method
 c) Fractional distillation
 d) Dissolving in CS_2 and filtering
- Q21. Identify the ion of an element for the given number of protons and neutrons.



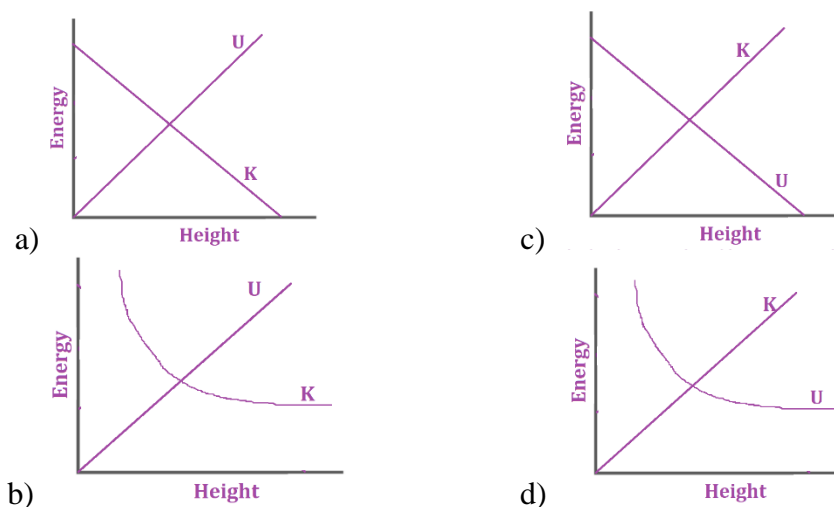
- a) X^+ b) X^- c) X^{2+} d) X^{3+}

- Q22. The mass of a body is increased by 10% and its velocity is decreased by 10%. The percentage change in its momentum is:
- a) zero b) 1% decrease c) 1% increase d) cannot say
- Q23. A ball of mass 50g is thrown upwards. It rises to a maximum height of 100m. At what height its KE is reduced to 70%?
- a) 30 m b) 40 m c) 60 m d) 70 m
- Q24. A 4 kg mass and 1 kg mass are moving with equal kinetic energies. The ratio of their momenta is:
- a) 1:2 b) 1:1 c) 2:1 d) 4:1
- Q25. If the radius of earth is decreased by 1%, its mass remaining the same. The acceleration due to gravity on the surface of earth will:
- a) increase by 1% b) increase by 2 %
c) decrease by 1 % d) decrease by 2 %
- Q26. Match the following items given in Column I and Column II.

| Column I | Column II |
|--|-------------------------------------|
| p) A high jumper falls on very thick cushion. | i) Newton's third law |
| q) Dry leaves fall on shaking branches of a tree. | ii) Law of conservation of momentum |
| r) A body with greater mass moves with lesser velocity, after collision. | iii) Inertia of rest |
| s) A boat moves backward when we jump out of it. | iv) Newton's second law |

- a) p-iv, q-iii, r-ii, s-i b) p-ii, q-iii, r-iv, s-i
c) p-iv, q-ii, r-iii, s-I d) p-ii, q-i, r-iii, s-iv

- Q27. Which of the following graphs show correct relation between K.E (K), P.E (U) and height (H) of an object from the ground?



Q28. Choose the correct statement on the basis of given Assertion and Reason.

Assertion: The density of a liquid depends upon the nature and temperature of the liquid.

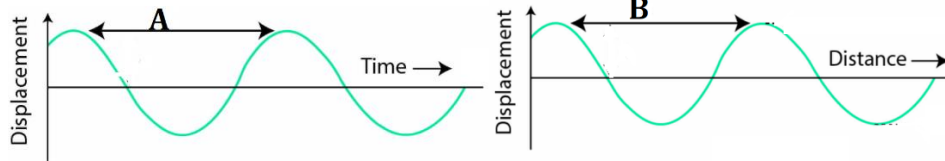
Reason: The volume of the liquid depends upon temperature.

- a) Both Assertion and Reason are correct and reason is the correct explanation for assertion.
- b) Both Assertion and Reason are correct but Reason is not the correct explanation for Assertion.
- c) Assertion is true but Reason is false.
- d) Assertion is false but Reason is true.

Q29. Rishi dropped a pebble from the top of a building 500 m high into the swimming pool at the ground floor. When will Rishi hear the splash sound? (Given, $g=10 \text{ ms}^{-2}$ and speed of sound is 340 m/s.)

- a) 10 s
- b) 11.47 s
- c) 1.47 s
- d) 50 s

Q30. Identify the property of sound wave represented by A and B:



- a) A-Amplitude, B-Time period
- b) A-Time period, B-Amplitude
- c) A-Wavelength, B-Frequency
- d) A-Time period, B-Wavelength

