



Your Personal Exams Guide



NDA



CDS



SSC CGL



CBSE UGC NET



IAS



SSC CHSL



CTET



MPSC



AFCAT



CSIR UDC NET



IBPS PO



UP POLICE



SSC MTS



SBI PO



BPSC



UP TET



IBPS RRB



IBPS CLERK



IES



UPSC CAPF



SSC Stenogr..



RRB NTPC



SSC GD



RBI GRADE B



RBI Assistant



DSSSB

SSC CHSL Previous Paper 33 (Held On: 19 March 2018 Shift 1)

Total Time: 1 Hour

Total Marks: 200

Instructions

Sl No.	Section Name	No. of Question	Maximum Marks	Negative Marks	Positive Marks
1	English Language	25	50	0.5	2
2	General Intelligence	25	50	0.5	2
3	Quantitative Aptitude	25	50	0.5	2
4	General Awareness	25	50	0.5	2

- 1.) A total of 60 minutes is allotted for the examination.
- 2.) The server will set your clock for you. In the top right corner of your screen, a countdown timer will display the remaining time for you to complete the exam. Once the timer reaches zero, the examination will end automatically. The paper need not be submitted when your timer reaches zero.
- 3.) There will, however, be sectional timing for this exam. You will have to complete each section within the specified time limit. Before moving on to the next section, you must complete the current one within the time limits.

English Language

1. In the following question, four words are given out of which one word is correctly spelt. Select the correctly spelt word. (+2, -0.5)

- a. anotate
- b. annotate
- c. annottate
- d. anottate

2. The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph. (+2, -0.5)

It is ethics and

A-values that have the inherent

B-of motivation into inspiration

C-potential to transform the spirit

- a. ABC
- b. ACB
- c. CBA
- d. CAB

3. In the following question, out of the four alternatives, select the alternative which will improve the bracketed part of the sentence. In case no (+2, -0.5)

improvement is needed, select "no improvement".

The technical aspect of English that deals with ironies (has always intrigue)
my inquisitive mind.

- a. is always intrigued
- b. will always intrigued
- c. has always intrigued
- d. no improvement

-
4. In the following question, out of the four alternatives, select the alternative which will improve the bracketed part of the sentence. In case no improvement is needed, select "no improvement". (+2, -0.5)

The realisation came when we noticed that our children (had becoming)
too dependent on us.

- a. had become
- b. has become
- c. has become
- d. no improvement

-
5. In the following question, out of the four alternatives, select the alternative which is the best substitute of the words/sentence. (+2, -0.5)

Keen interest or enthusiasm

- a. Lassitude
- b. Lethargy

- c. Avidity
 - d. Soporific
-

6. In the following question, out of the four alternatives, select the alternative which is the best substitute of the words/sentence. (+2, -0.5)

Wrap or cover for warmth

- a. Encourage
 - b. Muffle
 - c. Divulge
 - d. Expose
-

7. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase. (+2, -0.5)

A dime a dozen

- a. A very expensive proposition.
 - b. Something which appears cheap but which will prove expensive in the long run.
 - c. Something which appears attractive but has zero value.
 - d. Very common and of no particular value.
-

8. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase. (+2, -0.5)

A bad patch

- a. A potholed road.
- b. A medical bandage.
- c. A period of difficulty.
- d. Shoddy repair work.

9. In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

Many a travelogue I read nowadays is about how the traveller went on a road less travelled _____ some off-the-track trek or to an unknown destination or simply into the wild. How no internet _____ is what you need to reconnect with yourself! How leaving your watch and phone _____ and going into the world of no check-ins and no updates would bring you solitude! These write-ups are laced with adjectives describing the geography of the region and filled with _____ details of the author's days in that remote place. And, ironically, they all end with a strange advice to travel, and tell no one. I beg to _____.

and tell no one. I beg to _____.

- a. differ
- b. different
- c. difference
- d. differentiation

10. In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

Many a travelogue I read nowadays is about how the traveller went on a road less travelled _____ some off-the-track trek or to an unknown destination or simply into the wild. How no internet _____ is what you need to reconnect with yourself! How leaving your watch and phone _____ and going into the world of no check-ins and no updates would bring you solitude! These write-ups are laced with adjectives describing the geography of the region and filled with _____ details of the author's days in that remote place. And, ironically, they all end with a strange advice to travel, and tell no one. I beg to _____.

and filled with _____ details of the author's

- a. hour
- b. second
- c. time
- d. minute

11. In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

Many a travelogue I read nowadays is about how the traveller went on a road less travelled _____ some off-the-track trek or to an unknown destination or simply into the wild. How no internet _____ is what you need to reconnect with yourself! How leaving your watch and phone _____ and going into the world of no check-ins and no updates would bring you solitude! These write-ups

are laced with adjectives describing the geography of the region and filled with _____ details of the author's days in that remote place. And, ironically, they all end with a strange advice to travel, and tell no one. I beg to _____.

watch and phone _____ and going into

- a. under
- b. below
- c. backside
- d. behind

12. In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

Many a travelogue I read nowadays is about how the traveller went on a road less travelled _____ some off-the-track trek or to an unknown destination or simply into the wild. How no internet _____ is what you need to reconnect with yourself! How leaving your watch and phone _____ and going into the world of no check-ins and no updates would bring you solitude! These write-ups are laced with adjectives describing the geography of the region and filled with _____ details of the author's days in that remote place. And, ironically, they all end with a strange advice to travel, and tell no one. I beg to _____.

How no internet _____ is what you need to

- a. connectivity
- b. to connect

- c. connects
- d. connecting

13. In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives. (+2, -0.5)

Many a travelogue I read nowadays is about how the traveller went on a road less travelled _____ some off-the-track trek or to an unknown destination or simply into the wild. How no internet _____ is what you need to reconnect with yourself! How leaving your watch and phone _____ and going into the world of no check-ins and no updates would bring you solitude! These write-ups are laced with adjectives describing the geography of the region and filled with _____ details of the author's days in that remote place. And, ironically, they all end with a strange advice to travel, and tell no one. I beg to _____.

road less travelled _____ some off-the-track trek

- a. but
- b. or
- c. but also
- d. also

14. In the following question, a word has been written in four different ways out of which only one is correctly spelt. Select the correctly spelt word. (+2, -0.5)

- a. Apeareance
- b. Appearrance

c. Appearence

d. Appearance

-
15. A sentence has been given in Direct/Indirect Speech. Out of the four given alternatives, select the one which best expresses the same sentence in Indirect/Direct Speech. (+2, -0.5)

He said, "I am hungry."

a. He inform about his hunger.

b. He says he was hungry.

c. He was feeling hungry.

d. He said that he was hungry.

-
16. A sentence has been given in Active/Passive Voice. Out of the four given alternatives, select the one which best expresses the same sentence in Passive/Active Voice. (+2, -0.5)

The watch man opened the gate.

a. The gate opened the watch man.

b. The gate is being opened by the watchman.

c. The gate was opened by the watchman.

d. The gate is opened by the watchman.

-
17. Rearrange the parts of the sentence in correct order. (+2, -0.5)

Cities have

P: intellectual stimulus

Q: always provided

R: and educational leadership

a. PQR

b. RQP

c. QPR

d. PRQ

-
18. In the following question, out of the given four alternatives, select the one which is opposite in meaning of the given word. (+2, -0.5)

Adjure

a. Order

b. Require

c. Advise

d. Disclaim

-
19. In the following question, out of the given four alternatives, select the one which is opposite in meaning of the given word. (+2, -0.5)

Decimate

a. Preserve

b. Destroy

c. Execute

d. Abate

- 20.** In the following question, out of the given four alternatives, select the one which best expresses the meaning of the given word. (+2, -0.5)

Pejorative

a. Right

b. Discussion

c. Derogatory

d. Complimentary

- 21.** In the following question, out of the given four alternatives, select the one which best expresses the meaning of the given word. (+2, -0.5)

Barbarous

a. Refined

b. Polite

c. Crude

d. Civilized

- 22.** In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and (+2, -0.5)

indicate it by selecting the appropriate option.

Aryabhatta was the first astronomer to state _____ that the earth is round and it rotates on its axis.

- a. sympathetically
- b. automatically
- c. emphatically
- d. accidentally

-
23. In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option. (+2, -0.5)

Her trekking was met _____ obstacles.

- a. with
- b. from
- c. by
- d. of

-
24. In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. (+2, -0.5)

Some girls are taking prior permission to (1)/ sport a loosely tied plait on the days (2)/ they had washed their hair. (3)/ No error (4)

- a. 1

b. 2

c. 3

d. 4

25. In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'. (+2, -0.5)

What happen (1)/ at your (2)/ college today? (3)/ No error (4)

a. 1

b. 2

c. 3

d. 4

Prepp

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General Intelligence

26. In the following question, select the related word pair from the given alternatives. (+2, -0.5)

Road : Asphalt :: ? : ?

- a. Sugarcane : Sugar
- b. Cloth : Shirt
- c. Pen : Pencil
- d. Ore : Metal

-
27. In the following question, select the related number from the given alternatives. (+2, -0.5)

697 : 976 :: 532 : ?

- a. 320
- b. 354
- c. 237
- d. 325

-
28. In the following question, select the related letter/letters from the given alternatives. (+2, -0.5)

RTU : SUW :: CEF : ?

- a. FGI

- b. DGH
 - c. EGF
 - d. DFH
-

29. In the following question, select the odd word pair from the given alternatives. (+2, -0.5)

- a. Oxygen – Gas
 - b. Metal – Platinum
 - c. Liquid – Water
 - d. Solid – Iron
-

30. In the following question, four number pairs are given. The number on the left side of (–) is related to the number on the right side of (–) with some Logic/Rule/Relation. Three are similar on the basis of same Logic/Rule/Relation. Select the odd one out. (+2, -0.5)

- a. 27 – 32
 - b. 31 – 36
 - c. 33 – 38
 - d. 23 – 27
-

31. In the following question, select the odd letter/letters from the given alternatives. (+2, -0.5)

- a. SPMJ

- b.** XURO
 - c.** NKHE
 - d.** ZWSP
-

32. Arrange the given words in the sequence in which they occur in the dictionary. **(+2, -0.5)**

- 1. Tinned
- 2. Timber
- 3. Tinkle
- 4. Thunderstorm
- 5. Thursday

- a.** 53214
 - b.** 21345
 - c.** 45231
 - d.** 12435
-

33. In the following question, select the missing number from the given series. **(+2, -0.5)**

17, 20, 23, 26, 29, ?

- a.** 31
 - b.** 34
 - c.** 30
 - d.** 32
-

34. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series. (+2, -0.5)

FT, JX, NB, RF, ?

- a. TX
- b. LJ
- c. VJ
- d. YJ

35. Present age of Amit is twice of Baman's present age. After 5 years Baman's age will be 4 times of the Chetan's present age. If Chetan celebrated his sixth birthday 7 years ago, then what will be the present age (in years) of Amit? (+2, -0.5)

- a. 98
- b. 110
- c. 94
- d. 92

36. From the given alternatives, select the word which CANNOT be formed using the letters of the given word. (+2, -0.5)

Compassionate

- a. Pass
- b. Moss

c. Passion

d. Comply

37. In a certain code language, "RAPID" is written as "GLSDU". How is "WATER" written in that code language? (+2, -0.5)

a. DZHKM

b. UHWDZ

c. VHKDZ

d. MKHDZ

38. In a certain code language, '-' represents 'x', '÷' represents '+', '+' represents '÷' and 'x' represents '-'. Find out the answer to the following question. (+2, -0.5)

$$18 \div 12 - 5 + 30 \times 6 = ?$$

a. 19

b. 15

c. 41

d. 14

39. The following equation is incorrect. Which two signs should be interchanged to correct the equation? (+2, -0.5)

$$20 + 14 \div 35 - 10 \times 12 = 10$$

a. + and ×

b. + and $\div$

c. and +

d. $\div$ and $\times$

40. If $16\#2 = 16$, $12\#6 = 36$ and $6\#1 = 3$, then find the value of $4\#4 = ?$ (+2, -0.5)

a. 2

b. 4

c. 10

d. 8

41. Which of the following terms follows the trend of the given list? (+2, -0.5)

ABCABABAB, ABABCABAB, ABABABCBAB, ABABABABC, ACBABABAB,

a. ABABCABAB

b. ABCABABAB

c. ABACBABAB

d. ABABACBAB

42. A village woman walks 2.5 km South starting from her home in search of water. She then turns West and walks 1.5 km, then she turns South and walks 0.5km, then she turns to her left and walks 1.5 km. Where is she now with respect to her home? (+2, -0.5)

- a. 2 km South
- b. 3 km North
- c. 3 km South
- d. 2 km North

43. In the question, two statements are given, followed by two conclusions, I and II. You have to consider the statements to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements. (+2, -0.5)

Statement I: All tickets are coupons.

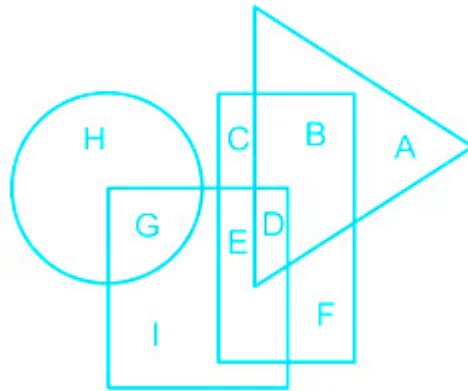
Statement II: All cards are tickets.

Conclusion I: Some coupons are cards.

Conclusion II: Some cards are coupons.

- a. Only conclusion I follows
- b. Only conclusion II follows
- c. Both conclusions I and II follow
- d. Neither conclusion I nor conclusion II follows

44. In the following figure, rectangle represents Opticians, circle represents Illustrators, triangle represents Photographers and square represents Football players. Which set of letters represents Football players who are both Photographers as well as Opticians? (+2, -0.5)



- a. D
- b. ED
- c. DF
- d. EDF

45. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series. (+2, -0.5)

KHQ, HEN, EBK, ?, YVE

- a. ZWF
- b. AXG
- c. CZI
- d. BYH

46. In the following question, select the missing number from the given series. (+2, -0.5)

6, 9, 13, 18, 24, ?

- a. 31

b. 34

c. 29

d. 28

47. In the following question, four groups of three numbers are given. In each group the second and third number are related to the first number by a Logic/Rule/Relation. Three are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives. (+2, -0.5)

a. (5, 16, 22)

b. (6, 19, 25)

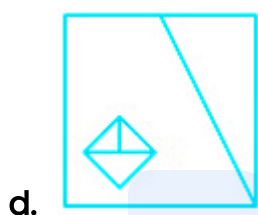
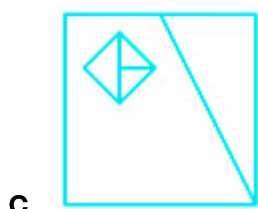
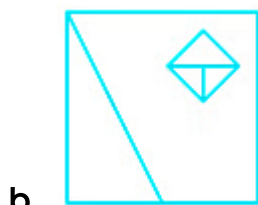
c. (4, 13, 17)

d. (9, 28, 37)

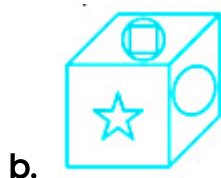
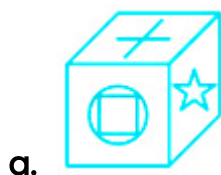
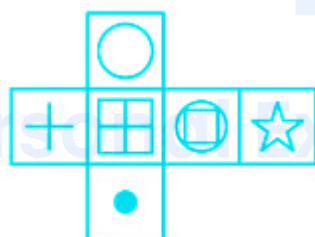
48. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure? (+2, -0.5)

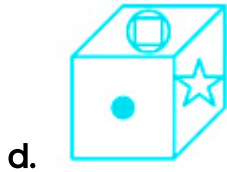


a.



49. Which of the following cube in the answer figure cannot be made based on the unfolded cube in the question figure? (+2, -0.5)





50. A word is represented by the only set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of Matrix -I are numbered from 0 to 4 and that of Matrix -II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example 'D' can be represented by 24, 41 etc and 'Y' can be represented by 57, 98 etc. Similarly, you have to identify the set for the word 'BREW'.

(+2,
-0.5)

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Matrix -I						Matrix -II					
	0	1	2	3	4		5	6	7	8	9
0	C	J	H	G	A	5	U	W	Y	X	W
1	G	I	H	D	C	6	Z	U	N	T	S
2	F	C	H	E	D	7	V	O	U	R	P
3	M	B	A	L	E	8	R	O	W	X	O
4	E	D	K	B	G	9	V	Q	S	Y	U

a. 34,68,44,95

b. 43,78,23,59

c. 30,66,42,96

d. 23,68,22,66

Your Personal Exams Guide

Quantitative Aptitude

51. Calculate the value of x if $\sqrt{1 - \left(\frac{x}{289}\right)} = \left(\frac{15}{17}\right)$ (+2, -0.5)

- a. 64
- b. 44
- c. 36
- d. 54

52. Find the unit place digit in the given expression: $(153)^{144} - (115)^{123} - (111)^{510} + (216)^{25}$ (+2, -0.5)

- a. 1
- b. 5
- c. 6
- d. 3

53. Which of the following value of 'x + y' satisfies the equation $4^{(x-1)} \cdot 9^{(2y-8)} = 5184$ (+2, -0.5)

- a. 7
- b. 8
- c. 9
- d. 6

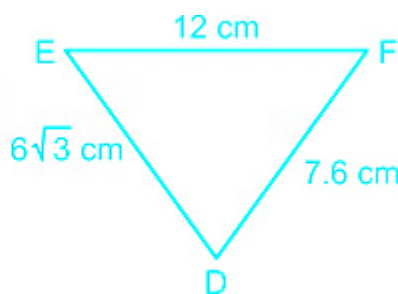
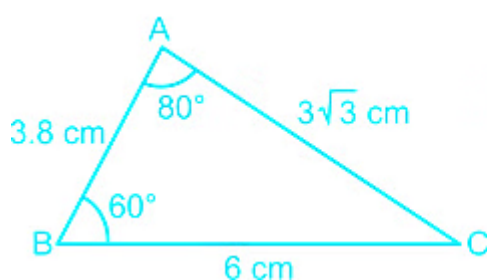
54. If $s + \frac{1}{s} = 4$ then find the value of $s^2 + \frac{1}{s^2}$. (+2, -0.5)

- a. 14
- b. 16
- c. 20
- d. 24

55. The tangent at any point of the circle is _____ to the radius through the point of contact. (+2, -0.5)

- a. parallel
- b. intersecting
- c. perpendicular
- d. equal

56. Calculate the value of angle FED from the figure shown below. (+2, -0.5)



- a. 30°
- b. 40°
- c. 60°

d. 80°

57. The income of X is 60% more than Y's income and the income of Y is 40% more than Z's income. X's income is how much percentage more than Z's income? (+2, -0.5)

a. 134

b. 224

c. 100

d. 124

58. If $x : y = 1 : 3$, then what will be the ratio of $(3y^2 + 3x^2) : (2y^2 - 8x^2)$? (+2, -0.5)

a. 4 : 1

b. 2 : 1

c. 3 : 1

d. 5 : 1

59. 5 litres of honey contains 80% sugar. 3 litres of water is added to this honey. What is the percentage of sugar in the new mixture? (+2, -0.5)

a. 40

b. 50

c. 60

d. 75

60. Average of the marks of 132 students of a college is 40. If the average of the marks of the passed students is 42 and the average of the marks of the failed students is 20, then what will be the respective ratio of the total marks of passed students and the total marks of failed students? (+2, -0.5)
- a. 21 : 1
 - b. 23 : 2
 - c. 19 : 11
 - d. 9 : 2

61. A sum of Rs. 8000 becomes Rs 12500 in 2 years at a certain rate of compound interest. What will be the sum (in Rs.) after 3 years? (+2, -0.5)
- a. 13175
 - b. 14225
 - c. 12575
 - d. 15625

62. If the selling price of an article is doubled, then its loss percentage gets converted into the equal profit percentage. What is the loss percentage? (+2, -0.5)
- a. 16.66
 - b. 50
 - c. 33.33
 - d. 37.5

63. The marked price of a pencil is 35% more than its cost price. What maximum discount percentage can be offered by the shopkeeper to sell his pencil at no profit or no loss? (+2, -0.5)

- a. 34.24
- b. 44.44
- c. 25.92
- d. 18.18

64. What is the least number that should be added to the product $11 \times 12 \times 13 \times 14$ to make it a perfect square? (+2, -0.5)

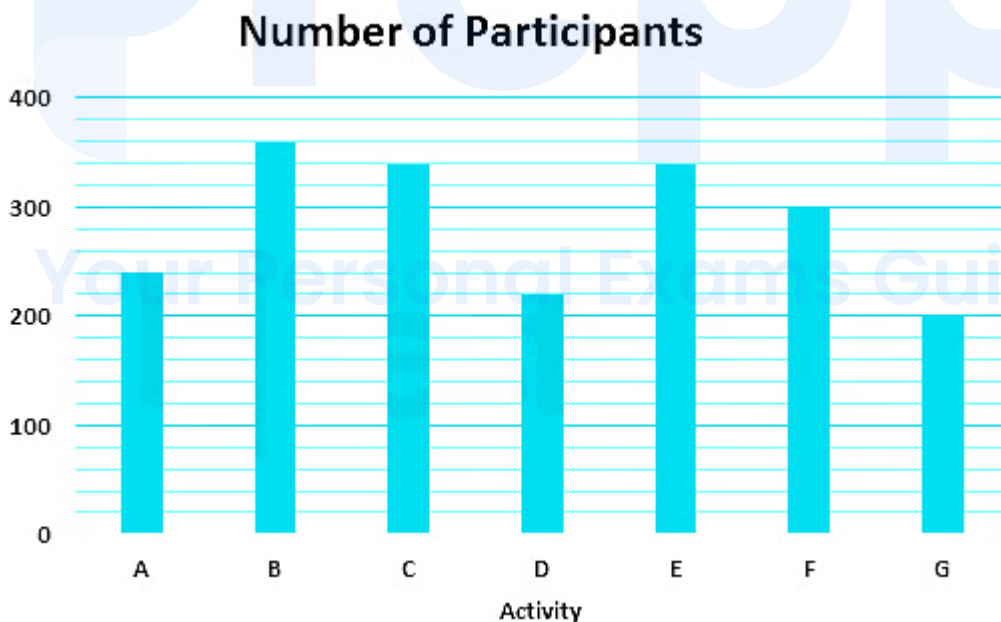
- a. 1
- b. 311
- c. 5
- d. 0

65. If 8 men can do a piece of work in 14 days, then in how much time (in days) will 7 men do the same piece of work? (+2, -0.5)

- a. 16
 - b. 15
 - c. 17
 - d. 18
-

66. Two buses are moving towards each other at a speed of 20 km/hr and 34 km/hr, respectively. What will be the distance (in metres) between the two buses one second before they collide? (+2, -0.5)
- 21
 - 18
 - 12
 - 15

67. The bar graph shows how many visitors participated in which adventure activity during their stay in an adventure resort. Study the diagram and answer the following questions. (+2, -0.5)



In which adventure activity had the second lowest number of participants?

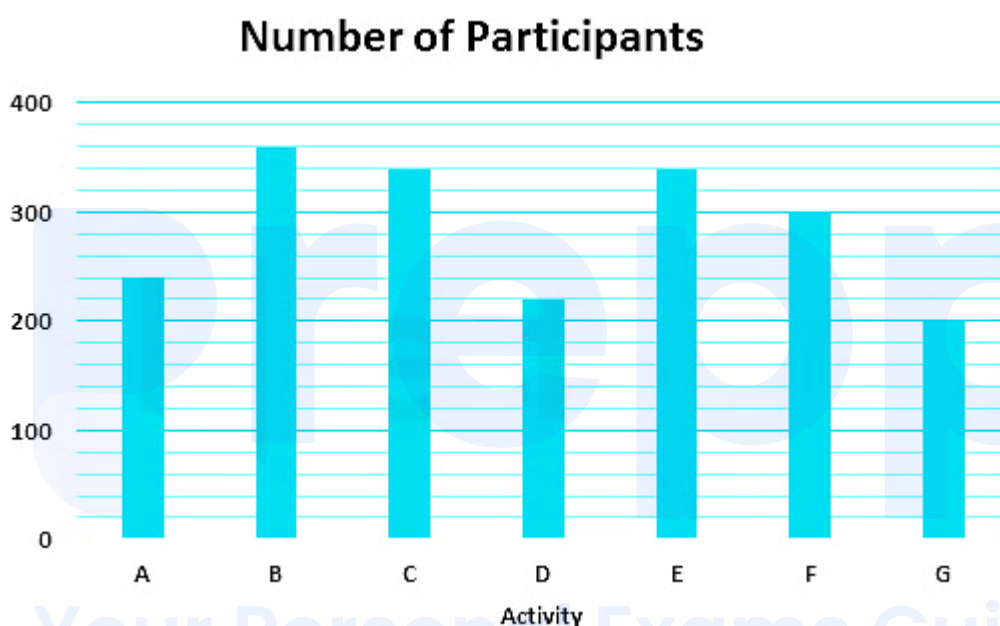
- F

b. A

c. D

d. G

68. The bar graph shows how many visitors participated in which adventure activity during their stay in an adventure resort. Study the diagram and answer the following questions. (+2, -0.5)



What is the ratio of participants of activity G to participants of activity B?

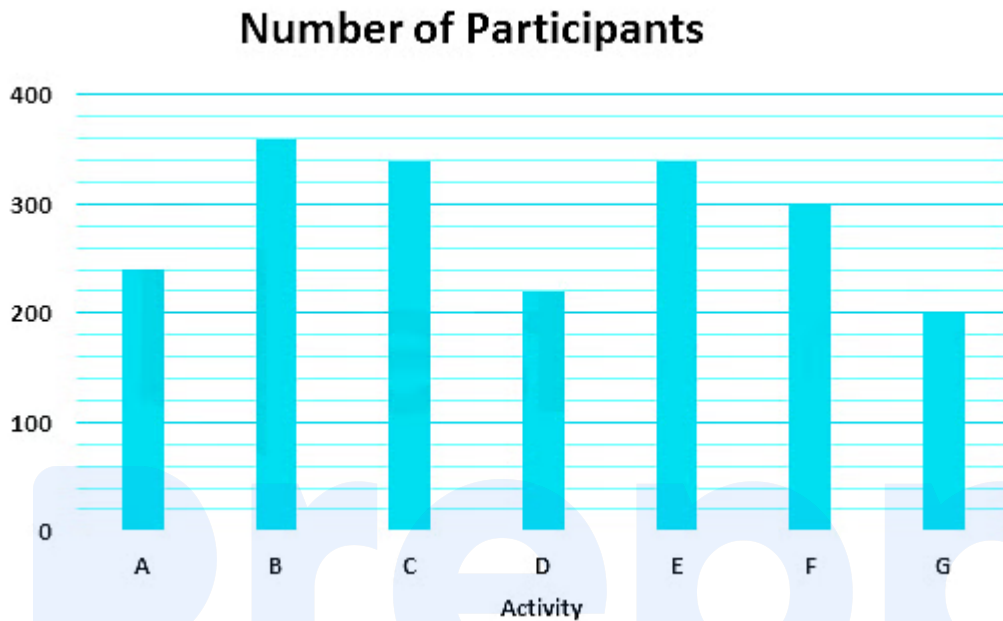
a. 9 : 5

b. 12 : 7

c. 5 : 9

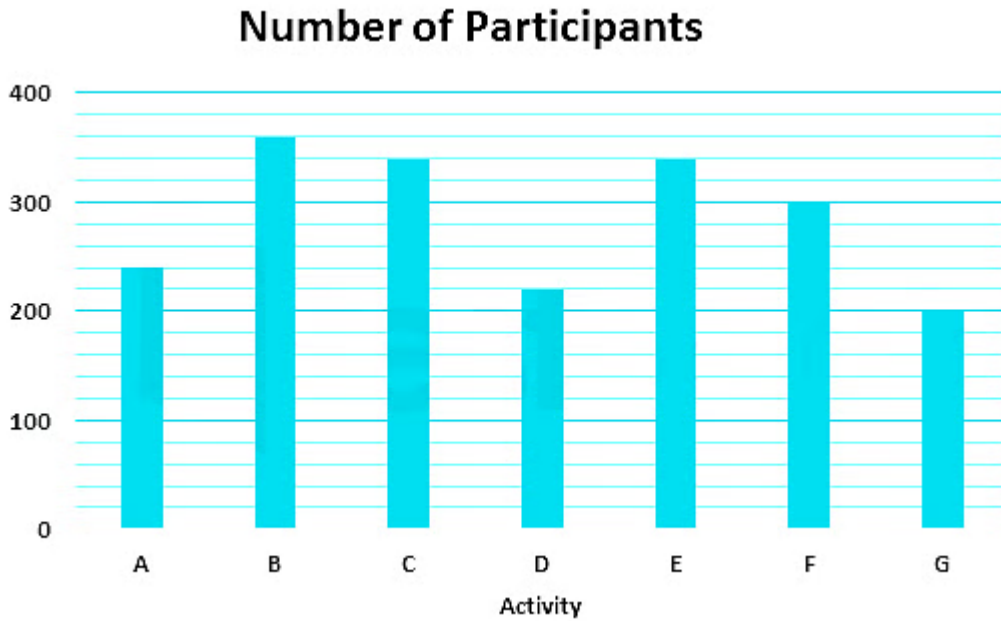
d. 7 : 12

69. The bar graph shows how many visitors participated in which adventure activity during their stay in an adventure resort. Study the diagram and answer the following questions. (+2, -0.5)



Participants of activity A were lesser than that of F by _____%.

- a. 25
 - b. 30
 - c. 20
 - d. 35
70. The bar graph shows how many visitors participated in which adventure activity during their stay in an adventure resort. Study the diagram and answer the following questions. (+2, -0.5)



If 30% of the participants of activity F had chosen to participate in activity G then the number of participants of G would have increased (in percent) by?

- a. 90
- b. 55
- c. 45
- d. 60

71. The perimeter and the breadth of a rectangle are 82 cm and 20 cm respectively. Calculate the length of its diagonal (in cm).

(+2, -0.5)

- a. 58
- b. 21
- c. 42
- d. 29

72. Find the circumference (in cm) of a circle of radius 7 cm. (+2, -0.5)

- a. 56
- b. 44
- c. 16
- d. 32

73. The volume of a hemisphere is 89.83 cm^3 . Find its diameter (in cm). (+2, -0.5)

- a. 3.5
- b. 7
- c. 14
- d. 10.5

74. $\triangle ABC$ is right angled at B. If $m\angle C = 45^\circ$, then find the value of $(\operatorname{cosec} A - \sqrt{3})$. (+2, -0.5)

- a. $(4 - \sqrt{3})/2$
- b. $\sqrt{2} - \sqrt{3}$
- c. $-\sqrt{3}/2$
- d. $(\sqrt{6} - 1)/\sqrt{3}$

75. In $\triangle PQR$ measure of angle Q is 90° . If $\sin P = 12/13$, and $PQ = 1 \text{ cm}$, then what (+2, -0.5)
is the length (in cm) of side QR?

- a. 2.6
- b. 3
- c. 2.4
- d. 4

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General Awareness

76. Brent Index is associated with which of the following? (+2, -0.5)
- a. crude oil prices
 - b. copper future prices
 - c. gold future prices
 - d. shipping rate index
-
77. Which of the following is NOT correctly matched? (+2, -0.5)
- a. First Five Year Plan: 1951-56
 - b. Second Five Year Plan: 1956-61
 - c. Third Five Year Plan: 1961-66
 - d. Fourth Five Year Plan: 1966-71
-
78. Where is the Southern Alps mountain range located? (+2, -0.5)
- a. Australia
 - b. New Zealand
 - c. South Africa
 - d. Indonesia
-
79. By what name is the combined water stream of Ganga and Brahmaputra known? (+2, -0.5)

- a. Meghna
 - b. Jamuna
 - c. Padma
 - d. Tsangpo
-

80. Who was the exponent of Yog Darshan? (+2, -0.5)

- a. Patanjali
 - b. Gautam
 - c. Jaimini
 - d. Shankaracharya
-

81. During the Maratha period, who was the officer responsible for the village administration? (+2, -0.5)

- a. Havaladar
 - b. Patil
 - c. Chaudhary
 - d. Sardeshmukh
-

82. Govind Swami Pillai is associated with which musical instrument? (+2, -0.5)

- a. Mridangam
- b. Tabla

c. Veena

d. Violin

83. Which country's Parliament has passed a law that will limit the powers of its police? **(+2, -0.5)**

a. Israel

b. France

c. Britain

d. China

84. Who among the following has been awarded the Blue Planet Prize-2017 in October 2017? **(+2, -0.5)**

a. Hans Joachim Schellnhuber

b. J.K. Anderson

c. M. Suzanchuk

d. Garry Bentzone

85. When was the national emblem of Bangladesh adopted? **(+2, -0.5)**

a. 1971

b. 1973

c. 1975

d. 1977

86. Mass number is always equal to _____. (+2, -0.5)

- a. number of protons
 - b. number of neutrons
 - c. sum of number of protons and number of electrons
 - d. sum of number of protons and number of neutrons
-

87. Which of the following statements are CORRECT? (+2, -0.5)

- I. Ethanol is a good solvent for organic compounds.
- II. Boiling and melting points of ethanol are low with respect to water.
- III. Ethanol is used as tincture iodine.

- a. Only I and II
 - b. Only I and III
 - c. Only II and III
 - d. All I, II and III
-

88. Along with 'Right to Life' in Article 21 of Indian Constitution, it also includes _____ (+2, -0.5)

- a. Right to Health
- b. Right to Food

- c. Right to Water
 - d. All options are correct.
-

89. Which Constitutional Amendment Act gave constitutional recognition to municipalities? **(+2, -0.5)**

- a. 72nd Constitutional Amendment Act
 - b. 73rd Constitutional Amendment Act
 - c. 74th Constitutional Amendment Act
 - d. 75th Constitutional Amendment Act
-

90. Which of the following is NOT a waste material removed from blood in the kidney? **(+2, -0.5)**

- a. Ammonia
 - b. Carbon dioxide
 - c. Urea
 - d. Uric acid
-

91. The movement of water molecules through the plasma membrane is called _____. **(+2, -0.5)**

- a. Osmosis
- b. Sedimentation
- c. Precipitation

d. Transpiration

92. In November 2017, the second phase of 'Bharat Net Project' was launched. (+2, -0.5)
How much is its approximate outlay?

- a. Rs. 55,000 crore
 - b. Rs. 10,000 crore
 - c. Rs. 20,000 crore
 - d. Rs. 34,000 crore
-

93. NASA successfully tested supersonic landing parachute in November 2017 (+2, -0.5)
for its approximate ----- mission.

- a. Zuma 2020
 - b. GOLD
 - c. ICON
 - d. Mars 2020
-

94. In October 2017, who launched India's 3rd biggest 'Initial Public Offering (+2, -0.5)
(IPO)' of Rs. 11,370 crore?

- a. Reliance Industries Ltd
- b. GIC Re
- c. Coal India Ltd
- d. Infosys

95. On 5 January 2018, Lok Sabha passed High Court and Supreme Court Judges (Salaries and Conditions of Service) Amendment Bill, 2017. The Bill proposes to hike the salary of Chief Justice of India (CJI) to nearly -----.

(+2, -0.5)

- a. Rs. 2.80 lakh per month
- b. Rs. 3.9 lakh per month
- c. Rs. 2 lakh per month
- d. Rs. 5 lakh per month

96. What is the resistance (in Ω) of an electrical component if a current of 0.4 A passes through it on application of 12 V of potential difference across it?

(+2, -0.5)

- a. 4.8
- b. 60
- c. 9.6
- d. 30

97. If the acceleration due to gravity on the surface of the earth is g , then the acceleration due to gravity on the surface of a planet whose mass is half of that of earth and radius is same as that of the earth is -----.

(+2, -0.5)

- a. $g/2$
- b. $4g$
- c. $2g$

d. $g/4$

98. An earthquake of magnitude _____ on the Richter scale has a hundred times more destructive energy than an earthquake of magnitude 4. (+2, -0.5)

a. 5

b. 7

c. 6

d. 8

99. Which of the statements given below are correct? (+2, -0.5)

A. In 2017, Giannis Antetokounmpo played for the NBA team Houston Rockets.

B. In 2018 IPL auctions, Kings XI Punjab retained Axar Patel.

C. In 2017, David Warner captained the IPL team Royal Challengers Bangalore.

a. Only B

b. A and B

c. A, B and C

d. None of these

100. _____ provides network backbone and e-governance support to government bodies in India. (+2, -0.5)

- a. NIC
- b. NASSCOM
- c. Department of Information Technology
- d. State Bank of India

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Answers

1. Answer: b

Explanation:

The correct answer is- 'annotate'

★ Key Points

- 'annotate' is a **verb** and it means 'to add a short explanation or opinion to a text or drawing'
 - *Example: Annotated editions of Shakespeare's plays help readers to understand old words.*

Here, the correct spelling is- *annotate*

2. Answer: b

Explanation:

The correct answer is- 'ACB'

★ Key Points

- **AND** = used to list two similar things together. Clearly, *ethics and values* go together. A is first => rule out 3) and 4).
- **A** (values that have the *inherent*) ends with **inherent** (existing as a natural or basic part of something) and is an **adjective**. Clearly, it must be followed by a **noun** and C qualifies with **potential**. C must follow A.
- Hence **option 2** is the most appropriate answer here.

The correct sentence is- *It is ethics and values that have the inherent potential to transform the spirit of motivation into inspiration.*

3. Answer: c

Explanation:

The correct answer is- 'has always intrigued'

★ Key Points

- Using 'has always intrigued' in the place of 'has always intrigue' to make the sentence correct.
- We know that the sentence is in the **present perfect** so that **3rd form** of the **main verb** will be followed after the **helping verb**. Replace 'intrigued' instead of 'intrigue'.
- **Structure of Present Perfect:** Sub + has/have + V₃ + object
 - *Example: He has gone to the market.*

The correct sentence is- *The technical aspect of English that deals with ironies has always intrigued my inquisitive mind.*

4. Answer: a

Explanation:

The correct answer is- 'had become'

★ Key Points

- Using 'had become' in the place of 'had becoming' to make the sentence correct.
- We know that the sentence is in the **past perfect** so that **3rd form** of the **main verb** will be followed after the helping verb. Replace 'become' instead of 'becoming'.
- **Structure of Past Perfect:** Sub + had + V₃ + object
 - *Example: She had met him before the party.*

The correct sentence is- *The realisation came when we noticed that our children **had become** too dependent on us.*

5. Answer: c

Explanation:

The correct answer is- '**Avidity**'

★ Key Points

- The word '**Avidity**' is a **noun** and it means '**the quality of being extremely eager or interested**'
 - Example: He studied Indian history with **avidity**.*

Henc the **option 3** is the **most appropriate** answer here.

★ Additional Information

WORDS	MEANING
Lassitude	<i>a state of physical or mental weariness; lack of energy.</i>
Lethargy	<i>a lack of energy and enthusiasm.</i>
Soporific	<i>tending to induce drowsiness or sleep.</i>

6. Answer: b

Explanation:

The correct answer is- '**Muffle**'

★ Key Points

- The word '**Muffle**' is a **verb** and it means '**to make a sound quieter and less clear**'

- **Example:** The house has double-glazed windows to **muffle** the noise of aircraft.

Hence **option 2** is the **most appropriate** answer here.

★ Additional Information

WORDS	MEANING
Encourage	give support, confidence, or hope to (someone).
Divulge	make known (private or sensitive information).
Expose	make (something) visible by uncovering it.

7. Answer: d

Explanation:

The correct answer is- 'Very common and of no particular value.'

★ Key Points

- 'A dime a dozen' is an idiom and it means 'So plentiful as to be valueless'.
 - **Example:** Don't bother to buy one of these—they're a **dime a dozen**.

Hence **option 4** is the **most appropriate** answer here.

8. Answer: c

Explanation:

The correct answer is- 'A period of difficulty.'

★ Key Points

- 'A bad patch' is an **idiom** and it means 'If you have or go through a bad patch or a rough patch, you have a lot of problems for a time.'
 - *Example: I'm going through a very **bad patch** just now.*

Hence **option 3** is the **most appropriate** answer here.

9. Answer: a

Explanation:

The correct answer is- '**differ**'

★ Key Points

- Using '**differ**' is in the **blank space** to make the sentence correct.
- We know that '**To**' is followed by the first form of the **verb**. so that we can say **option 1** is the **most appropriate** answer here.
- '**I beg to differ**' is the **phrasal verb** and it means 'a way of saying "I do not agree" that is polite, but may sound unfriendly'

The correct sentence is- *and tell no one. I beg to **differ**.*

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10. Answer: d

Explanation:

The correct sentence is- '**minute**'

★ Key Points

- Using '**minute**' in the **blank space** to make the sentence correct.
- In the given sentence we can say we are talking about the details which are very specific. '**minute**' details. means '**extremely small, as in size, amount, extent, or degree**'

- In the **other options** given that is the unit of time. '**minute**' is also the unit of time but here the meaning of 'minute' is **absolutely different**.
 - ***Example:** The battles of the Second World War have been pored over in **minute detail**.*

The correct sentence is- and filled with **minute** details of the author's

11. Answer: d

Explanation:

The correct answer is- '**behind**'

★ Key Points

- Using '**behind**' is in the **blank space** to make the sentence correct.
- In the sentence, we can observe that The sentence aims to say that by not taking our phone and watch... '**To leave behind**' is the phrasal verb and it means '**If you leave someone or something behind, you go away permanently from them.**'
 - ***Example:** He decided he must take his family with him as it was too dangerous to leave them **behind**.*

The correct sentence is- watch and phone **behind** and going into

12. Answer: a

Explanation:

The correct answer is- '**connectivity**'

★ Key Points

- Using '**connectivity**' is in the **blank space** to make the sentence correct.

- In the given sentence we can easily find out that we are talking about the '**connectivity**' of the **internet**. Other options are not suitable according to the context of the paragraph.
- We need a '**noun**' and in the other option, we don't have it.

The correct sentence is- *How no internet **connectivity** is what you need to*

13. Answer: b

Explanation:

The correct answer is- '**or**'

★ Key Points

- Using '**or**' is in the **blank space** to make the sentence correct.
- If we read the paragraph we can find that '**or**' is the best option according to the next context of the paragraph. 'some off-the-track trek' **or** 'to an unknown destination' **or** 'simply into the wild' all are connected with '**or**'.
- '**Or**' is a **conjunction** that connects *two or more possibilities or alternatives*. It connects words, phrases, and clauses which are the same grammatical type.
 - **Example:** *I don't like either the one **or** the other*

The correct sentence is- *road less travelled **or** some off-the-track trek*

14. Answer: d

Explanation:

The correct answer is- '**Appearance**'

★ Key Points

- '**Appearance**' is a **noun** and it means '**an occasion when someone appears in public**'

- **Example:** *She will be making a public **appearance**, signing copies of her latest novel.*

Here, the correct spelling is- *Appearance*

15. Answer: d

Explanation:

The correct answer is- 'He said that he was hungry.'

★ Key Points

- The reported verb is in the simple present tense (**I am**). Thus, in the indirect speech, we will have **simple past tense** . I => **he** .
- Hence **option 4** is the most appropriate answer here.

The correct Indirect speech is- *He said that he was hungry.*

★ Important Points

- **Note** that you cannot change the reporting verb (**said**) and that is why, 2) is wrong.

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16. Answer: c

Explanation:

The given sentence is in the past tense (**opened**). Thus, the passive voice will be of the form **was/were** + past participle of **open** = **opened** + by. Thus, Option 3) is the correct answer.

17. Answer: c

Explanation:

The correct answer is- 'QPR'

★ Key Points

- 'And' is used *to list together things* that are alike. Clearly, *intellectual stimulus ,education leadership* = alike things. Thus, **R** (*and educational leadership*) must immediately follow **P**. Rule out 1) and 2).
- hence option **QRP** is the **most appropriate** answer here.

The correct sentence is- *Cities have always provided intellectual stimulus and educational leadership.*

18. Answer: d

Explanation:

The correct answer is- 'Disclaim'

★ Key Points

- 'Adjure' is a **verb** and it means 'to ask or order someone to do something' so that the opposite word of 'Adjure' is 'Disclaim'. It is the most suitable option here.
 - **Example:** The judge **adjured** him to answer truthfully.

Hence **option 4** is the **most appropriate** answer here.

★ Additional Information

WORDS	MEANING
Order	<i>the arrangement or disposition of people or things in relation to each other according to a particular sequence, pattern, or method.</i>
Require	<i>need for a particular purpose.</i>
Advise	<i>offer suggestions about the best course of action to someone.</i>

19. Answer: a

Explanation:

The correct answer is- '**Preserve**'

★ Key Points

- 'Decimate' is a **verb** and it means '**to kill a large number of something, or to reduce something severely**' so that the opposite word of 'Decimate' is 'Preserve'. It is the most suitable option here.
 - Example:** Populations of endangered animals have been **decimated**.

Hence **option 1** is the **most appropriate** answer here

★ Additional Information

WORDS	MEANING
Destroy	<i>put an end to the existence of (something) by damaging or attacking it.</i>
Execute	<i>carry out or put into effect (a plan, order, or course of action).</i>
Abate	<i>(of something perceived as hostile, threatening, or negative) become less intense or widespread.</i>

20. Answer: c

Explanation:

The correct answer is- '**Derogatory**'

★ Key Points

- '**Pejorative**' is an **adjective** and it means '**expressing disapproval, or suggesting that something is not good or is of no importance**' so that the similar word of '**Pejorative**' is '**Derogatory**'. It is the most suitable option here.
 - ***Example:** Make sure students realize that fat is a **pejorative** word.*

Hence **option 3** is the **most appropriate** answer here.

★ Additional Information

WORDS	MEANING
Right	<i>morally good, justified, or acceptable.</i>
Discussion	<i>the action or process of talking about something in order to reach a decision or to exchange ideas.</i>
Complimentary	<i>expressing a compliment; praising or approving.</i>

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21. Answer: c

Explanation:

The correct answer is- '**Crude**'

★ Key Points

- '**Barbarous**' is an **adjective** and it means '**extremely cruel or unpleasant, or failing to reach acceptable social standards**' so that the similar word of '**Barbarous**' is '**Crude**'. It is the most suitable option here.
 - ***Example:** His murder was an outrageous and **barbarous** act.*

Hence **option 3** is the **most appropriate** answer here.

★ Additional Information

WORDS	MEANING
Refined	<i>with impurities or unwanted elements having been removed by processing.</i>
Polite	<i>having or showing behavior that is respectful and considerate of other people.</i>
Civilized	<i>at an advanced stage of social and cultural development.</i>

22. Answer: c

Explanation:

The correct answer is- '**emphatically**'

★ Key Points

- Using '**emphatically**' in the blank space to make the sentence correct.
- The word '**emphatically**' is an **adjective** and it means '**done or said in a strong way and without any doubt**'. It is the most appropriate word according to the context of the given sentence.
 - **Example:** *The minister has issued an **emphatic** rejection of the accusation.*

The correct sentence is-*Aryabhatta was the first astronomer to state **emphatically** that the earth is round and it rotates on its axis.*

★ Additional Information

WORDS	MEANING
Sympathy	<i>feelings of pity and sorrow for someone else's misfortune.</i>
Automatic	<i>working by itself with little or no direct human control.</i>
Accident	<i>an unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury.</i>

23. Answer: a

Explanation:

The correct answer is- 'with'

★ Key Points

- Using the preposition 'with' in the blank space to make the sentence correct.
- The preposition 'with' is 'used as a function word to indicate a participant in an action, transaction, or arrangement'. It is the best preposition according to the context of the given sentence.
- **Example:** got into an accident **with** the car

The correct sentence is- Her trekking was met **with** obstacles.

24. Answer: a

Explanation:

The correct answer is- 'error lies in the part-I'

★ Key Points

- In the given sentence we are talking about the **two past** events so in this type of sentence the **first part** will come in a **simple past** and the **second part** will

come in **past perfect** . The **second part** is already in the **past perfect** so here need to change the **first part** from the **present continuous** to **simple past**.

- **Example:** *Where you had gone when I called you?*

The correct sentence is- *Some girls **took** prior permission to sport a loosely tied plait on the days they had washed their hair.*

25. Answer: a

Explanation:

The correct answer is- 'error lies in the part-1'

★ Key Points

- Using '**happened**' in the place of '**happen**' makes the sentence **errorless** .
- In the given sentence we are asking about the activities which are already occurred. so need to use the past tense here. Replace '**happened**' instead of '**happen**' .

The correct sentence is- *What **happened** at your college today.*

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26. Answer: d

Explanation:

Asphalt is the major component in building of roads.

Similarly, metal is a major component in an ore.

Hence, "Ore : Metal" is the correct answer.

27. Answer: d

Explanation:

In 697 : 976,

1st digit of the number shifted to the last place.

2nd digit is shifted to first place.

3rd digit is shifted to 2nd place.

Similarly, for 532, it will be 325.

Hence, 325 is the correct answer.

28. Answer: d

Explanation:

In RTU : SUW,

R	T	U
+1	+1	+2
S	U	W

Similarly for CEF,

C	E	F
+1	+1	+2
D	F	H

Hence DFH is the correct answer.

29. Answer: a

Explanation:

As, Platinum is a metal, Water is liquid, Iron is solid. Similarly oxygen is a gas, not gas is a oxygen.

Hence it should be Gas – Oxygen not Oxygen – gas.

So, “Oxygen – gas” is odd one from the given option.

30. Answer: d

Explanation:

1) $27 + 5 = 32$

2) $31 + 5 = 36$

3) $33 + 5 = 38$

4) $23 + 5 = 28 \neq 27$

Hence, “23 – 27” is the odd pair among the given options.

31. Answer: d

Explanation:

1) SPMJ

S $\xrightarrow{-3}$ P $\xrightarrow{-3}$ M $\xrightarrow{-3}$ J

2) XURO

X $\xrightarrow{-3}$ U $\xrightarrow{-3}$ R $\xrightarrow{-3}$ O

3) NKHE

N $\xrightarrow{-3}$ K $\xrightarrow{-3}$ H $\xrightarrow{-3}$ E

4) ZWSP

Z $\xrightarrow{-3}$ W $\xrightarrow{-4}$ S $\xrightarrow{-3}$ P

Hence, "ZWSP" is the odd one among the given options.

32. Answer: c

Explanation:

On arranging word as per dictionary order,

4) Thun derstorm

5) Thur sday

2) Tim ber

3) Tink le

1) Tinn ed

Hence, "45231" is the correct answer.

33. Answer: d

Explanation:

$$17 + 3 = 20$$

$$20 + 3 = 23$$

$$23 + 3 = 26$$

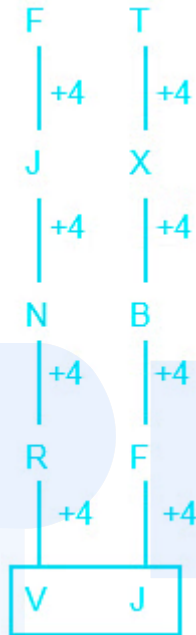
$$26 + 3 = 29$$

$$29 + 3 = 32$$

Hence, "32" is the correct answer.

34. Answer: c

Explanation:



Hence, "VJ" is the correct answer.

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35. Answer: c

Explanation:

1) Chetan celebrated his sixth birthday 7 years ago

Chetan present age will be = $6 + 7 = 13$ years.

2) Baman's age will be 4 times of the Chetan's present age after 5 years.

Baman present age + 5 = 4 (chetan present age)

Baman present age = $4 \times 13 - 5 = 52 - 5 = 47$ years

Amit age = 2 (Baman present age)

= 2×47

= 94 years

Hence Amit present age is 94 years.

36. Answer: d

Explanation:

1) Pass → Com **pass** ionate

2) Moss → C **om** pa **ss** ionate

3) Passion → Com **passion** ate

4) Comply → **Comp** assionate, this word cannot be formed as there is no L and Y in the word Compassionate.

Hence "Comply" word cannot be formed from the given word.

37. Answer: b

Explanation:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

In the given code language "RAPID" is written as "GLSDU"

R A P I D
| +3 | +3 | +3 | +3 | +3
U D S L G

Here the code for Rapid is written in reverse order. i.e. from right to left.

Similarly, for "WATER"

W A T E R
| +3 | +3 | +3 | +3 | +3
Z D W H U

Hence the code for "WATER" will be "UHWDZ".

38. Answer: d

Explanation:

Symbol	Meaning
×	−
÷	+
−	×
+	÷

Given expression: $18 \div 12 - 5 + 30 \times 6$

After changing the symbols: $18 + 12 \times 5 \div 30 - 6$

$$= 18 + 2 - 6$$

$$= 14$$

Hence 14 is the correct answer.

39. Answer: a

Explanation:

Given expression: $20 + 14 \div 35 - 10 \times 12 = 10$

1) + and $\times \rightarrow 20 \times 14 \div 35 - 10 + 12 = 10$

2) + and $\div \rightarrow 20 \div 14 + 35 - 10 \times 12 \neq 10$

3) - and + $\rightarrow 20 - 14 \div 35 + 10 \times 12 \neq 10$

4) $\div$ and $\times \rightarrow 20 + 14 \times 35 - 10 \div 12 \neq 10$

Hence, + and $\times$ should be interchanged to correct the equation.

40. Answer: d

Explanation:

Here $16\#2 = 16 \rightarrow (16 \times 2) \div 2 = 16$

$12\#6 = 36 \rightarrow (12 \times 6) \div 2 = 36$

$6\#1 = 3 \rightarrow (6 \times 1) \div 2 = 3$

$4\#4 \rightarrow (4 \times 4) \div 2 = 8$

Hence, "8" is the correct answer.

41. Answer: c

Explanation:

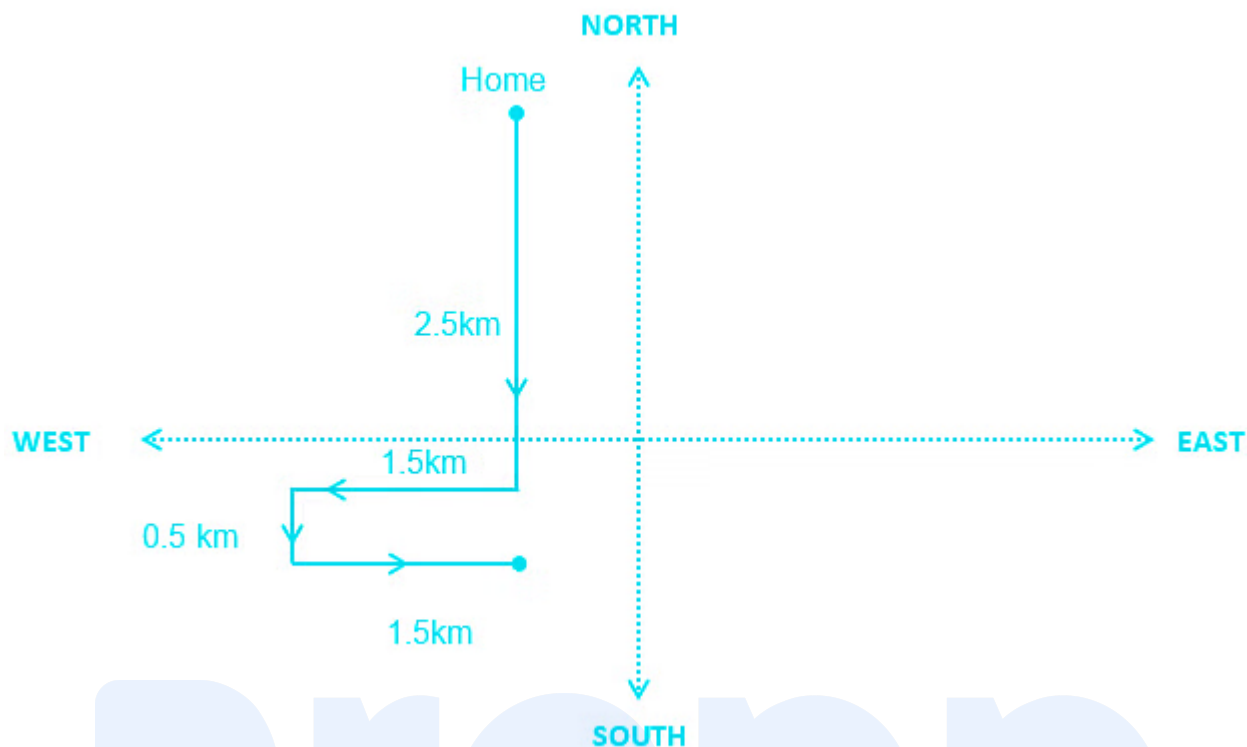
A	B	<u>C</u>	A	B	A	B	A	B
A	B	A	B	<u>C</u>	A	B	A	B
A	B	A	B	A	B	<u>C</u>	A	B
A	B	A	B	A	B	A	B	<u>C</u>
A	<u>C</u>	B	A	B	A	B	A	B
A	B	A	<u>C</u>	B	A	B	A	B

Here in every next term the position of C shifted + 2 places in right direction.

Hence, "ABACBABAB" is the correct answer.

42. Answer: c

Explanation:



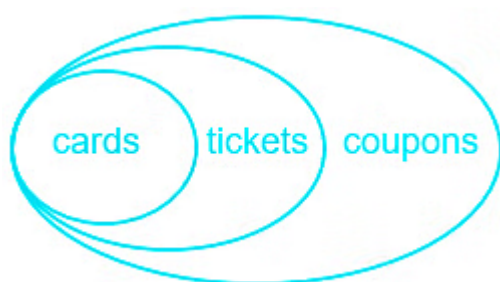
She is now 3 km in south direction away from Home.

43. Answer: c

Explanation:

Statement I :All tickets are coupons.

Statement II :All cards are tickets.



Conclusion I: Some coupons are cards → True

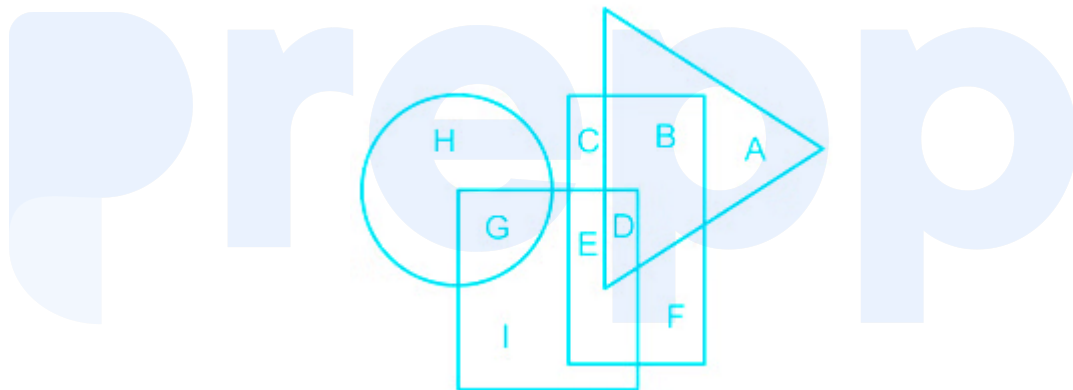
Conclusion II: Some cards are coupons → True

Hence Both Conclusion I and II follows.

44. Answer: a

Explanation:

- 1) Rectangle represents Opticians.
- 2) Circle represents Illustrators
- 3) Triangle represents Photographers
- 4) Square represents Football players



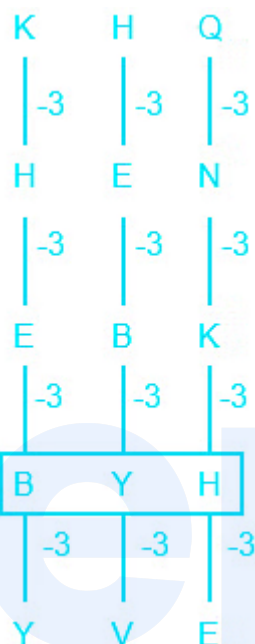
Letters represents Football players who are both Photographers as well as Opticians i.e. Square which is triangle as well as rectangle which is D.

Hence, "D" is the correct answer.

45. Answer: d

Explanation:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N



Hence, "BYH" is the correct answer.

46. Answer: a

Explanation:

$$6 + 3 = 9$$

$$9 + 4 = 13$$

$$13 + 5 = 18$$

$$18 + 6 = 24$$

$$24 + 7 = 31$$

Hence, 31 is the correct answer.

47. Answer: a

Explanation:

$$1) (5, 16, 22) \rightarrow 5 \times 3 + 1 = 16 ; 5 \times 4 + 1 = 21$$

$$2) (6, 19, 25) \rightarrow 6 \times 3 + 1 = 19 ; 6 \times 4 + 1 = 25$$

$$3) (4, 13, 17) \rightarrow 4 \times 3 + 1 = 13 ; 4 \times 4 + 1 = 17$$

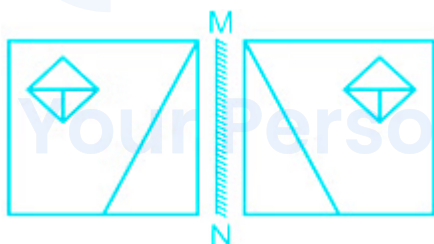
$$4) (9, 28, 37) \rightarrow 9 \times 3 + 1 = 28 ; 9 \times 4 + 1 = 37$$

Hence, (5, 16, 22) is odd one out from the above options.

48. Answer: b

Explanation:

The image is flipped horizontally.

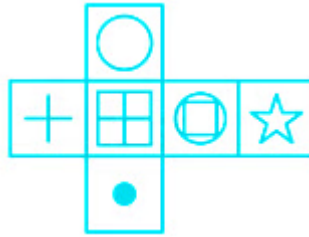


Hence option 2 is the correct answer.

49. Answer: a

Explanation:

From the figure we can conclude:



- 1) The face of the dice having dot is opposite to the face having circle.
- 2) The face of the dice having star is opposite to the face having four squares.
- 3) The face of the dice having + is opposite to the face having square inscribed in a circle.



In the above figure, the top surface of the cube is adjacent to the side square inscribed in a circle, which is not possible. Hence, the above figure cannot be formed.

50. Answer: b

Explanation:

- 1) 34,68,44,95 → E T G V
- 2) 43,78,23,59 → B R E W
- 3) 30,66,42,96 → M U K Q
- 4) 23,68,22,66 → E T H U

Hence, "43,78,23,59" is the correct answer.

51. Answer: a

Explanation:

$$\sqrt{1 - \left(\frac{x}{289}\right)} = \left(\frac{15}{17}\right)$$

Squaring both side we get,

$$\Rightarrow 1 - \left(\frac{x}{289}\right) = \frac{225}{289}$$

$$\Rightarrow 289 - x = 225$$

$$\therefore x = 64$$

52. Answer: a

Explanation:

As, unit digit for a number ending in three and with power follow a cycle of 4

$$\text{Unit digit of } (153)^{144} = \text{unit digit of } (153)^{(144/4)} = \text{unit digit of } (153)^{36} = 1$$

Now,

$$\text{Unit digit of } (115)^{123} = 5$$

$$\text{Unit digit of } (111)^{510} = 1$$

$$\text{Unit digit of } (216)^{25} = 6$$

$$\therefore \text{Unit digit of } (153)^{144} - (115)^{123} - (111)^{510} + (216)^{25} = 1 - 5 - 1 + 6 = 1$$

53. Answer: c

Explanation:

$$\Rightarrow 4^{(x-1)} 9^{(2y-8)} = 5184$$

$$\Rightarrow 4^{(x-1)} 8^1 (y-4) = 4^3 \times 8^1$$

Comparing both sides, we get

$$x - 1 = 3 \text{ and } y - 4 = 1$$

$$\Rightarrow x = 4 \text{ and } y = 5$$

$$\therefore x + y = 4 + 5 = 9$$

54. Answer: a

Explanation:

Given:-

$$s + (1/s) = 4$$

Formula used:-

$$(A + B)^2 = A^2 + B^2 + 2AB$$

Calculation:-

$$\Rightarrow s + (1/s) = 4$$

Squaring both sides, we get

$$\Rightarrow s^2 + (1/s^2) + 2 = 16$$

$$\therefore s^2 + \frac{1}{s^2} = 14$$

$\therefore$ The required answer is 14.

55. Answer: c

Explanation:

The tangent at any point of the circle is perpendicular to the radius through the point of contact

56. Answer: b

Explanation:

$$AB/DF = 3.8/7.6 = 1/2$$

$$BC/EF = 6/12 = 1/2$$

$$AC/ED = 3\sqrt{3}/6\sqrt{3} = 1/2$$

As, Ratio of corresponding sides of both triangles are equal so, triangle ABC and DFE are similar and hence corresponding angle will be equal

$$\therefore \angle FED = \angle BCA = 180^\circ - (\angle ABC + \angle BAC) = 180^\circ - (60^\circ + 80^\circ) = 40^\circ$$

57. Answer: d

Explanation:

Let Z's income be Rs. x

$$Y's \text{ income} = x + 40\% \text{ of } x = 1.4x$$

$$X's \text{ income} = 1.4x + 60\% \text{ of } 1.4x = 2.24x$$

$$\therefore \text{Required \%} = \{(2.24x - x)/x\} \times 100 = 124\%$$

58. Answer: c

Explanation:

$$(3y^2 + 3x^2) / (2y^2 - 8x^2)$$

$$= \{3 + 3(x/y)^2\} / \{2 - 8(x/y)^2\}$$

$$= \{3 + 3(1/9)\} / \{2 - 8(1/9)\}$$

$$= 30/10$$

$$= 3/1$$

$$\therefore (3y^2 + 3x^2) : (2y^2 - 8x^2) = 3 : 1$$

Smart approach

Take, $x = 1$ and $y = 3$

$$\text{Now, } (3y^2 + 3x^2) / (2y^2 - 8x^2) = (3 \times 3^2 + 3 \times 1^2) / (2 \times 3^2 - 8 \times 1^2) = (27 + 3) / (18 - 8) = 30/10 = 3/1 = 3 : 1$$

59. Answer: b

Explanation:

Sugar in 5 litre honey = 80% of 5 = 4 litres

New quantity of honey = 5 + 3 = 8 litres

$$\therefore \text{Required \%} = \{(8 - 4)/8\} \times 100 = 50\%$$

60. Answer: a

Explanation:

Short Trick:

The ratio of the number of passed students to failed students

$$= (40 - 20) : (42 - 40) = 10 : 1$$

Suppose number of passed students = $10x$

$\Rightarrow$ The number of failed students = x

Total marks of passed students = $42 \times 10x = 420x$

Total marks of failed students = $20 \times x = 20x$

$\therefore$ Required ratio = $420x : 20x = 21 : 1$

Detailed Solution:

Average of marks of 132 students = Sum of marks of 132 students/132

$\Rightarrow 40 = \text{Sum of marks of 132 students}/132$

$\Rightarrow \text{Sum of marks of 132 students} = 5280$

Let number of passed student be x

Number of failed student = $132 - x$

Now,

Average of marks of passed student = sum of marks of passed students/ x

$\Rightarrow 42 = \text{sum of marks of passed students} / x$

$\Rightarrow \text{sum of marks of passed students} = 42x$

Now,

Average of marks of failed student = sum of marks of failed students/ $(132 - x)$

$\Rightarrow 20 = \text{sum of marks of failed students} / (132 - x)$

$\Rightarrow \text{sum of marks of failed students} = 20(132 - x) = 2640 - 20x$

Now,

Total sum = $42x + 2640 - 20x$

$\Rightarrow 5280 = 22x + 2640$

$\Rightarrow 22x = 2640$

$\Rightarrow x = 120$

$$\text{Total marks of passed student} = 42x = 42 \times 120 = 5040$$

$$\Rightarrow \text{Total marks of failed student} = 2640 - 20x = 2640 - 20(120) = 240$$

$$\therefore \text{Required ratio} = 5040 : 240 = 21 : 1$$

61. Answer: d

Explanation:

GIVEN:

Principal = Rs. 8000

Amount = Rs. 12500

FORMULA USED:

$$\text{Compound interest} = P\{1 + (\text{rate}/100)\}^{\text{time}}$$

CALCULATION:

$$\Rightarrow 12500 = 8000\{1 + (\text{rate}/100)\}^2$$

$$\Rightarrow 12500/8000 = \{1 + (\text{rate}/100)\}^2$$

$$\Rightarrow 25/16 = \{1 + (\text{rate}/100)\}^2$$

$$\Rightarrow 5/4 = \{1 + (\text{rate}/100)\}$$

$$\Rightarrow \text{rate}/100 = 1/4$$

$$\Rightarrow \text{Rate} = 25\%$$

Now,

$$\therefore \text{Compound interest} = P\{1 + (\text{rate}/100)\}^{\text{time}} = 8000\{1 + (25/100)\}^3 = 15625$$

62. Answer: c

Explanation:

$$\text{Loss \%} = \{(\text{Cost price} - \text{selling price})/\text{cost price}\} \times 100$$

$$\text{Profit \%} = \{(2 \times \text{selling price} - \text{cost price})/\text{cost price}\} \times 100$$

According to question,

$$\{(\text{Cost price} - \text{selling price})/\text{cost price}\} \times 100 = \{(2 \times \text{selling price} - \text{cost price})/\text{cost price}\} \times 100$$

$$\Rightarrow \text{cost price} - \text{selling price} = 2 \times \text{selling price} - \text{cost price}$$

$$\Rightarrow 2 \times \text{cost price} = 3 \times \text{selling price}$$

$$\Rightarrow \text{Selling price}/\text{cost price} = 2/3$$

Now,

$$\therefore \text{Loss \%} = \{(\text{Cost price} - \text{selling price})/\text{cost price}\} \times 100 = \{1 - (\text{selling price}/\text{cost price})\} \times 100 = \{1 - (2/3)\} \times 100 = 33.33\%$$

63. Answer: c

Explanation:

Let cost price be Rs. 100

Marked price = 100 + 35% of 100 = Rs. 135

Selling price = Rs. 100

$$\therefore \text{Discount \%} = \{(\text{Marked price} - \text{selling price})/\text{Marked price}\} \times 100 = \{(135 - 100)/135\} \times 100 = 25.92\%$$

64. Answer: a

Explanation:

As, $11 \times 12 \times 13 \times 14 = 24024$ and the nearest perfect square near it is $24025 = 155^2$ so, 1 must be added to the product

65. Answer: a

Explanation:

Total work = $8 \times 14 = 112$

$\therefore$ Time taken by 7 men to do the same work = $112/7 = 16$

66. Answer: d

Explanation:

Speed of the first bus = 20km/hr

Speed of the second bus = 34 km/hr

When two vehicles move toward each other, then their speed is added to get the relative speed.

$\therefore$ Relative speed = $20 + 34 = 54$ km/hr

We need to find the distance between the two buses in metres, thus, we need to change the relative speed to m/sec,

= $54 \times (5/18) = 15$ m/sec

Time given = 1 second

$$\therefore \text{Required distance} = \text{Relative speed} \times \text{Time} = 15 \times 1 = 15 \text{ m}$$

67. **Answer: c**

Explanation:

According to the graph, D has the second lowest number of participants

68. **Answer: c**

Explanation:

Participants of activity G = 200

Participants of activity B = 360

$$\therefore \text{Required ratio} = 200 : 360 = 5 : 9$$

69. **Answer: c**

Explanation:

Participants of activity A = 240

Participants of activity F = 300

$$\therefore \text{Required \%} = \{(300 - 240)/300\} \times 100 = 20\%$$

70. **Answer: c**

Explanation:

Participants of activity G = $200 + 30\%$ of participant of activity F = $200 + 30\%$ of $300 = 290$

$$\therefore \text{Required \%} = \{(290 - 200)/200\} \times 100 = 45\%$$

71. Answer: d

Explanation:

Perimeter of a rectangle = $2(\text{length} + \text{breadth})$

$$\Rightarrow 82 = 2(\text{length} + 20)$$

$$\Rightarrow 41 = \text{length} + 20$$

$$\Rightarrow \text{length} = 21 \text{ cm}$$

As, each angle of a rectangle is 90°

$$\therefore \text{Diagonal} = \sqrt{\{(\text{length})^2 + (\text{breadth})^2\}} = \sqrt{\{(21)^2 + (20)^2\}} = 29 \text{ cm}$$

72. Answer: b

Explanation:

$$\therefore \text{Circumference of circle} = 2 \times \pi \times \text{radius} = 2 \times (22/7) \times 7 = 44 \text{ cm}$$

73. Answer: b

Explanation:

$$\text{Volume of Hemisphere} = (2/3) \times \pi \times \text{Radius}^3$$

$$\Rightarrow 89.83 = (2/3) \times (22/7) \times (\text{Diameter}/2)^3$$

$$\Rightarrow \text{Diameter}^3 = 343$$

$$\therefore \text{Diameter} = 7$$

74. Answer: b

Explanation:

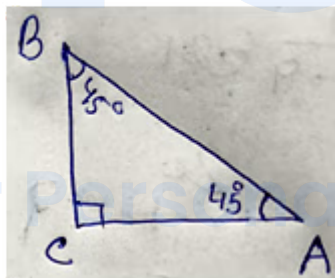
Given:

$\triangle ABC$ is right angled at B and $\angle C = 45^\circ$

Concept used:

- Sum of three angles of a triangle is 180°
- $\operatorname{cosec} 45^\circ = \sqrt{2}$

Calculation:



As, $m\angle B = 90^\circ$ and $m\angle C = 45^\circ$

By angle sum property,

$$\Rightarrow m\angle A = 180^\circ - (m\angle B + m\angle C) = 180^\circ - (90^\circ + 45^\circ) = 45^\circ$$

Now,

$$\therefore \operatorname{cosec} A - \sqrt{3} = \operatorname{cosec} 45^\circ - \sqrt{3} = \sqrt{2} - \sqrt{3}$$

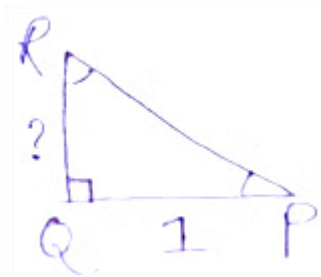
75. Answer: c

Explanation:

Concept used:

- Hypotenuse² = Perpendicular² + Base²

Calculation:



$$\sin P = 12/13$$

$$QR/PR = 12/13$$

$$QR = 12k \text{ and } PR = 13k$$

Now, by Pythagoras theorem in ΔPQR

$$\Rightarrow PQ^2 + QR^2 = PR^2$$

$$\Rightarrow (1)^2 + (12k)^2 = (13k)^2$$

$$\Rightarrow 1 + 144k^2 = 169k^2$$

$$\Rightarrow 25k^2 = 1$$

$$\Rightarrow k^2 = 1/25$$

$$\Rightarrow k = 1/5$$

Now,

$$\therefore QR = 12k = 12 \times (1/5) = 2.4 \text{ cm}$$

76. Answer: a

Explanation:

Brent Index is associated with crude oil prices.

- Brent Crude is a trading classification of the sweet light crude oil which serves as a major benchmark price for purchasing oil throughout the world.
- It is extracted from the North Sea and consists of Brent Blend, Ekofisk crudes, Forties Blend, and Oseberg.
- The Brent index represents the average price of trading in the 25-day Brent Blend, Oseberg, Forties, Ekofisk (BFOE) market in the appropriate delivery month as reported and confirmed by the industry media.

77. Answer: d

Explanation:

Fourth Five Year Plan: 1966–71

- It was launched by Indira Gandhi.
- The Fourth Five Year Plan (1969 – 1974) was aimed at achieving 'Progressive achievement of Self-reliance' and 'Growth with Stability'.
- 14 major Indian Banks were Nationalised which increased the confidence of the people in Banking System.

78. Answer: b

Explanation:

The Southern Alps mountain range is located in New Zealand.

- It lies in the South Island of New Zealand.

- Its length is approximately 500 km.
- Aoraki (also called as Mount Cook), which is the highest point in New Zealand at 3,724 meters, is its tallest peak.

79. Answer: a

Explanation:

The combined water stream of Ganga and Brahmaputra is known as the Meghna.

- The Meghna is a major river in Bangladesh.
- The tributaries of the Meghna river originate in the mountains of eastern India and flows southwest and join.
- The headstream of Meghna, the Barak, rises in the hills of Manipur.
- After flowing into Bangladesh, the Ganges, Brahmaputra (also known as Jamuna) and Meghna rivers join (near Bhairab Bazar, Bangladesh) and flow into the Bay of Bengal as the Meghna river.

80. Answer: a

Explanation:

Yoga-darsana, codified in the work of Patanjali, is based on the exposition of the epistemological, metaphysical, and methodological ideas of an age-old meditative tradition and is widely known as Yoga Sutras.

According to the philosophy of Hinduism, there are six darshans i.e, the ways of seeing the world:

1. Purva Mimansa
2. Uttara Mimansa (Vedanta)
3. Nyaya

4. Vaisheshika

5. Samkhya

6. Yoga

Patanjali was a notable scholar of the Samkhya school of Hindu philosophy. He is estimated to have lived between the 2nd and 4th century CE.

81. Answer: b

Explanation:

During the Maratha period, Patil was the officer responsible for the village administration.

- Shivaji had divided his kingdom into four provinces.
 - Mamlatdar or Viceroy was appointed as the head of each province.
 - Each province was sub-divided into several districts and villages.
 - The chief of the village was called Deshpande or Patel. He was responsible to run the affairs of the village with the help of the Village Panchayat.
-

Your Personal Exams Guide

82. Answer: d

Explanation:

Govind Swami Pillai is associated with Violin.

- In the last quarter of the 19th century, Govind Swami Pillai made novel experiments and firmly established violin in the Karnatic music.
-

83. Answer: a

Explanation:

Israel's Parliament has passed a law that will limit the powers of its police.

This controversial law was passed on 28 December 2017. According to this law, the police will not be able to recommend to the attorney general whether or not to charge suspects at the conclusion of an investigation.

84. Answer: a**Explanation:**

Hans Joachim Schellnhuber has been awarded the Blue Planet Prize-2017 in October 2017.

- German Physicist, Schellnhuber received the award for contributing to the international community's target of limiting global warming by 1.5 to 2 degrees Celsius. He has also shaped the science of Earth System Analysis and developed the most influential concept of tipping elements.
 - He was honored together with the ecosystem scientist, Prof. Gretchen C. Daily for her contribution in the creation of a conceptual framework called Countryside Biogeography, which focuses on how the human presence and activities strongly influence living and non-living components of the ecosystem.
 - The Blue Planet Prize is awarded to recognize the outstanding efforts in scientific research or applications of science that helps in solving the global environmental problems.
 - Asahi Glass Foundation has created the prize in 1992 and since then the foundation has awarded the prize to two winners every year.
-

85. Answer: a**Explanation:**

The correct answer is option i.e 1971.

- The national emblem of **Bangladesh was adopted in 1971**.
- The national emblem of Bangladesh is **the national flower water Lily** which is resting on water, having on each side rice sheaves and being surmounted by three connected jute leaves with two stars on each side of the leaves.

Some important National Symbols of Bangladesh are listed below:

Category	Symbol
National Anthem	Amar Sona Bangla
National Tree	Mango
National Bird	Doel
National Flower	Water lily
National Fruit	Jackfruit
National Animal	Royal Bengal Tiger
National Game	Kabaddi

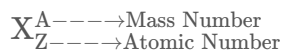
86. Answer: d

Explanation:

Mass number is always equal to the sum of the number of protons and the number of neutrons.

- Mass number determines the Atomic mass of an atom.
- Atomic number of an element is the number of protons present in the nucleus of an atom.
- Mass Number is denoted by A, while Atomic Number is denoted by Z.
- Mass Number = Number of Protons + Number of Neutrons
- Number of Neutrons = Mass Number – Atomic number = $A - Z$

- It is represented as:



- Mass Number (द्रव्यमान संख्या)
- Atomic Number (परमाणु संख्या)

Electrons:

- Discovered by Sir J.J Thomson in the year 1897 .
- Previously named as cathode rays as they were supposed to be emitted from the cathode .
- They are deflected towards the positive side.
- They have high kinetic energy.
- They are deflected by an electric and magnetic field.
- It has a negative charge of

$$\text{charge} = 1.602 \times 10^{-19} \text{coulombs}$$

$$\text{mass} = \frac{1}{1837} \times 9.107 \times 10^{-28} g$$

Protons:

- Discovered by Goldstein.
- Depicted first as positive rays because it seemed to emerge from the anode.
- Mass of a proton is

$$1.670 \times 10^{-24} g$$

$$\text{Charge} = 1.602 \times 10^{-19} \text{coulombs}$$

Explanation:

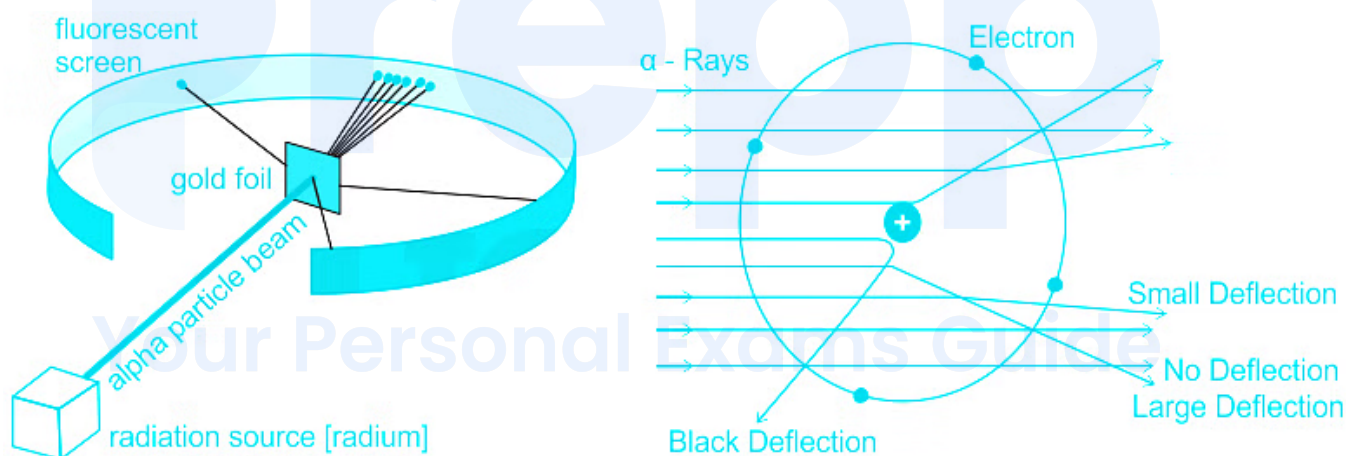
- Rutherford's discovery led to the discovery of nucleus .
- He found out that most of the mass of the nucleus is situated in its centre and contains the positively charged particles protons.
- The atom is otherwise empty and as electrons have negligible mass , the mass of an atom should be equal to the sum of mass of protons present in it.

- However, it was seen that in Helium, there are only two protons, so its mass should be twice the mass of each proton = $2 \times 1.008 \text{ a.m.u}$.
- Experimental results revealed that it has a mass of 4.003 a.m.u .
- Hence, it was concluded that the nucleus has particles containing no charge but mass almost equal to that of a proton.
- This was established by scientist James Chadwick in 1932.

★ Additional Information

Rutherford's gold foil experiment:

- He discovered the atomic nucleus and gave us an atomic model.
- He directed alpha particles towards a metal sheet.
- He saw that most of the alpha particles, which are positively charged particles, are not getting deflected.
- Most of the alpha particles emerged undeflected.



- Therefore, he concluded that most of the mass of the nucleus is situated in its centre and contains the positively charged particles protons.
- Electrons revolve around the nucleus in certain orbits.

87. Answer: d

Explanation:

All I, II, and III

- Ethanol is commonly known as Ethyl Alcohol.
- Its chemical formula is C_2H_5OH
- Ethanol is a very good solvent. Many compounds which are insoluble in water are soluble in Ethyl Alcohol.
- It is used in many medicines, such as tincture iodine, cough syrups, etc.
- The melting point of Ethanol is $-114^{\circ}C$ and boiling point is $78.37^{\circ}C$, which is very low with respect to water.

88. Answer: d

Explanation:

All options are correct.

- Article 21. Protection of Life And Personal Liberty: It states that no person shall be deprived of his life or personal liberty except according to procedure established by law.
- Through various judgements, the Apex Court provided a list of some rights that are included in the Article 21. They are as follows-
- The right to go abroad, The right against solitary confinement, The right against handcuffing, The right against delayed execution, The right to shelter, The right against custodial death, The right against public hanging, Doctors assistance, Right to pollution free water and air, Protection of under-trial, Right of every child to a full development, Protection of cultural heritage, Right to live with human dignity, etc.
- The Supreme Court has expanded 'right to life' in the following way-
- "The right to life would take within its sweep the right to food, the right to clothing, the right to a decent environment and a reasonable accommodation to live in."
- In August 2017, the Apex court also ruled that Right to Privacy is an intrinsic part of Right to Life and Personal Liberty under Article 21 and entire Part III of the Constitution.

89. Answer: c

Explanation:

The **74th Constitutional Amendment Act** gave constitutional recognition to municipalities.

- The 74th Amendment Act of 1992 added a new Part IX-A to the Constitution of India, titled 'The Municipalities'.
- It consists of provisions from Article 243-P to 243-ZG.
- This Act provides for a five-year term of office for every municipality.
- All the members of the municipality are elected directly by the people of that municipal area (wards).
- The State Election Commission is responsible for the preparation and conduct of all elections to the municipalities.

90. Answer: b

Explanation:

Carbon dioxide is NOT a waste material removed from blood in the kidney.

- Blood carrying CO₂ enters the Heart through Vena Cava and is sent along the pulmonary arteries to the lungs to release CO₂ from the body. Carbon dioxide is removed from the lungs when we breathe out.

91. Answer: a

Explanation:

The movement of water molecules through the plasma membrane is called Osmosis.

- Osmosis is the passage of water from the region of higher concentration to the region of lower concentration through a semi-permeable membrane.
- Plasma membrane or a cell membrane is a semipermeable or selectively permeable membrane that lets only certain molecules pass through it while keeping other molecules out.

92. Answer: d

Explanation:

In November 2017, the second phase of 'Bharat Net Project' was launched. Rs 34,000 crore is its approximate outlay.

- BharatNet is a project of national importance to establish, by 2017, a highly scalable network to provide on-demand, affordable broadband connectivity of 2 Mbps to 20 Mbps for all rural households and institutions to realize the vision of Digital India.
- The project is being executed by BSNL, Railtel and Power Grid.
- It is being funded through the **Universal Service Obligation Fund (USOF)**.
- There will be **three phases of the project**.
- The first phase envisages providing one lakh gram panchayats with broadband connectivity through optic fiber cable.
- The second phase will extend the cable to 2,50,500 gram panchayats in the country by using optimal mix of underground fiber, fiber over power lines, radio and satellite media, which is to be completed by March 2019.
- The third phase will provide state-of-the-art, future-proof network, including fiber between districts and blocks. Ring topology will be used to provide some redundancy.

93. Answer: d

Explanation:

NASA successfully tested supersonic landing parachute in November 2017 for its approximate Mars 2020 mission.

- The Advanced Supersonic Parachute Inflation Research Experiment (ASPIRE), mission's parachute-testing series was launched on 58-foot-tall Black Brant IX sounding rocket for evaluation of ASPIRE payload performance.
- The special parachute will help to slow the spacecraft down as it enters the Martian atmosphere at over 5.4 kilometers per second.
- The payload is a bullet-nosed, cylindrical structure – holding a supersonic parachute, the parachute's deployment mechanism, and the test's high-definition instrumentation, including cameras to record data.
- Mars 2020 rover mission will attempt to determine the potential habitability of the Mars environment, and search for signs of ancient Martian.

94. Answer: b

Explanation:

In October 2017, GIC Re launched India's 3rd biggest 'Initial Public Offering (IPO)' of Rs. 11,370 crore.

- General Insurance Corporation of India (GIC Re) is the largest reinsurance company in the Indian insurance market.
- Reinsurance is insurance purchased by an insurance company from other insurance firms in order to manage their risk.
- GIC Re launched 'Initial Public Offering (IPO)' of Rs. 11,370 crore which is the 3rd largest after Coal India and Reliance Power.
- IPO refers to a flotation, which an issuer or a company proposes to the public in the form of ordinary stock or shares. It is the first sale of stock by a company to the public. It is generally offered by new and medium-sized firms who are looking for funds to grow and expand their business.

95. Answer: a

Explanation:

On 5 January 2018, Lok Sabha passed High Court and Supreme Court Judges (Salaries and Conditions of Service) Amendment Bill, 2017. The Bill proposes to hike the salary of Chief Justice of India (CJI) to nearly Rs. 2.80 lakh per month.

- It was introduced in Lok Sabha by the Minister for Law and Justice, Mr. Ravi Shankar Prasad on December 21, 2017.
- It proposes to hike the salary of Chief Justice of India (CJI) to nearly Rs. 2.80 lakh per month, of judges of Supreme Court and Chief Justices of High Courts to Rs. 2.5 lakh a month, and that of Judges of High Courts to Rs. 2.25 lakh a month.
- The Bill seeks to amend:
 - The High Court Judges (Salaries and Conditions of Service) Act, 1954.
 - The Supreme Court Judges (Salaries and Conditions of Service) Act, 1958.
 - These Acts regulate the salaries and conditions of service of the judges of the High Courts and the Supreme Court.

96. Answer: d

Explanation:

The resistance of an electrical component if a current of 0.4 A passes through it on the application of 12 V of a potential difference across it is 30Ω .

Formula: Potential Difference $V = \text{Current } I \times \text{Resistance } R$

Therefore, $R = V \div I$

So, $= 12 \div 0.4$

$= 30\Omega$.

Resistance is the hindrance offered to the current in its passage through the conductor.

97. Answer: a

Explanation:

If the acceleration due to gravity on the surface of the earth is g , then the acceleration due to gravity on the surface of a planet whose mass is half of that of earth and radius is same as that of the earth is $g/2$.

Formula for acceleration due to gravity = $\frac{Gm}{r^2}$

Where, G = Newton's gravitational constant = $6.67 \times 10^{-11} \text{ N m}^2/\text{kg}^2$.

m = mass of the Earth and r = radius of the Earth.

Let us take m_1 as the mass of the planet which is half of that of the Earth and g_1 is its acceleration due to gravity.

Now $g_1 = \frac{G m_1}{r^2}$.

Putting m_1 as $\frac{m}{2}$, we get,

$$g_1 = \frac{G \times m}{2r^2}$$

Thus, it proves that if the acceleration due to gravity on the surface of the earth is g , then the acceleration due to gravity on the surface of a planet whose mass is half of that of earth and radius is same as that of the earth is $\frac{g}{2}$.

98. Answer: c

Explanation:

Explanation:

Earthquake: An earthquake is a sudden shaking or trembling of the earth which lasts for a very short time. It is caused by a disturbance deep inside the

earth's crust.

- The Richter scale was developed by **Charles F. Richter in 1935** to measure the magnitude of an earthquake.
- Like many other scales in science, the **Richter scale is not linear** . It is a logarithmic increase.
- The Richter scale is a base 10 logarithmic scale that is used to measure the magnitude of the earthquake.
- This means that an earthquake with magnitude 6 would be 10 times stronger than magnitude 5 and 100 times stronger than magnitude 4

Therefore, the **correct answer is scale 6**.

★ Additional Information

Richter Scale of Earthquake Energy:

Each level is **10 time stronger** than the previous level

	Description	Occurrence	In Population	Movement
1	Small	Daily	Every minute	Small
2	Small	Daily	Every hour	Small
3	Small	Daily	Every day	Small
4	Small	Daily	Every week	Moderate sudden
5	Moderate	Monthly	Every 10 years	Strong Sudden
6	Moderate	Monthly	Every 30 years	Strong Sudden
7	Major	Monthly	Every 50 years	Severe Sudden
8	Great	Yearly	Every 100 years	Very Severe
9	Great	Yearly	Every 300 years	Very Severe
10	Super	Rarely	Every 1,000 years	Extreme

99. Answer: a

Explanation:

In 2018 IPL auctions, Kings XI Punjab retained Axar Patel.

- Axar Patel (January 1994) is an Indian cricketer.
- He is a slow left-arm orthodox bowler and left-hand batsman.
- He was the only cricketer which Kings XI Punjab retained for IPL 2018.

100. Answer: a

Explanation:

NIC provides network backbone and e-governance support to government bodies in India.

- NIC stands for - National Informatics Centre (RashtriyaSuchna Vigyan Kendra)
- It was founded in 1976.
- It has its headquarters in New Delhi.
- It is a premier science & technology organization of the Government in informatics services and information and communication technology (ICT) applications.
- Almost all Indian-government websites are developed and managed by NIC.