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# RRB Group D 2022 Prev. Yr. Paper (22 Aug 2022) (Shift 1)

**Total Time:** 1 Hour : 30 Minute **Total Marks:** 100

## Instructions

1. Test will auto submit when the Time is up.
2. The Test comprises of multiple choice questions (MCQ) with one or more correct answers.
3. The clock in the top right corner will display the remaining time available for you to complete the examination.

### Navigating & Answering a Question

1. The answer will be saved automatically upon clicking on an option amongst the given choices of answer.
2. To deselect your chosen answer, click on the clear response button.
3. The marking scheme will be displayed for each question on the top right corner of the test window.

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# Test

1. In today's scenario, which change seen in human attitude has helped in decreasing the production of non-biodegradable waste to some extent? **(+1, -0.33)**

   **a.** Use and throw attitude

   **b.** Use of Plastic in Packaging

   **c.** Use of jute bags

   **d.** Improvement in lifestyle

---

2. The following chart shows the percentage of expenditure of Mr. Kumar on various heads in a month. The total monthly expenditure of the house is Rs. 1,12,000 (Rupees One lac twelve thousand only). Study the chart and answer the question. **(+1, -0.33)**

   What is the total expenditure of Mr. Kumar on Petrol and Water taken together during this month?

   **a.** Rs. 52220

   **b.** Rs. 54440

   **c.** Rs. 52640

   **d.** Rs. 51600

---

3. Find the value of $2\sec^2 A + 4\text{cosec}^2 A - 2\tan^2 A - 4\cot^2 A$. **(+1, -0.33)**

   **a.** 2

   **b.** 6

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c. 8

d. 4

---

4. The resistance of a conductor is NOT dependent on: **(+1, -0.33)**

a. area of cross section of the conductor

b. current flowing through the conductor

c. temperature of the conductor

d. length of the conductor

---

5. Which of the following characteristics is associated with deserts? **(+1, -0.33)**

a. Alluvial fan

b. Moraines

c. Tarn pools

d. Barchans

---

6. A potential difference of 5 V when applied across a conductor produces a current of 2.5 mA. The resistance of the conductor (in Ω) is: **(+1, -0.33)**

a. 2000

b. 200

c. 2

d. 20

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7. In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer. **(+1, -0.33)**

Question: 7 6 & 5 8 % 6 2

**a.** ATYYDLTS

**b.** ATUMDLTS

**c.** ADUMTLTS

**d.** STUMDLTA

8. Seven boxes, P, Q, R, S, T, U and V, are kept one over the other but not necessarily in the same order. R is kept just below T. V is kept just above Q, which is just above S. Only three boxes are between V and U. V is the topmost box. Which is the correct position of Box P? **(+1, -0.33)**

**a.** Immediately below U

**b.** Immediately above Q

**c.** Second box from the top

**d.** Immediately below S

9. Mahesh started from a point facing towards the west, turned left and walked for X m, then turned right and walked for 22 m, then turned left and walked for 11 m, and then turned left again and walked for 22 m. He is exactly 21 m away from the starting point. What is the value of X which was covered in the first leg of his journey? **(+1, -0.33)**

(All turns are 90 degree turns only)

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a. 12 m

b. 21 m

c. 10 m

d. 11 m

---

**10.** Alcohols react with sodium leading to the evolution of which of the following gases? **(+1, -0.33)**

a. Carbon dioxide

b. No evolution of Gas

c. Oxygen

d. Hydrogen

---

**11.** The magnification 'm' produced by a convex lens when the object is placed at a distance 2f from the lens is given by: **(+1, -0.33)**

a. m = +1

b. m = -1

c. m = -2

d. m = +2

---

**12.** Which of the following represents the closest approximate value that should come in place of the question mark (?) in the following equation? **(+1, -0.33)**

$(\sqrt{360} + 12 \div 6 \times 3 - \sqrt{170}) \div 2 = ?$

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a. 6

b. 4

c. 8

d. 5

---

13. Starting from a point X, Shekhar walks 70 m towards the north. Then, he takes a left turn and walks 150 m. Then, he takes a left turn and walks 70 m. Finally, he takes a left turn and walks 90 m to reach point Y. How far and in which direction is point X from point Y? **(+1, -0.33)**

(All turns are 90 degree turns only)

a. 50 m, West

b. 60 m, West

c. 60 m, East

d. 50 m, South

---

14. A student scored 80/80 marks in term 1 and 75/90 marks in term 2. What will be his percentage of final score, if the weightage given to the terms is 40% and 60%, respectively, correct to the nearest integer? **(+1, -0.33)**

a. 85%

b. 90%

c. 95%

d. 70%

---

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15. Which two signs should be interchanged to make the given equation correct? **(+1, -0.33)**

28 - 28 ÷ 14 + 7 × 2 = 16

**a.** × and -

**b.** + and ÷

**c.** × and ÷

**d.** + and -

---

16. A blanket is sold for ₹1,148, which results in a loss of 30%. For how much should it be sold to gain 5%? **(+1, -0.33)**

**a.** ₹1,423

**b.** ₹1,543

**c.** ₹1,722

**d.** ₹1,734

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17. Which of the following was founded by Prashant Chandra Mahalanobis? **(+1, -0.33)**

**a.** Miranda House

**b.** Bharatiya Vidya Bhawan

**c.** Indian Statistical Institute

**d.** Lucknow University

---

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18. In a given alphabet pair, the first alphabet is related to the second alphabet by a certain logic. Study the given pairs carefully, and select the pair that follows the same logic from the given alternatives. **(+1, -0.33)**

PARTS : RDVYY

CLOSE : EOSXK

**a.** RHINO : TKMSU

**b.** TIME: PQOFU

**c.** MANGO : ODRTS

**d.** CLASS : EODVV

---

19. Which reproductive parts of the flower contain the germ cells? **(+1, -0.33)**

**a.** Sepals and stamen

**b.** Stamens and pistils

**c.** Anther and sepals

**d.** Petals and style

---

20. Six students P, Q, R, S, T and U are sitting in a straight line facing north. P and S sit at the ends of the row. T sits immediate neighbor of P, while U sits immediate neighbor of S. Only one person sits between Q and S. Apart from R, who is sitting immediate next to Q? **(+1, -0.33)**

**a.** R

**b.** S

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c. T

d. U

---

21. Who has the executive authority to advise the State Government on legal matters and to perform other duties of legal character? **(+1, -0.33)**

a. Solicitor General

b. Attorney General

c. Comptroller and Auditor General

d. Advocate-General

---

22. The refractive index of a given transparent medium is 1.5. What will be the speed of light in that medium? **(+1, -0.33)**

a. $2 \times 10^8$ m/sec

b. $4.5 \times 10^8$ m/sec

c. $3 \times 10^8$ m/sec

d. $0.5 \times 10^8$ m/sec

---

23. Which of the following sports events was hosted by India from 20 January 2022 in Mumbai, Navi Mumbai and Pune? **(+1, -0.33)**

a. FIFA Women's World Cup

b. Asian Champions Trophy

c. AFC Women's Asian Cup

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**d.** Asian Track & Para-Cycling Championships

---

**24.** Two types of cell divisions, A and B, are shown in the figure below. Which option provides the correct answer for: **(+1, -0.33)**

i. Types of cell division

ii. When and where does division B take place?

**a.** i. A - Meiosis, B - Mitosis; Meiosis takes place in reproductive cells for the formation of gametes

**b.** i. A - Mitosis, B - Meiosis; Meiosis takes place in reproductive cells for the formation of gametes

**c.** i. A and B - Meiosis; Meiosis takes place in body cells for growth

**d.** i. A - Mitosis, B - Meiosis; Meiosis takes place in body cells for growth

---

**25.** Study the given letter, number, symbol series, and answer the given question. **(+1, -0.33)**

T % N 9 + M $ 3 U = L 8 Y @ G & 3 E > W

Find the total number of letters which are immediately followed by a symbol and immediately preceded by a number.

**a.** 2

**b.** 4

**c.** 3

**d.** 1

---

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**26.** In a certain code language, 'ACADEMY' is written as 'FSJHDEB' and 'BARRIER' is written as 'YKNVUCC'. How will 'ATTEMPT' be written in that code language? **(+1, -0.33)**

**a.** AVRMWVB

**b.** AVRNWVB

**c.** BVWMRVA

**d.** AVRIWVB

---

**27.** Rani borrowed an amount of ₹2,00,000 from the bank to start a business. How much simple interest will she pay at the rate of 7% per annum after 2 years? **(+1, -0.33)**

**a.** ₹24,000

**b.** ₹26,000

**c.** ₹28,500

**d.** ₹28,000

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---

**28.** Three statements are given followed by four conclusions I, II, III, and IV. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements. **(+1, -0.33)**

Statements:

1. Some pamphlets are copies.

2. All copies are readers.

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3. All readers are scrolls.

Conclusions:

I. All pamphlets are scrolls.

II. All copies are scrolls.

III. Some readers are copies.

IV. Some scrolls are pamphlets.

**a.** Only conclusions II, III, and IV follow.

**b.** Only conclusions II and IV follow.

**c.** Only conclusions I, III, and IV follow.

**d.** Only conclusions I and III follow.

---

**29.** Three statements are given followed by three conclusions numbered I, II, and III. Consider the statements assuming them to be true, even if they seem at variance from commonly known facts, and state which of the conclusions logically follow from the statements? **(+1, -0.33)**

Statements:

1. All tigers are lions.

2. No cat is a lion.

3. Some jaguars are cats.

Conclusions:

I. Some jaguars are lions.

II. No jaguar is a tiger.

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a. None follows.

b. Both conclusions I and II follow.

c. Only conclusion I follows.

d. Only conclusion III follows.

---

**30.** When a number is divided by the sum of 335 and 265, a value equal to three times the difference between 335 and 265 is obtained as the quotient, and 35 as the remainder. Find the number. **(+1, -0.33)**

a. 127535

b. 126035

c. 124535

d. 128235

---

**31.** Yeast is used to make _____. **(+1, -0.33)**

a. wine

b. antibiotics

c. Curd

d. cheese

---

**32.** The speed of light in two transparent media A and B are $2 \times 10^8$ m/sec and $2.25 \times 10^8$ m/sec. The refractive index of medium A with respect to medium B is equal to: **(+1, -0.33)**

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a. 1.125

b. 4.50

c. 0.89

d. 4.25

---

**33.** Simplify: $6^2 + 7^2 + \sqrt{16}$ **(+1, -0.33)**

a. 80

b. 89

c. 94

d. 98

---

**34.** In which of the following Indian states is the Chhota Nagpur Plateau located? **(+1, -0.33)**

a. Karnataka

b. Assam

c. Rajasthan

d. Jharkhand

---

**35.** For a journey of 800 km, a truck covers the first 300 km at a speed of 50 km/h. At what speed should it cover the remaining distance so that its average speed is 60 km/h? **(+1, -0.33)**

a. 72 km/h

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**b.** 600/13 km/h

**c.** 750/11 km/h

**d.** 52 km/h

---

**36.** A 210 m long train crosses a man walking at a speed of 4.5 km/h in the opposite direction in 12 seconds. What is the speed (in km/h) of the train? **(+1, -0.33)**

**a.** 59.5

**b.** 61.5

**c.** 58.5

**d.** 60.5

---

**37.** India's Bhavna Jat, Raveena, and Munita Prajapati won the bronze medal with a combined effort in the team category of the women's 20 km race walk event at the World Race Walking Team Championships 2022 held in _____. **(+1, -0.33)**

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**a.** Sweden

**b.** Oman

**c.** Norway

**d.** United Arab Emirates

---

**38.** Which feature of the Indian Constitution refers to the existence of governments at the state level and at the Centre? **(+1, -0.33)**

**a.** Parliamentary form of government

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**b.** Fundamental Rights

**c.** Secularism

**d.** Federalism

---

**39.** In this question, a statement is given followed by two conclusions. Which of the two conclusions are correct with respect to the statement? **(+1, -0.33)**

Statement:

$T = S \geq N = A \leq U > P < Q$

Conclusions:

I. $S > Q$

II. $A \leq T$

**a.** Only conclusion II is correct.

**b.** Neither conclusion I nor II follows.

**c.** Both conclusions I and II are correct.

**d.** Only conclusion I is correct.

---

**40.** In the given chemical reaction, which of the following chemical species acts as an oxidising agent and as a reducing agent, respectively? **(+1, -0.33)**

$2Al + Fe_2O_3 \rightarrow Al_2O_3 + 2Fe$

**a.** Al and Fe

**b.** Fe and Al

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c. $Fe_2O_3$ and Al

d. $Al_2O_3$ and Fe

---

**41.** India's first graphene innovation center will be set up in which state? **(+1, -0.33)**

a. Maharashtra

b. Punjab

c. Haryana

d. Kerala

---

**42.** In ΔABC and ΔDEF, ∠A = 40°, ∠B = 55°, ∠D = 55°, ∠E = 85°, and AB = FD. Then which of the following option is correct? **(+1, -0.33)**

a. ΔABC ≅ ΔDFE

b. ΔABC ≅ ΔFED

c. ΔABC ≅ ΔEDF

d. ΔABC ≅ ΔFDE

---

**43.** Study the following diagram carefully, and answer the question based on it. The numbers given in different parts represent the number of people who like different dry fruits in breakfast. **(+1, -0.33)**

How many people like Hazelnut but do not like Cashew?

a. 120

b. 39

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**c.** 139

**d.** 15

---

**44.** Select the set in which the numbers are related in the same way as are the numbers of the following sets. **(+1, -0.33)**

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits.)

(24, 12, 72)

(15, 16, 60)

**a.** (20, 24, 120)

**b.** (30, 40, 156)

**c.** (17, 20, 65)

**d.** (18, 12, 56)

---

**45.** Two trains running in opposite directions with the same speed. If their lengths are 120 m and 140 m, and they cross each other in 10 s, find the speed of each train. **(+1, -0.33)**

**a.** 14 m/s

**b.** 13 m/s

**c.** 10 m/s

**d.** 16 m/s

---

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**46.** The ratio of two numbers is 5 : 7. If their highest common factor (HCF) is 17, find the numbers. **(+1, -0.33)**

**a.** 85, 102

**b.** 68, 85

**c.** 102, 136

**d.** 85, 119

---

**47.** Find the value of $(a + 1/b)^r(a - 1/b)^s \div (b + 1/a)^r(b - 1/a)^s$. **(+1, -0.33)**

**a.** $(a^rb^s)$

**b.** $(ab)^{r+s}$

**c.** $(ab)^{r+s}(ab)^{r+s}$

**d.** $(ba)^{r+s}$

---

**48.** A metallic wire of resistance 100 Ω is bent into a circle having circumference equal to the length of the wire. The equivalent resistance between two diametrically opposite points of the circle is: **(+1, -0.33)**

**a.** 75 Ω

**b.** 50 Ω

**c.** 100 Ω

**d.** 25 Ω

---

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**49.** Which of the following groups of elements have a tendency to form acidic oxides? **(+1, -0.33)**

**a.** Group 1

**b.** Group 16

**c.** Group 13

**d.** Group 2

---

**50.** Answer the following question which is based on the given four letter clusters. **(+1, -0.33)**

STED, LAYM, JOEK, CLDP

If in each of the clusters, each letter is changed to the next letter in the English alphabetical order, how many letter clusters thus formed will have no vowel?

**a.** Two

**b.** Three

**c.** None

**d.** One

---

**51.** Select the option that is related to the fifth number, the second number to the first number, and the fourth number to the third number. **(+1, -0.33)**

12 : 145 :: 9 : 82 :: 11 : ?

**a.** 121

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**b.** 120

**c.** 123

**d.** 122

---

**52.** Select the term that will come in place of the question mark (?) in the given series and logically complete the series? **(+1, -0.33)**

D6W, G7T, M11N, V20E, ?

**a.** H36S

**b.** G36S

**c.** H34S

**d.** H36T

---

**53.** Each of the six students P, Q, R, S, T, and U has different heights. P is taller than only two students. T is taller than only one student but shorter than exactly four students. S is taller than only four students but is not the tallest. Q is not taller than any student. R is not the tallest. Who among the following is the tallest student? **(+1, -0.33)**

**a.** P

**b.** T

**c.** U

**d.** S

---

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**54.** Presently, the age of a father is 3 times the age of his daughter. After 10 years, his age will be twice the age of his daughter. Find the present age of the daughter. **(+1, -0.33)**

**a.** 20 years

**b.** 10 years

**c.** 15 years

**d.** 5 years

---

**55.** If the places of '+' and '−' are interchanged, and the places of '÷' and '×' are interchanged in the following equation, then what will come in place of the question mark (?) in the equation? **(+1, -0.33)**

7 × 7 ÷ 8 − 12 × 6 + 17 − 14 − 100 = ?

**a.** 132

**b.** 125

**c.** 107

**d.** 99

---

**56.** As per information received till July 2022, which of the following states has set up 'Bharosa Kendras', which provide one-stop services for women and children who are victims of sexual assault and violence? **(+1, -0.33)**

**a.** Gujarat

**b.** Kerala

**c.** Odisha

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**d.** Telangana

---

**57.** The Goods and Services Tax, which includes both goods and services, was introduced by the Government of India with effect from _____. **(+1, -0.33)**

**a.** 1 April 2015

**b.** 1 July 2017

**c.** 28 February 2016

**d.** 1 March 2018

---

**58.** Which of the following Acts legally guarantees 100 days of wage employment in a financial year to adult members of a rural household who seek employment and are willing to do unskilled manual work? **(+1, -0.33)**

**a.** Indira National Rural Employment Guarantee Act

**b.** Nehru National Rural Employment Guarantee Act

**c.** Mahatma Gandhi National Rural Employment Guarantee Act

**d.** Ambedkar National Rural Employment Guarantee Act

---

**59.** The following table shows the number of male and female students studying in different streams (i.e., Arts, Science, Commerce, and Law) of a college. Study the table, and answer the question asked. **(+1, -0.33)**

What is the percentage of female students of Commerce out of the total students of the college?

**a.** 14.58%

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**b.** 16.46%

**c.** 15.95%

**d.** 13.28%

---

**60.** Metal oxides are generally _____ in nature. **(+1, -0.33)**

**a.** neutral

**b.** acidic

**c.** sweet

**d.** alkaline (Basic)

---

**61.** Colorless plastids are called? **(+1, -0.33)**

**a.** Chloroplastids

**b.** Leucoplastids

**c.** Chromoplastids

**d.** Apicoplastids

---

**62.** Kohli is 3 years younger than Rohit. If the ratio of ages of Kohli and Rohit is 7 : 8, then what is the age of Kohli? **(+1, -0.33)**

**a.** 21 years

**b.** 27 years

**c.** 18 years

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**d.** 24 years

---

**63.** Find the nature of the roots of $x^2 - 14x + 49 = 0$. **(+1, -0.33)**

**a.** real and equal roots

**b.** distinct roots

**c.** no real roots

**d.** imaginary roots

---

**64.** Which of the following term refers to a climatic condition in the marine environment that results in periodic warming of the water body? **(+1, -0.33)**

**a.** El Nino

**b.** La Mino

**c.** La Nina

**d.** El Mino

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**65.** Select the quadratic equation which has one root $1 + \sqrt{3}$. **(+1, -0.33)**

**a.** $x^2 - 2x - 2 = 0$

**b.** $x^2 + 2x + 2 = 0$

**c.** $x^2 + \sqrt{3}x + 1 = 0$

**d.** $x^2 + 2x + 1 = 0$

---

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66. Who led the Brahmo Samaj immediately after Raja Ram Mohan Roy? **(+1, -0.33)**

a. Dwarkanath Tagore

b. Rabindra Nath Tagore

c. Dr. Atma Ram

d. Devendra Nath Tagore

---

67. Simplify: $3x(x-6)+x^2+6x-9+24-x^3$ **(+1, -0.33)**

a. $15 + 12x + 4x^2 - x^3$

b. $15 - 12x + 4x^2 - x^3$

c. $15 - 12x + 4x^2 + x^3$

d. $15 + 12x + 4x^2 + x^3$

---

68. Select the number that will come in place of the question mark (?) in the following series? **(+1, -0.33)**

7, 20, 37, 56, 79, 108, ?

a. 136

b. 126

c. 139

d. 122

---

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69. A concave mirror forms a real, inverted and same-sized image of an object. Where is the object placed? **(+1, -0.33)**

a. Between f and the pole

b. At infinity

c. Between f and C

d. At C

---

70. Simplify as an improper fraction: $1.2\overline{4}$ **(+1, -0.33)**

a. $\frac{1249}{999}$

b. $\frac{4133}{133}$

c. $\frac{1239}{90}$

d. $\frac{9190}{90}$

---

71. How many subjects are entitled and listed for the Panchayat in the Indian Constitution? **(+1, -0.33)**

a. 29

b. 25

c. 33

d. 19

---

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**72.** Select the number that will come in place of the question mark (?) in the following series? **(+1, -0.33)**

45, 65, 90, 125, 180, ?

**a.** 285

**b.** 280

**c.** 275

**d.** 270

---

**73.** Consider the statements given below, and choose the correct answer. **(+1, -0.33)**

Statement I: Human stomach produces nitric acid.

Statement II: Hydrochloric acid helps in digestion of food without injuring the stomach.

**a.** Both the statements are correct. Statement II is the correct explanation of Statement I.

**b.** Only Statement I is correct.

**c.** Both the statements are correct. Statement I is the correct explanation of Statement II.

**d.** Only Statement II is correct.

---

**74.** The lengths of the sides of a triangle are 5 cm, 7 cm, and 10 cm. Find the area of the triangle (in $cm^2$). **(+1, -0.33)**

**a.** 35

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**b.** 25

**c.** 2√66

**d.** 7√10

---

**75.** The price of an article is increased by 20% and then two successive discounts of 5% each are allowed. The selling price of the article is _____ above its cost price. **(+1, -0.33)**

**a.** 8.3%

**b.** 7.8%

**c.** 9.2%

**d.** 6.9%

---

**76.** A statement is given followed by two arguments numbered I and II. Study the statements and arguments carefully, and choose the appropriate answer from the given alternatives. **(+1, -0.33)**

Statement: Compared to all apartments with the same square foot area, the rent for apartments above the sixth floor in most over-rise apartment buildings is higher.

Arguments:

I. Living on higher floors is more risky as there is more dependence on lifts as compared to lower floors, whereas lower floors can be accessed by stairs.

II. Air pollution is many times less on the higher floors as compared to the lower floors.

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a. Argument I does not support the statement, while Argument II supports the statement.

b. Arguments I and II both support the statement.

c. Both Arguments I and II do not support the statement.

d. Argument II does not support the statement, while Argument I supports the statement.

---

77. The diagonal of a quadrilateral is 32 m long, and its two offsets are 6 m and 10 m long. The area of the quadrilateral is: **(+1, -0.33)**

a. 250 $m^2$

b. 220 $m^2$

c. 276 $m^2$

d. 256 $m^2$

---

78. To investigate the conduction of electric current, Ravi performed an experiment. He took different aqueous solutions or liquids (as electrolyte) and tried to pass electricity and connected the circuit with a bulb. In the presence of which of the following, will the bulb NOT glow? **(+1, -0.33)**

a. Octane

b. Copper sulfate (aq)

c. Sodium chloride (aq)

d. Calcium chloride (aq)

---

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79. The octaves of Newland begin with _____ and end with _____. (+1, -0.33)

a. H; Th

b. Li; Na

c. He; Ar

d. Mg; Ca

---

80. An element A reacts with water to form a solution, which turns phenolphthalein solution pink. Element A is most likely to be _____. (+1, -0.33)

a. S

b. Mg

c. Ag

d. C

---

81. _____ is a type of water storage system found in Madhya Pradesh. (+1, -0.33)

a. Bundhis

b. Kattas

c. Kulh

d. Surangams

---

82. Eight lawyers with the initials A, K, L, M, N, O, P, and Q were sitting around a square table and were facing the center. Four of them were sitting at the (+1, -0.33)

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corners, while the other four were at the exact center of the sides. L, at a corner, was to the immediate right of M and was diagonally opposite to A. Q, sitting at a corner, was next to both M and K. P was second to the left of A. N was not sitting diagonally opposite to M. Which lawyer was second to the left of K?

**a.** N

**b.** P

**c.** L

**d.** O

---

**83.** Which is the most popular festival among the Garo tribe of Meghalaya? **(+1, -0.33)**

**a.** Porag Festival

**b.** Nuakhai Festival

**c.** Yaoshang Festival

**d.** Vangla Festival

---

**84.** A 91 cm-long wire is cut into two pieces so that one length is three-fourths of the other. Find the length of the shorter piece. **(+1, -0.33)**

**a.** 39 cm

**b.** 38 cm

**c.** 42.17 cm

**d.** 36.23 cm

---

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85. The 'Institute of Indian Languages (CIIL)' is located in which of these cities? (+1, -0.33)

a. Hubli

b. Bangalore

c. Mangalore

d. Mysore

---

86. Which of the following is a Holy Scripture related to Buddhism? (+1, -0.33)

a. Tripitaka

b. Hadiss

c. Augment

d. Tanakh

---

87. This question is based on the following three-letter words: RAT, DOT, FRY, CUT. (+1, -0.33)

If in each of the above words, each letter is changed to its next letter in the English alphabetical order, then how many words thus formed will have no vowel?

a. One

b. Zero

c. Two

d. Three

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88. The population of a town is 2,24,375. If it grows at the rate of 4% per year, what will be its population after 2 years? **(+1, -0.33)**

a. 2,40,468

b. 2,36,864

c. 2,42,684

d. 2,32,846

89. Ravi started a business by investing ₹50,000. After six months, Raju joined his business by investing ₹1,00,000. In the one year since Ravi invested, they earned a profit of ₹63,000. What is Raju's share in the profit? **(+1, -0.33)**

a. ₹31,500

b. ₹31,000

c. ₹32,500

d. ₹32,000

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90. In January 2022, who among these has been awarded the Padma Bhushan Award in the field of Science and Engineering? **(+1, -0.33)**

a. Buddhadev Bhattacharya

b. Subbanna Ayyappan

c. Sanjay Rajaram

d. Sirpi Balasubramaniam

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**91.** The Regional Rural Banks Act was passed in which year by the Government of India? **(+1, -0.33)**

**a.** 1966

**b.** 1976

**c.** 1986

**d.** 1996

---

**92.** Movement in most animals is a coordinated activity of which of the following system/systems? **(+1, -0.33)**

**a.** Only muscular system

**b.** Only skeletal and nervous systems

**c.** Only nervous system

**d.** Muscular, skeletal, and nervous systems

---

**93.** If two angles of a triangle measure 60° and 80°, respectively, then the measure of the third angle of this triangle is: **(+1, -0.33)**

**a.** 50°

**b.** 40°

**c.** 70°

**d.** 60°

---

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**94.** With whom did the Indian Army sign a contract worth ₹3131.82 crore for the manufacture and supply of missiles? **(+1, -0.33)**

**a.** Troop Comforts Limited

**b.** Yantra India Limited

**c.** India Optel Limited

**d.** Bharat Dynamics Limited

---

**95.** When the minute hand travels a distance equal to the duration of 2 hours 20 minutes, what will be the angular distance traveled by it? **(+1, -0.33)**

**a.** 720°

**b.** 840°

**c.** 480°

**d.** 590°

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---

**96.** At a function, the chief guest was accompanied by some people, and all were sitting in the audience gallery facing towards the west. P sits second to the left of the chief guest, Q sits fourth to the right of P. The number of people sitting to the right of Q is exactly one less than the number of people sitting to the left of Q. No one sits to the left of P. How many total people were sitting in the audience gallery? **(+1, -0.33)**

**a.** 8

**b.** 10

**c.** 9

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**d.** 7

---

**97.** _____ pairs of autosomes are found in humans. **(+1, -0.33)**

**a.** 22

**b.** 23

**c.** 46

**d.** 2

---

**98.** The ratio of the field due to a current-carrying circular coil of n turns to the field due to a single circular loop of the same radius carrying the same current is _____. **(+1, -0.33)**

**a.** $1 : n^2$

**b.** $n : 1$

**c.** $1 : n$

**d.** $1 : 1$

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**99.** P, Q, R, S, T, and U live on six different floors of the same building. The ground floor of the building is numbered 1, the one above it is numbered 2, and so on until the topmost floor is numbered 6. Exactly three persons live between the floors on which R and Q live. T lives immediately above the floor on which P lives. U lives immediately above the floor on which Q lives. R lives immediately below the floor on which S lives. T lives on floor number 4. Q does not live on floor number 5. Who lives on floor number 6? **(+1, -0.33)**

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a. P

b. U

c. R

d. S

---

100. What is the process of generating current induced by a change in magnetic field called? **(+1, -0.33)**

a. Electromagnetism

b. Electromagnetic induction

c. Electrical conduction

d. Electromagnetic radiation

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# Answers

1. **Answer: c**

**Explanation:**

The use of jute bags is a shift towards eco-friendly alternatives that reduce non-biodegradable waste, unlike plastic packaging, which contributes to waste. Hence, opting for jute bags is a positive change in attitude.

---

2. **Answer: c**

**Explanation:**

The total expenditure for Petrol and Water is Rs. 52640 as calculated from the respective percentages of expenditure on these heads in the chart.

---

3. **Answer: b**

**Explanation:**

The value is derived using trigonometric identities: $\sec^2 A - \tan^2 A = 1$ and $\text{cosec}^2 A - \cot^2 A = 1$.

---

4. **Answer: b**

**Explanation:**

The resistance of a conductor depends on material properties, length, area of cross-section, and temperature but not on the current passing through it.

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5. **Answer: d**

**Explanation:**

Barchans are crescent-shaped sand dunes found in deserts, characteristic of the wind-blown sandy landscape.

---

6. **Answer: a**

**Explanation:**

Using Ohm's law, $R = \frac{V}{I} = \frac{5}{0.0025} = 2000\ \Omega$.

---

7. **Answer: b**

**Explanation:**

Applying the given conditions to code the numbers and symbols, we get ATUMDLTS as the correct code.

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---

8. **Answer: d**

**Explanation:**

From the arrangement, the position of Box P is immediately below S, based on the conditions given in the question.

---

9. **Answer: c**

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### Explanation:

Using the Pythagorean theorem and considering the movements, X is calculated to be 10 m to maintain a distance of 21 m from the starting point.

---

10. **Answer: d**

### Explanation:

Alcohols react with sodium to form alkoxides and release hydrogen gas as a by-product.

---

11. **Answer: b**

### Explanation:

When an object is placed at a distance equal to twice the focal length (2f) from a convex lens, the image is inverted and the magnification is -1.

---

12. **Answer: a**

### Explanation:

Solving the equation step by step, we find the approximate answer to be close to 6.

---

13. **Answer: c**

### Explanation:

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Using the direction and distance moved, the final position of point X relative to Y is calculated as 60 m to the east.

---

**14. Answer: b**

**Explanation:**

Calculating the weighted average based on term scores, the final percentage score is approximately 85%.

---

**15. Answer: d**

**Explanation:**

By interchanging the '+' and '−' signs, the equation becomes correct: 28 + 28 ÷ 14 − 7 × 2 = 16.

---

**16. Answer: c**

**Explanation:**

The cost price of the blanket can be calculated using the formula: Selling Price = Cost Price × (1 – Loss%). To gain 5%, Selling Price = Cost Price × 1.05.

---

**17. Answer: c**

**Explanation:**

Prashant Chandra Mahalanobis founded the Indian Statistical Institute, which became a premier institution in statistical research.

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18. **Answer: a**

**Explanation:**

In the pair "PARTS : RDVYY," each alphabet in the first word corresponds to the second word by shifting forward or backward a fixed number of steps in the alphabet. The only option that follows the same pattern is "CLOSE : EOSXK."

---

19. **Answer: b**

**Explanation:**

In flowers, the stamens (male part) and pistils (female part) contain the germ cells necessary for reproduction.

---

20. **Answer: d**

**Explanation:**

The seating arrangement is as follows: P sits at one end with T as its neighbor. S is at the other end with U as its neighbor. Since only one person is between Q and S, Q is second from the right. Hence, apart from R, U sits next to Q.

---

21. **Answer: d**

**Explanation:**

The Advocate-General has the executive authority to advise the State Government on legal matters.

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22. **Answer: a**

**Explanation:**

Using the refractive index formula, $v = \frac{c}{n}$, the speed of light in the medium is calculated as 2 × $10^8$ m/sec.

23. **Answer: c**

**Explanation:**

India hosted the AFC Women's Asian Cup in January 2022 across the cities of Mumbai, Navi Mumbai, and Pune.

24. **Answer: b**

**Explanation:**

In option 2, A refers to Mitosis and B refers to Meiosis, where Meiosis takes place in reproductive cells for gamete formation, which is accurate.

25. **Answer: c**

**Explanation:**

By analyzing the sequence, three letters meet the criteria of being immediately followed by a symbol and immediately preceded by a number.

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26. **Answer: d**

**Explanation:**

In the code language, each letter of the word is transformed using a specific positional shift in the alphabet. Applying the same pattern to 'ATTEMPT' results in the code 'AVRIWVB.'

---

27. **Answer: d**

**Explanation:**

Using the formula for simple interest $SI = \frac{P \times R \times T}{100}$, the interest after 2 years is ₹28,000.

---

28. **Answer: a**

**Explanation:**

Based on the logical flow, conclusions II, III, and IV correctly follow from the statements given.

---

29. **Answer: d**

**Explanation:**

Conclusion III logically follows based on the given statements, but conclusion I does not.

---

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30. **Answer: b**

**Explanation:**

The sum of 335 and 265 is 600. The difference between 335 and 265 is 70. Three times the difference is 210. Using the formula: Number = (Divisor × Quotient) + Remainder = (600 × 210) + 35 = 126035.

---

31. **Answer: a**

**Explanation:**

Yeast is primarily used in fermentation processes, such as in the production of wine.

---

32. **Answer: a**

**Explanation:**

The refractive index of medium A with respect to medium B is calculated as $\frac{2.25\times10^8}{2\times10^8} = 1.125$.

---

33. **Answer: b**

**Explanation:**

Calculating each term, we get 36 + 49 + 4 = 89.

---

34. **Answer: d**

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**Explanation:**

The Chhota Nagpur Plateau is primarily located in Jharkhand, known for its rich mineral resources.

---

35. **Answer: c**

**Explanation:**

To achieve an average speed of 60 km/h over 800 km, the remaining distance must be covered at 750/11 km/h.

---

36. **Answer: c**

**Explanation:**

Using the relative speed formula, the speed of the train is calculated to be 58.5 km/h.

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---

37. **Answer: b**

**Explanation:**

The event was held in Oman where the Indian team secured a bronze medal.

---

38. **Answer: d**

**Explanation:**

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Federalism in the Indian Constitution establishes a dual structure of government at the Centre and State levels.

---

**39. Answer: a**

**Explanation:**

Only conclusion II ($A \leq T$) is correct based on the inequality relationship provided in the statement.

---

**40. Answer: c**

**Explanation:**

In this reaction, $Fe_2O_3$ acts as an oxidizing agent, and Al acts as the reducing agent.

---

**41. Answer: d**

**Explanation:**

The first graphene innovation center in India is planned to be established in Kerala.

---

**42. Answer: d**

**Explanation:**

Using the criteria for congruence based on angles and side equivalence, $\Delta ABC \cong \Delta FDE$ is the correct congruent pair.

---

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43. **Answer: c**

**Explanation:**

The number of people who like Hazelnut but do not like Cashew is 139, as derived from the provided diagram information.

---

44. **Answer: a**

**Explanation:**

Option 1 follows a similar mathematical pattern as the given sets, resulting in the value 120.

---

45. **Answer: b**

**Explanation:**

The combined length of the trains is 260 m, and they cross each other in 10 seconds. Thus, speed = 260 m / 10 s = 26 m/s, and each train has a speed of 13 m/s.

---

46. **Answer: d**

**Explanation:**

Given the HCF as 17, the numbers in the ratio 5 : 7 are 85 and 119 (5 × 17 and 7 × 17, respectively).

---

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47. **Answer: b**

**Explanation:**

Simplifying the expression results in $(ab)^{r+s}$ as the answer.

---

48. **Answer: d**

**Explanation:**

The wire forms two parallel halves with a total resistance of 100 Ω, so the equivalent resistance between opposite points is 25 Ω.

---

49. **Answer: b**

**Explanation:**

Group 16 elements, such as sulfur and oxygen, tend to form acidic oxides.

---

50. **Answer: a**

**Explanation:**

After shifting each letter in the clusters, only one of the resulting clusters has no vowels.

---

51. **Answer: d**

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### Explanation:

Following the pattern established in the sequence, the answer is 122.

---

**52. Answer: a**

### Explanation:

Based on the pattern in the series, the next term is H36S.

---

**53. Answer: c**

### Explanation:

Based on the given information about relative heights, U is determined to be the tallest.

---

**54. Answer: b**

### Explanation:

Solving the age relation equations, the present age of the daughter is found to be 10 years.

---

**55. Answer: c**

### Explanation:

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After interchanging the operators as specified, the resulting value of the expression is 107.

---

**56. Answer: d**

**Explanation:**

Telangana has set up 'Bharosa Kendras' to support women and children victims of assault and violence.

---

**57. Answer: b**

**Explanation:**

The Goods and Services Tax (GST) was introduced in India on 1 July 2017.

---

**58. Answer: c**

**Explanation:**

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) provides a legal guarantee for 100 days of employment to rural households.

---

**59. Answer: a**

**Explanation:**

The percentage of female Commerce students out of the total college population is 14.58%, as calculated from the data provided in the table.

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60. **Answer: d**

**Explanation:**

Metal oxides are typically alkaline (Basic) in nature.

---

61. **Answer: b**

**Explanation:**

Leucoplastids are colorless plastids primarily involved in the storage of nutrients.

---

62. **Answer: a**

**Explanation:**

Using the age ratio and difference, Kohli's age is calculated to be 21 years.

---

63. **Answer: a**

**Explanation:**

Since the discriminant of the equation is zero, the roots are real and equal.

---

64. **Answer: a**

**Explanation:**

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El Nino is a climatic condition that causes periodic warming of sea surface temperatures in the Pacific Ocean.

---

**65. Answer: a**

**Explanation:**

Solving the options, $x^2 - 2x - 2 = 0$ yields $1 + \sqrt{3}$ as one of its roots.

---

**66. Answer: d**

**Explanation:**

Devendra Nath Tagore led the Brahmo Samaj after Raja Ram Mohan Roy.

---

**67. Answer: b**

**Explanation:**

After simplifying the expression, we get $15 - 12x + 4x^2 - x^3$.

---

**68. Answer: c**

**Explanation:**

The series follows a pattern, and the next number is 139.

---

**69. Answer: d**

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**Explanation:**

For a concave mirror to form a real, inverted, and same-sized image, the object must be placed at the center of curvature (C).

---

**70. Answer: b**

**Explanation:**

Converting $1.2\overline{4}$ to an improper fraction results in $\frac{41}{33}$.

---

**71. Answer: a**

**Explanation:**

The Indian Constitution lists 29 subjects under the jurisdiction of the Panchayat.

---

**72. Answer: c**

**Explanation:**

Following the series pattern, the next number is 275.

---

**73. Answer: d**

**Explanation:**

Only Statement II is correct. The human stomach actually produces hydrochloric acid, not nitric acid.

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74. **Answer: c**

**Explanation:**

Using Heron's formula, the area of the triangle is calculated to be $26\sqrt{}$ $cm^2$.

75. **Answer: a**

**Explanation:**

After calculating the increase and successive discounts, the final selling price is approximately 8.3% above the cost price.

76. **Answer: a**

**Explanation:**

Argument I does not support the higher rent, but Argument II does, due to the lower air pollution on higher floors.

77. **Answer: d**

**Explanation:**

Using the formula for the area of a quadrilateral with known diagonal and offsets, the area is calculated as 256 $m^2$.

78. **Answer: a**

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**Explanation:**

Octane does not conduct electricity, so the bulb will not glow when it is used in the circuit.

---

79. **Answer: a**

**Explanation:**

Newland's Law of Octaves states that every eighth element has similar properties when arranged in increasing atomic mass. The octaves start with Hydrogen (H) and end with Thorium (Th).

---

80. **Answer: b**

**Explanation:**

Magnesium (Mg) reacts with water to produce an alkaline solution, which turns phenolphthalein pink.

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---

81. **Answer: a**

**Explanation:**

Bundhis is a traditional water storage system commonly found in Madhya Pradesh.

---

82. **Answer: d**

**Explanation:**

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Following the seating arrangement clues, O is found to be second to the left of K.

---

**83. Answer: d**

**Explanation:**

The Vangla Festival is the most popular festival among the Garo tribe in Meghalaya.

---

**84. Answer: a**

**Explanation:**

Let the length of the shorter piece be x. Then, the longer piece is (3/4)x. Solving for x, we find the shorter piece to be 39 cm.

---

**85. Answer: d**

**Explanation:**

The Central Institute of Indian Languages (CIIL) is located in Mysore.

---

**86. Answer: a**

**Explanation:**

The Tripitaka is a collection of Buddhist scriptures.

---

**87. Answer: a**

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**Explanation:**

After shifting each letter in the words, the resulting words has One vowel, so the answer is 1.

---

88. **Answer: c**

**Explanation:**

Using the compound interest formula for population growth, the population after 2 years is approximately 2,42,684.

---

89. **Answer: a**

**Explanation:**

Raju's share in the profit is calculated based on the ratio of their investments and the time invested, yielding ₹31,500.

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---

90. **Answer: c**

**Explanation:**

Sanjay Rajaram was awarded the Padma Bhushan in January 2022 for his contributions to Science and Engineering.

---

91. **Answer: b**

**Explanation:**

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The Regional Rural Banks Act was enacted in 1976 to provide financial services to rural areas in India.

---

92. **Answer: d**

**Explanation:**

Movement in animals involves coordination between the muscular, skeletal, and nervous systems.

---

93. **Answer: b**

**Explanation:**

Using the sum of angles in a triangle, the third angle is calculated as 40°.

---

94. **Answer: d**

**Explanation:**

The Indian Army signed a contract with Bharat Dynamics Limited for the supply of missiles.

---

95. **Answer: b**

**Explanation:**

The minute hand covers 360° in one hour. For 2 hours 20 minutes (or 140 minutes), the angular distance is 840°.

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96. **Answer: a**

**Explanation:**

Analyzing the seating arrangement, there are a total of 8 people in the audience gallery.

97. **Answer: a**

**Explanation:**

Humans have 22 pairs of autosomes, which are chromosomes that are not sex chromosomes.

98. **Answer: b**

**Explanation:**

The magnetic field strength is directly proportional to the number of turns (n), so the ratio is n : 1.

99. **Answer: d**

**Explanation:**

Following the given conditions, S lives on floor number 6.

100. **Answer: b**

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## Explanation:

The process of generating current due to a changing magnetic field is called electromagnetic induction.

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