ALL INDIA RPS OLYMPIAD 2021

(Organized by RPS Education Society Mahendergarh Haryana)

M.M. 60   **Class 8th**   **Time: 60 Minutes**

English (15)

Direction (Q1 to 6): Choose the most appropriate option.

Q. 1   Everything he told me, I _____ before.

(a) had heard   (b) heard   (c) have heard   (d) will have heard

Q. 2.   Do you take pride _____ your appearance?

(a) in   (b) about   (c) for   (d) of

Q 3.   He used to pray everyday, believing that as long as he _____ so, he would be safe.

(a) is doing   (b) does   (c) did   (d) will do

Q 4.   The doctor knew that the patient _____ die.

(a) should   (b) would   (c) will   (d) may

Q5.   Nothing but birds _____ seen.

(a) are   (b) are being   (c) is   (d) have been

Q 6.   Oh ! I _____ have loved to go with you all.

(a) could   (b) should   (c) might   (d) would

Direction (Q7- to 9) Choose the option which best expresses the meaning of each underlined idiom/phrase.

Q. 7.   The proposals were hanging like **Damocles' Sword** over our heads.

(a) to immediately work very hard and successfully at a new activity.

(b) to become too excited and eager about something.

(c) an impending but uncertain danger.

(d) something that you say in order to emphasize that you are agree with what someone has just said.

Q. 8.   He **gives himself the air of** a rich man.

(a) enjoys being   (b) tries to hide the fact that he is

(c) pretends to be   (d) boasts over the fact that he is

Q. 9.   He is **playing ducks and drakes** with the wealth of his father.

(a) spending economically   (b) spending recklessly

(c) spending diligently   (d) spending carefully

Direction (Q10-11) Choose the correct alternative which may improve the sentence. In case no improvement is needed your answer is (d)

Q. 10. **I and my parents** live together.

(a) Me and my parents   (b) My parents and I   (c) My parents and me   (d) No improvement

Q.11.   Though I am tall, I feel inferior **from others.**

(a) upon others   (b) to others   (c) than others   (d) No improvement

Direction (Q12-13) A sentence has been given in Active voice. Out of the four alternatives, select the one which best expresses the same sentence in Passive voice.

Q. 12. I saw him conducting the rehearsel.

(a) He was seen conducting the rehearsel.

(b) I saw the rehearsel to be conducted by him.

(c) He was seen by me to conduct the rehearsel.

(d) I saw the rehearsel being conducted by him.

Q. 13. People claim to have seen the suspect in several cities.

(a) The suspect is being seen in several cities.

(b) The suspect has seen the people in several cities.

(c) The suspect is claimed to have been seen in several cities.

(d) The suspect was seen by people in several cities.

Direction (Q14-15) A sentence has been given in Direct speech. Out of the four alternatives, select the one which best expresses the same sentence in Indirect speech.

Q. 14. Mahesh said, "O that I were a child again!"

(a) Mahesh exclaimed with wonder that he was a child again.

(b) Mahesh wondered that were he a child again.

(c) Mahesh strongly wished that he had been a child again.

(d) Mahesh prayed that he were a child again.

Q.15. She says, "Now I shall read this book."

(a) She says that now she shall read that book.

(b) She says that now she should read that book.

(c) She says that now she will read that book.

(d) She says that now she will read this book.

Maths (15)

Q 16. If $x^2 + 7x - 30 = (x+a)(x-b), a, b > 0,$ *then find* $2a + b.$

(a) 23   (b) 18   (c) 17   (d) 13

Q. 17 If $5^{x-1} + 5^x + 5^{x+1} = 775$, then the value of x, where x is a positive integer, is

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

Q 18. If $\sqrt{(0.16 \times 0.4x)} = 0.4 \times 0.2\sqrt{y}.$ Then, the value of $\dfrac{x}{y}$ is

(a) 0.001   (b) 0.1   (c) 0.01   (d) 1

Q. 19 A merchant has 120 kg of rice. He sells a part of it at a profit of 10% and the rest at a profit of 25%. He gains 15% on the whole. Quantity of rice he sold at 25% gain is

(a) 30 kg   (b) 40 kg   (c) 50 kg   (d) 55 kg

Q 20. The difference of the area of the circumscribed and the inscribed square of a circle is 35 sq.cm.

Find the area of the circle.

(a) 35 sq. cm

(b) 50 sq. cm

(c) 55 sq. cm

(d) 70 sq. cm
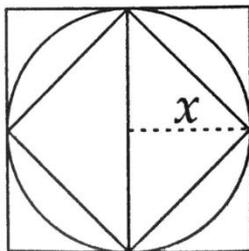
Q. 21 If the cost price of 21 copies of a book are the same as the selling price of 18 copies of the book, then gain percent is

(a) $14\frac{2}{7}\%$ (b) $16\frac{2}{3}\%$ (c) $33\frac{1}{3}\%$ (d) $23\frac{1}{3}\%$

Q.22. If 50% of (x-y) = 30% of (x+y) then x= ky find the value of 10k

(a) 10 (b) 40 (c) 30 (d) 80

Q. 23 Solve for x :

$$\frac{2}{5}(4x-1)-\left[4x-\left(\frac{1-3x}{2}\right)\right]=\frac{x-7}{2}$$

(a) 0 (b) $\frac{9}{11}$ (c) $\frac{2}{11}$ (d) -1

Q. 24 Vidhushi is 8 times as old as her grandson. Four years ago, Vidhushi was 12 times as old as her grandson. Find the difference between their present ages.

(a) 88 years (b) 77 years (c) 11 years (d) 99 years

Q. 25. If $x^2+ y^2= 47$ and $xy=\frac{19}{2}$, then the value of $2 (x+y)^2 + (x -y)^2$ is

(a) 160 (b) 270 (c) 226 (d) 86

Q. 26. A man sells an article at a loss of 10%. If he had bought it at 20% less and sold it for Rs.44 more, he would have gained 40%. The cost price of the article is:

(a) Rs. 150 (b) Rs. 200 (c) Rs. 250 (d) Rs. 400

Q. 27 An amount at certain rate of compound interest becomes Rs. 700 in 3 years and Rs. 756 in 4 years rate of interest is:

(a) 7% (b) 10% (c) 8% (d) 10.5%

Q. 28. Number of congruent faces of a cube is

(a) 4 (b) 6 (c) 8 (d) 9

Q. 29. The average age of a class of 39 students is 15 years. If the age of the teacher be included, then the average increases by 3 months. Find the age of the teacher.

(a) 25 years (b) 23 years (c) 22 years (d) 24 years

Q. 30. Simplify: $\dfrac{x^2-(y-z)^2}{(x+z)^2-y^2}+\dfrac{y^2-(x-z)^2}{(x+y)^2-z^2}+\dfrac{z^2-(x-y)^2}{(y+z)^2-x^2}$
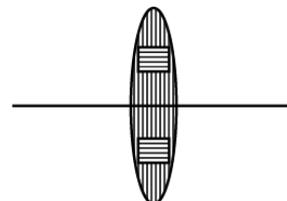
(a) −1 (b) 0 (c) 1 (d) 2

Science (15)

Q. 31 The layered lens shown below is made of two different transparent materials

Object is placed on its axis. The object will form

(a) One image (b) Infinite images

(c) No image (d) Two image

Q. 32 In a room, artificial rain is produced at one end and a strong source of white light is switched on at the other end. To observe the rainbow an observer must

(a) Look anywhere in the room (b) Look towards the source

(c) Look towards the raindrop (d)Look in a direction equally inclined to the source of raindrop.

Q. 33 A boy set up an experiment as shown in diagram. As he slide the magnet across the wooden board the ball bearing followed the magnet is movement and direction. What does the experiment show?
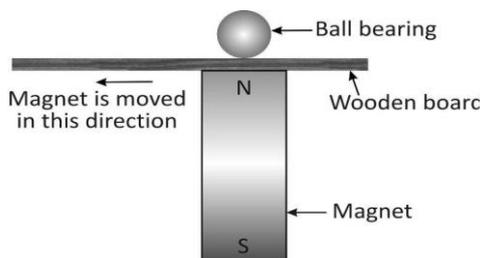
(A) Magnetic force can be seen due to friction between ball bearing and wooden board

(B) Friction and gravity help to move the ball bearing

(C) The ball bearing is made of a magnetic substance

(D) Magnetic force can pass through the wooden board.

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

Q. 34 Observe the given diagram and select the correct option.
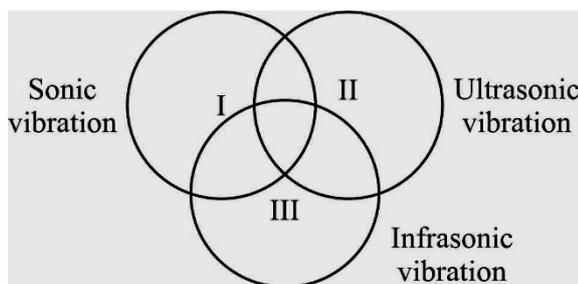
	I	II	III
(a)	Human	Bat	Rhinoceros
(b)	Rhinoceros	Human	Bat
(c)	Bat	Rhinoceros	Human
(d)	Elephant	Bat	Human

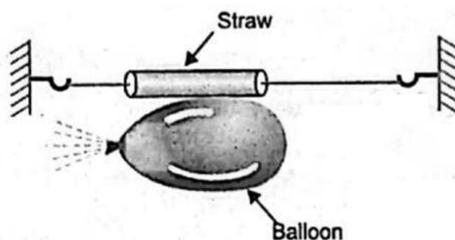Q. 35 Figure shows a balloon filled with air and a light straw attached to the balloon with a tape. When the thread closing the mouth of balloon is opened, air comes out of the balloon to the left side. To conserve the linear momentum of the system:

(a) straw and balloon will move to right side

(b) straw and balloon will move to left side

(c) straw will move to the right side and the balloon to the left side

(d) straw will move to the left side and the balloon to the right side.

Q. 36 A few polymers are grouped together on the basis of some common property as follows:

Group I: Rayon, acrylic, nylon, jute

Group II: PVC, melamine, Teflon

Group III: Polycot, terrywool, acrylic

Choose the odd one out in group I, II and III.

	I	II	III
(a)	Rayon	Teflon	terrywool
(b)	nylon	Teflon	acrylic
(c)	jute	melamine	terrywool
(d)	jute	melamine	acrylic

Q. 37 10 ml of freshly prepared iron sulphate solution was taken in each of four test tubes. Strips of copper, iron, zinc and aluminium were introduced in these tubes. A black residue was obtained in two of them. The right pair of metals forming the precipitates is:

(a) copper and zinc   (b) aluminium and copper

(c) iron and aluminium   (d) zinc and aluminium

Q. 38 A mixture of sodium chloride and ammonium chloride can be separated by:

(a) Extraction with hot water   (b) Sublimation

(c) Steam distillation   (d) Fractional distillation

Q. 39 An element 'A' catches fire in water and burns with a golden yellow flame in air. It reacts with another element 'B' present in group 17 to give a product 'C' an aqueous solution of product 'C' on electrolysis gives a compound 'D' and liberates hydrogen. A, B, C and D are respectively:

(a) A – Sodium, B – Sodium chloride, C – Chlorine, D – Sodium hydroxide

(b) A – Chlorine, B – Sodium hydroxide, C – Sodium, D - Sodium chloride

(c) A – Sodium, B – Chlorine, C – Sodium chloride, D - Sodium hydroxide

(d) A – Sodium hydroxide, B – Chlorine, C – Sodium chloride, D – Sodium

Q. 40. Which of the following is correct regarding the reaction of fluorine with water?

$2F_2(g) + 2H_2O(l) \rightarrow 4H^+ (aq) + 4F^- (aq) + O_2(g)$

(a) Fluorine is oxidized to F^- (b) Water is oxidized to O_2

(c) Water is reduced to H^+ (d) Oxidation state of fluorine does not change

Q. 41 Who coined the term 'protoplasm' for the fluid substance of the cell?

(a) Leeuwenhoek   (b) Purkinje   (c) Robert Brown   (d) Robert Hooke

Q. 42. Cell organelles that contain their own genetic material _____

(i) mitochondria   (ii) plastids   (iii) vacuoles   (iv) lysosomes

(a) both 'i' & 'iii'   (b) both 'i' & 'ii'   (c) both 'iii' & 'iv'   (d) both 'i' & 'iv'

Q. 43. The organism which does not reproduce by binary fission is _____.

(a) amoeba   (b) plasmodium   (c) paramecium   (d) leishmania

Q. 44. Which of the following is a correct sequence of events that occur in human reproduction?

(a) Gametogenesis→ Gestation→ Insemination→ Fertilisation→Implantation→ Parturition

(b) Gametogenesis→ Insemination→Fertilisation→ Implantation→ Gestation→ Parturition

(c) Gametogenesis→ Insemination→ Gestation→ Fertilisation→ Implantation→Parturition

(d) Gestation→ Gametogenesis →Insemination→Implantation→Fertilisation→Parturition

Q. 45. Plasmolysis in a plant cell is:

(a) Breakdown of plasma membrane in hypotonic medium

(b) Shrinkage of cytoplasm in hypertonic medium.

(c) Shrinkage of nucleoplasm in hypotonic medium

(d) Shrinkage of cytoplasm in hypotonic medium.

Aptitude (15)

Q. 46. Find the wrong term in the given sequence:

7, 4, 5, 9, 20, 51, 160.5

(a) 4   (b) 5   (c) 51   (d) 20

Q. 47. Find the number of triangles in the given figure.

    (a) 22   (b) 24   (c) 26   (d) 28

Q. 48. If March 27, 2011 was Sunday what was the day on June 27, 2012?

    (a) Monday   (b) Wednesday   (c) Sunday   (d) Saturday

Q. 49. If ASSISTANT = 36, MANAGER = 34 and STAFF = 14, then DIRECTOR = ?

    (a) 85   (b) 62   (c) 35   (d) 80

Q. 50. In a family each daughter has the same number of brothers as she has sisters and each son has twice as many sisters as he has brothers. How many sons are there in the family?

    (a) 2   (b) 3   (c) 4   (d) 5

Q. 51. The post office is in the East of the school while my house is in the South of the school. The market is in the North of the post office. If the distance of the market from the post office is equal to the distance of my house from the school. In which direction is the market with respect to my house?

    (a) North   (b) East   (c) North – east   (d) South – west

Q. 52. A watch which gains uniformly is 2 minutes slow at noon on Monday and is 4 min 48 sec fast at 2 p.m. on the following Monday. When was it correct?

    (a) 2 p.m. on Tuesday   (b) 2 p.m. on Wednesday

    (c) 3 p.m. on Thursday   (d) 1 p.m. on Friday

Q. 53 How many odd days are there in 300 years?

    (a) 5   (b) 3   (c) 1   (d) 0

Q. 54. If a certain language ITNIETAM is the code for INTIMATE, which word has the code for TREVNIETARBI

    (a) INVRETIBRATE   (b) INVERTIBARTE   (c) INVERTIBRETA   (d) INVERTIBRATE

Q. 55. If '×' stands for addition', '< for subtraction, '+ for division', '> for multiplication,' ' – for 'equal to' , ' ÷ for 'greater than' and '=' for 'less than', then state which of the following is true?

    (a) $3 \times 4 > 2 - 9 + 3 < 3$ (b) $5 \times 3 < 7 \div 8 + 4 \times 1$

    (c) $5 > 2 + 2 = 10 < 4 \times 8$ (d) $3 \times 2 < 4 \div 16 > 2 + 4$

Q. 56. In a class of 60, where girls are twice that of boys, Kamal ranked seventeenth from the top. If there are 9 girls ahead of Kamal, how many boys are after him in rank?

    (a) 3   (b) 7   (c) 12   (d) 23

Q. 57 216 cubes of similar size are arranged in the form of the bigger cube (6 cubes on each side i.e. 6 x 6 x 6) all the exposed surfaces are painted. How many small cubes are there which have two faces painted.

(a) 144   (b) 125   (c) 96   (d) None of these

Q. 58. In each of the questions below are given three statements followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statement disregarding commonly known facts.

Statements: Some boxes are trees.

Some trees are horses.

All horses are fruits.

Conclusions: I. Some fruits are boxes.   II. Some fruits are trees.

III. Some horses are boxes   IV. No fruits are boxes.

(a) None follows   (b) Only either II or IV follows

(c) Only either I or IV and II follows   (d) Only either I or III and IV follow

Q. 59. Four different positions of the dice are shown below. The symbol on the face opposite to the face showing # is

(a) ÷   (b) −   (c) +   (d) ×

Q. 60. Find the missing character:

(a)1560   (b)1672   (c)1276   (d)1780

SPACE FOR ROUGH WORK