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# SSC CGL 2012 Tier 1 1 July NZ Evening IV

## General Awareness

1. Which is NOT a correct statement ?

- A Phenols are acidic
- B In benzene all the atoms lie in one plane
- C Methylated spirit contains only methanol
- D Dilute solutions contain less amount of solute

**Answer:** C

## SSC CGL Free Mock Test

2. The infective stage of Malaria is

- A Gametocyte
- B Ring stage
- C Sporozoite
- D Merozoite

**Answer:** C

3. The treaty of Versailles restored Alsace-Lorraine to:

- A Italy
- B Britain
- C France
- D Belgium

**Answer:** C

4. The Asokan Edicts were deciphered first by :

- A Sir John Marshall
- B Sir William Jones
- C Charles Wilkins
- D James Prinsep

**Answer:** D

## SSC CGL Previous Papers (DOWNLOAD PDF)

5. Which of the following is meant for the ex-situ conservation of various species ?

- A** Sperm bank
- B** Blood bank
- C** Germplasm bank
- D** Herbarium

**Answer: C**

6. An algae type ocean deposit is:

- A** Weritic remains
- B** Diatom Ooze
- C** Pteropod Ooze
- D** Pelagic deposits

**Answer: B**

7. Photosynthetic vesicle found in bacteria is called a:

- A** Mesosome
- B** Chromatophore
- C** Genophore
- D** Pneumatophore

**Answer: B**

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8. What type of mirror is used in a view finding mirror of a vehicle ?

- A** Convex mirror
- B** Plane mirror
- C** Concave mirror
- D** Paraboloidal mirror

**Answer: A**

9. What is mcommerce ?

- A** machine commerce
- B** mobile commerce
- C** money commerce
- D** marketing commerce

**Answer: B**

10. Who said that the Directive Principles of State Policy are just like "a cheque on bank payable at the convenience of the bank" ?

- A Pandit Nehru
- B K.T. Shah
- C B.R. Ambedkar
- D N.G. Ranga

**Answer: B**

## SSC CGL Tier-2 Previous Papers PDF

11. Wheat, Barley, Lemon, Orange, rye, and pearl millet belong to:

- A the same plant family
- B two plant families
- C three plant families
- D four plant families

**Answer: B**

12. Who favoured the Arctic Home theory of the Aryans ?

- A Pargiter
- B A.C. Das
- C B.G.Tilak
- D Jacobi

**Answer: C**

13. A plant known only in cultivation having arisen under domestication is referred to as:

- A Scion
- B Cultigen
- C Cultivar
- D Clone

**Answer: B**

## SSC CGL Important Questions PDF

14. The proposal for the creation of new All India Services can be considered only :

- A if majority of State Legislatures make such demand
- B if Lok Sabha passes a resolution by two thirds majority

**C** if the Rajya Sabha passes a resolution by two thirds majority

**D** None of the above

**Answer: C**

15. **Pyroligneous acid obtained from wood contains:**

**A** 10% Formaldehyde

**B** 10% Acetic acid

**C** 10% Formic acid

**D** 10% Ethanol

**Answer: B**

16. **Union Carbide India Ltd. manufactured essentially:**

**A** Heavy water

**B** Petrochemicals

**C** Fertilizers

**D** Leather goods

**Answer: B**

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17. **The iron and steel plant in Jharkhand is at:**

**A** Visakhapatnam

**B** Bokaro

**C** Burnpur

**D** Vijay Nagar

**Answer: B**

18. **Who was the teacher of Gautama Buddha ?**

**A** Panini

**B** Alara Kalama

**C** Kapila

**D** Patanjali

**Answer: B**

19. **Ram Sharan Sharma, who died in 2011 was an eminent**

**A** Chemist

- B** Economist
- C** Indologist
- D** Archaeologist

**Answer:** C

## General Science Notes for SSC CGL

20. The 36th National Games will be held in 2019 in:

- A** Uttarakhand
- B** Kerala
- C** Karnataka
- D** Goa

**Answer:** D

21. "Eye for an eye and tooth for a tooth" is the guiding principle of:

- A** Attributive theory of Justice
- B** Retributive theory of Justice
- C** Deterrent theory of Justice
- D** Reformatory theory of Justice

**Answer:** B

22. Low cost housing is an example for:

- A** Mixed wants
- B** Social wants
- C** Private wants
- D** Merit wants

**Answer:** D

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23. Tohra is the sacred book of:

- A** Zoroastrianism
- B** Confucianism
- C** Taoism
- D** Judaism

**Answer:** D

24. The 98th Indian Science Congress was held in 2011 at:

- A Bengaluru
- B Bhopal
- C Chennai
- D Bhubaneswar

**Answer: C**

25. Drying oils contain a fairly large proportion of:

- A Unsaturated fatty acids
- B Fats
- C Proteins
- D Saturated fatty acids

**Answer: A**

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26. Consumption for the sake of enjoying social acknowledgement is called:

- A Rational consumption
- B Social consumption
- C Conspicuous consumption
- D Demonstration consumption

**Answer: C**

27. The red, orange and yellow colours of leaves are due to :

- A Carotenoids
- B Aldehydes
- C Tannins
- D Lignins

**Answer: A**

28. Which bank was the first to introduce ATMs to the world?

- A Hong Kong Bank
- B Standard Chartered Bank
- C Bank of America
- D Citi Bank

Answer: D

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29. We receive sunlight on earth surface. What type of light beams are these ?

- A Random
- B Parallel
- C Converging
- D Diverging

Answer: A

30. The state which has registered the highest population growth rate according to 2001 census is?

- A Kerala
- B Uttar Pradesh
- C Nagaland
- D Sikkim

Answer: C

31. Earth is a very big magnet. In which direction does its magnet is field extend ?

- A west to east
- B north to south
- C south to north
- D east to west

Answer: B

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32. Which economist is considered to be the Master of "Partial Analysis" ?

- A Leon Walras
- B Alfred Marshall
- C J.M. Keynes
- D Lionel Robbins

Answer: B

33. The authority to specify which castes shall be deemed to be scheduled castes rests with the?

- A Commissioner for Scheduled Castes and Tribes



- B** Prime Minister
- C** President
- D** Governor

**Answer: A**

34. **Polarbears hold cures for:**

- A** Type II diabetes
- B** Osteoporosis
- C** Breast - cancer
- D** Kidney failure

**Answer: A**

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35. **Which colour/colours of light has the highest velocity through vacuum ?**

- A** Blue
- B** Red
- C** Green
- D** All of the above

**Answer: D**

36. **The ultimate source of energy in a hydroelectric power station is:**

- A** solar energy
- B** the potential energy of water
- C** the kinetic energy of water
- D** the electrochemical energy of water

**Answer: B**

37. **Mamta Sharma was appointed in 2011 as the chairperson of:**

- A** National Commission for Minorities
- B** National Commission for Protection of Child Right
- C** National Commission for Women
- D** National Commission for BCs

**Answer: C**

**SSC CHSL Previous Question papers (download pdf)**

38. India making 'Double Taxation Avoidance Agreements' (DTAA) with other countries for the promotion of :

- A Bilateral trade
- B External commercial borrowings
- C Foreign direct investments
- D Foreign institutional investment

**Answer: A**

39. The seat of Kerala High Court is located at :

- A Kottayam
- B Thiruvananthapuram
- C Kollam
- D Ernakulam

**Answer: D**

40. The disease that kills more people than lung cancer as a consequence of air pollution is :

- A chronic bronchitis
- B asthma
- C emphysema
- D heart attack

**Answer: C**

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41. The most densely populated state in India is :

- A Kerala
- B Uttar Pradesh
- C West Bengal
- D Tamil Nadu

**Answer: C**

42. Brain drain has been caused by:

- A failure to recognise talent in the originating country.
- B the lure of high living standards
- C lack of employment opportunities
- D socioeconomic instability

**Answer: C**

43. Human Development Index was formulated by:

- A** ASEAN
- B** IBRD
- C** UNDP
- D** UNCTAD

**Answer: C**

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44. The biggest planet in the solar system is:

- A** Venus
- B** Jupiter
- C** Saturn
- D** Uranus

**Answer: B**

45. Peninsular India has the following zonal soil types:

- A** Red and yellow soil
- B** Forest soil
- C** Saline soil
- D** Alluvial soil

**Answer: A**

46. The prose collection of the Vedic poems are:

- A** Samhitas
- B** Upanishads
- C** Aranyakas
- D** Brahmanas

**Answer: A**

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47. The study of population is known as

- A** Demography

- B** Climatology
- C** Petrology
- D** Hydrology

**Answer: A**

48. Which of the following pairs is correctly matched ?

- A** Milk of lime — sodium sulphate
- B** Glauber's salt — calcium
- C** Salt petre — potassium nitrate
- D** Gypsum — calcium hydroxide

**Answer: C**

49. Who is the author of the book 'Pakistan: Beyond the Crisis State' ?

- A** Khuram Iqbal
- B** Maleeha Lodhi
- C** Amir Mir
- D** M.J. Akbar

**Answer: B**

## SSC CGL Free Mock Test

50. The first speaker of Lok Sabha was :

- A** S. Radhakrishnan
- B** M. Ananthasayanam Ayyangar
- C** Sardar Hukum Singh
- D** G. V. Mavlankar

**Answer: D**

## SSC CGL Previous Papers (DOWNLOAD PDF)

### English

#### Instructions [51 - 55]

In the following questions, some parts of the sentences have errors and some have none. Find out which part of a sentence has an error. The number of the part is your answer. If a sentence is free from error, then your answer is (d) i.e. No error.

51. World is producing enough (a) / for every citizen but still there is hunger and malnutrition (b)/ and it is continuing year after year. (c) / No error (d)

- A** World is producing enough

- B** for every citizen but still there is hunger and malnutrition
- C** and it is continuing year after year.
- D** No error

**Answer: D**

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52. The N.C.C. commandant along with his cadets (a) / are going to Delhi (b) / to participate in the Republic Day Parade. (c) / No error (d)

- A** The N.C.C. commandant along with his cadets
- B** are going to Delhi
- C** to participate in the Republic Day Parade.
- D** No Error

**Answer: B**

53. He did not succeed (a) / to get the job (b)/ though he tried his level best. (c) / No error (d)

- A** He did not succeed
- B** to get the job
- C** though he tried his level best.
- D** No Error

**Answer: B**

54. Many of the famous (a) / advertising offices (b) / are located at Madison Avenue. (c) / No error (d)

- A** Many of the famous
- B** advertising offices
- C** are located at Madison Avenue.
- D** No Error

**Answer: C**

## SSC CGL Tier-2 Previous Papers PDF

55. Nature has denied us (a) / the power of closing our ears (b) / which she gave in respect of our eyes. (c) / No error (d)

- A** Nature has denied us
- B** the power of closing our ears
- C** which she gave in respect of our eyes.
- D** No Error

**Answer: C**

**Instructions [56 - 60 ]**

In the following questions, sentences are given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four as your answer.

56. The ladies black purse, which is on sale has a beautiful.....carved on it.

- A** motif
- B** patch
- C** layout
- D** schematic

**Answer: A**

57. Who is the person you..... at the cinema last night?

- A** were recognising
- B** recognised
- C** have recognised
- D** had recognised

**Answer: D**

## SSC CGL Important Questions PDF

58. As you \_\_\_\_ sow shall you reap.

- A** when
- B** as
- C** like
- D** so

**Answer: D**

59. He complimented her..... new dress.

- A** for
- B** of
- C** on
- D** about

**Answer: C**

60. It took him a long time..... the candidate's application.

- A** to considering

- B** to consider and weigh
- C** considering weighing
- D** to consider and to weigh

**Answer:** B

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### Instructions [61 - 65]

In the following questions, out of the four alternatives, choose the one which best expresses the meaning of the given word as your answer.

61. **Annexure**

- A** retirement
- B** commencement
- C** attachment
- D** development

**Answer:** C

62. **Errand**

- A** energy
- B** task
- C** mistake
- D** blunder

**Answer:** B

63. **Bequeath**

- A** give
- B** disclose
- C** scold
- D** surround

**Answer:** A

## General Science Notes for SSC CGL

64. **Nonchalant**

- A** imaginary
- B** casual
- C** neutral

**D** formal

**Answer:** B

65. **Forbearance**

**A** deliverance

**B** patience

**C** extravagance

**D** relevance

**Answer:** B

**Instructions [66 - 70]**

In the following questions, choose the word opposite in meaning to the given word as your answer.

66. **Amenable**

**A** acquiescent

**B** distrustful

**C** inattentive

**D** unwilling

**Answer:** D

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67. **Conspicuous**

**A** blatant

**B** definite

**C** obvious

**D** obscure

**Answer:** D

68. **Reproof**

**A** approbation

**B** apposition

**C** condemnation

**D** appropriation

**Answer:** A

69. **Niggard**



- A avaricious
- B extravagant
- C generous
- D miserly

**Answer: C**

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70. **Exotic**

- A conventional
- B poor
- C inexpensive
- D indigenous

**Answer: D**

### Instructions [71 - 75]

In the following questions, four alternatives are given for the idiom/phrase printed in bold. Choose the alternative which best expresses the meaning of the idiom/phrase as your answer.

71. **His speech has taken the wind out of my sails .**

- A made my words or actions ineffective
- B made me depressed
- C made me think of the future
- D made me remember my past

**Answer: A**

72. **There is no point in discussing the new project with him as he always pours cold water on any new ideas.**

- A puts off
- B dislikes
- C disapproves of
- D postpones

**Answer: C**

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73. **Regardless of what her parents said, she wanted to let her hair down that night.**

- A really enjoy

- B** wash her hair
- C** comb her hair
- D** work till late

**Answer: A**

74. I **jumped out of my skin** when the explosion happened.

- A** was in panic
- B** was excited
- C** was nervous
- D** was angry

**Answer: A**

75. She **didn't realize that the clever salesman was** taking her for a ride.

- A** trying to trick her
- B** taking her in a car
- C** pulling her along
- D** forcing her to go with him

**Answer: A**

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### Instructions [76 - 80 ]

In the following questions, a part of the sentence is printed in bold. Below are given alternatives to the bold part at (a), (b) and (c) which may improve the sentence. Choose the correct alternative. In case no improvement is needed, your answer is (d).

76. It **took her a long time to get** past her failure in the medical examination.

- A** through
- B** over
- C** by
- D** No improvement

**Answer: B**

77. The boy **wanted to ask his father for money, but waited for a** propitious occasion.

- A** protective
- B** prophetic
- C** prospective
- D** No improvement

**Answer: D**

78. I did not agree with him; he appeared to be so bigoted for me to concur.

- A much
- B very
- C too
- D No improvement

**Answer: C**

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79. As soon as she noticed the workmen, she asked them what they have been doing.

- A have done
- B had been
- C are doing
- D No improvement

**Answer: B**

80. He was asleep before the mother tucked him off.

- A through
- B away
- C in
- D No improvment

**Answer: C**

#### Instructions [81 - 85]

In the following questions, out of the four alternatives, choose the one which can be substituted for the given words/ sentence.

81. A raised place on which offerings to a God are made

- A rostrum
- B church
- C altar
- D mound

**Answer: C**

### SSC CHSL Previous Question papers (download pdf)

82. Something that cannot be explained

- A** unthinkable
- B** impregnable
- C** mysterious
- D** inexplicable

**Answer:** D

83. A written declaration made on oath in the presence of a magistrate

- A** affidavit
- B** dossier
- C** voucher
- D** document

**Answer:** A

84. A person who thinks only about himself and not about others° needs

- A** egomaniacal
- B** egoistic
- C** egotistic
- D** egocentric

**Answer:** D

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85. A guidepost pointing out the way for a place

- A** fingerpost
- B** lamppost
- C** checkpost
- D** lastpost

**Answer:** A

#### Instructions [86 - 90 ]

In the following questions, there are four different words out of which one is correctly spelt. Find the correctly spelt word as your answer.

86.

- A** digresion
- B** digrestion

**C** digression

**D** degression

**Answer: C**

87.

**A** presumpchous

**B** presumtous

**C** presumptuous

**D** presomptous

**Answer: C**

88.

**A** equalibirium

**B** equilibrium

**C** equilibrum

**D** equilibirium

**Answer: B**

89.

**A** vaterinerian

**B** veterinarian

**C** vetarinerian

**D** veterinerian

**Answer: B**

90.

**A** marrytime

**B** marytime

**C** maritime

**D** meritime

**Answer: C**

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**Instructions [91 - 95 ]**

In the following questions, you have a brief passage with 5 questions. Read the passage carefully and choose the best answer to each question out of the four alternatives.

"People very often complain that poverty is a great evil and that it is not possible to be happy unless one has a lot of money. Actually, this is not necessarily true. Even a poor man, living in a small hut with none of the comforts and luxuries of life, may be quite contented with his lot and achieve a measure of happiness. On the other hand, a very rich man, living in a palace and enjoying everything that money can buy, may still be miserable, if, for example, he does not enjoy good health or his only son has taken to evil ways. Apart from this, he may have a lot of business worries which keep him on tenterhooks most of the time. There is a limit to what money can buy and there are many things, which are necessary for a man's happiness and which money cannot procure. Real happiness is a matter of the right attitude and the capacity of being contented with whatever you have is the most important ingredient of this attitude".

91. The phrase "on tenterhooks" means :

- A in a state of thoughtfulness
- B in a state of anxiety
- C in a state of sadness
- D in a state of forgetfulness

Answer: B

92. It is true that :

- A money alone can give happiness
- B money always gives happiness
- C money seldom gives happiness
- D money alone cannot give happiness

Answer: D

93. A rich man's life may become miserable if he:

- A has evil son, bad health and business worries
- B does not enjoy good health
- C has business worries
- D has business worries and his only son has taken to evil ways.

Answer: A

### SSC CGL Free Mock Test

94. 'Which of the following is the most appropriate title to the passage?

- A Poverty a great evil
- B The key of happiness
- C Contentment, the key to happiness
- D Money and contentment

Answer: C

95. Which of the following statements is true?

- A Only a poor but contented man can be happy
- B A poor but contented man can never be happy
- C A poor but contented man can be happy •
- D A poor but contented man is always happy

**Answer: C**

**Instructions [96 - 100 ]**

In the following questions, you have a brief passage with 5 questions. Read the passage carefully and choose the best answer to each question out of the four alternatives.

The problem of water pollution by pesticides can be understood only in context, as part of the whole to which it belongs – the pollution of the total environment of mankind. The pollution entering our waterways comes from many sources, radioactive wastes from reactors, laboratories, and hospitals; fallout from nuclear explosions; domestic wastes from cities and towns; chemical wastes from factories. To these is added a new kind of fallout – the chemical sprays applied to crop lands and gardens, forests and fields. Many of the chemical agents in this alarming melange initiate and augment the harmful effects of radiation, and within the groups of chemicals themselves there are sinister and little – understood interactions, transformations, and summations of effect.

Ever since the chemists began to manufacture substances that nature never invented, the problem of water purification have become complex and the danger to users of water has increased. As we have seen, the production of these synthetic chemicals in large volume began in the 1940's. It has now reached such proportion that an appalling deluge of chemical pollution is daily poured into the nation's waterways. When inextricably mixed with domestic and other wastes discharged into the same water, these chemicals sometimes defy detection by the methods in ordinary use by purification plants. Most of them are so complex that they cannot be identified. In rivers, a really incredible variety of pollutants combine to produce deposits that sanitary engineers can only despairingly refer to as "gunk".

96. All the following words mean 'chemicals' except

- A sands
- B substances
- C pesticides
- D deposits

**Answer: A**

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97. The main argument of paragraph 1 is:

- A that there are sinister interaction in the use of chemicals
- B that there are numerous reasons for contamination of water supplies
- C that there are many dangers from nuclear fallout
- D that pesticides are dangerous

**Answer: B**

98. The word 'gunk' in the last line refers :

- A to the waste products deposited by sanitary engineers

- B** to the debris found in rivers
- C** to unidentifiable chemicals found in water
- D** to the domestic water supplies

**Answer: C**

99. **Water pollution can only be understood**

- A** in relation to world contamination
- B** by the whole human race
- C** in context
- D** in relation to the number of pesticides that exist

**Answer: A**

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100. **Water contamination has become serious.**

- A** since water pollution was difficult to assess
- B** since nature has taken a hand in pollution
- C** since chemists began to use new substances
- D** since businessmen authorised the use of chemicals.

**Answer: C**

## SSC CGL Tier-2 Previous Papers PDF

### Quant

101. **If  $\cot A + \operatorname{cosec} A = 3$  and  $A$  is an acute angle, then the value of  $\cos A$  is :**

- A**  $4/5$
- B**  $1$
- C**  $1/2$
- D**  $3/4$

**Answer: A**

**Explanation:**

$$\operatorname{cosec} A + \cot A = 3$$

$$\operatorname{cosec}^2 A - \cot^2 A = 1;$$

$$\operatorname{cosec} A - \cot A = 1/(\operatorname{cosec} A + \cot A)$$

$$\text{So } \operatorname{cosec} A - \cot A = 1/3$$

$$2 \operatorname{cosec} A = 10/3 \text{ or } \operatorname{cosec} A = 5/3.$$

$$\text{Hence } \sin A = 3/5$$

$$\cos^2 A = 1 - \sin^2 A$$

$$\text{So, } \cos^2 A = 1 - (9/25) = 16/25$$



$\cos A = 4/5$ .

Option A is the correct answer.

## SSC CGL Important Questions PDF

102. A three digit number  $4a3$  is added to another three digit number  $984$  to give the four digit number  $13b7$  which is divisible by  $11$ . Then the value of  $(a+b)$  is:

- A 11
- B 12
- C 9
- D 10

**Answer: D**

**Explanation:**

it is given that three digit number  $4a3$  is added to another three digit number  $984$  to give the four digit number  $13b7$  which is divisible by  $11$

$$400 + 10a + 3 + 984 = 1300 + 10b + 7$$

$$10a - 10b = -80$$

$$b - a = 8 \dots (1)$$

$13b7$  is divisible by  $11$  and hence using its divisibility rule we can say that  $9 - b$  will be of the form  $11k$  and hence  $b$  can only take  $9$  value and so  $a = 1$

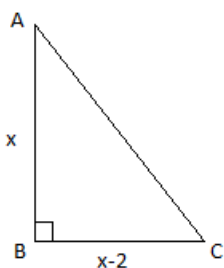
$$a + b = 1 + 9 = 10$$

103. In a right angled triangle  $ABC$ ,  $\angle B$  is the right angle and  $AC = 2\sqrt{5}$  cm. If  $AB - BC = 2$  cm then the value of  $(\cos^2 A - \cos^2 C)$  is

- A  $2/5$
- B  $3/5$
- C  $1/2$
- D  $3/10$

**Answer: B**

**Explanation:**



By Pythagoras theorem,

$$x^2 + (x - 2)^2 = 20$$

$$x^2 + x^2 + 4x + 4 = 20$$

$$2x^2 + 4x + 4 = 20$$

$$x^2 + 2x + 2 = 10$$

Solving the quadratic equation we get

$$x = 4 \text{ and } x = -2$$

Since  $x$  cannot be negative  $x=4$ .

$$AC = 2\sqrt{5}$$

$$\cos A = \frac{x}{2\sqrt{5}}$$

$$\cos^2 A = \frac{x^2}{20} = \frac{16}{20} = \frac{4}{5}$$

$$\cos C = \cos(90 - A) = \sin A = \frac{x-2}{2\sqrt{5}}$$

$$\sin^2 A = \frac{(x-2)^2}{20} = \frac{4}{20} = \frac{1}{5}$$

$$(\cos^2 A - \cos^2 C) = \cos^2 A - \sin^2 A = \frac{4}{5} - \frac{1}{5} = \frac{3}{5}$$

Hence Option B is the correct answer.

104. A boy standing in the middle of a field, observes a flying bird in the north at an angle of elevation of  $30^\circ$  and after 2 minutes, he observes the same bird in the south at an angle of elevation of  $60^\circ$ . If the bird flies all along in a straight line at a height of 50 m, then its speed in km/h is :

A 4.5

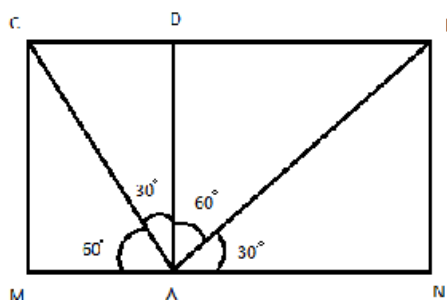
B 3

C 9

D 6

**Answer: D**

**Explanation:**



From the diagram,

Height =  $AD = 50\sqrt{3}$  m

$\angle BAN = 30^\circ$

$\angle CAM = 60^\circ$

$\therefore \angle BAD = 90^\circ - 30^\circ = 60^\circ$

$\therefore \angle CAD = 90^\circ - 60^\circ = 30^\circ$

From  $\triangle ABD$ ,

$\tan \angle BAD = \text{Perpendicular} / \text{Base}$

$\tan 60^\circ = BD / AD$

$\sqrt{3} = BD / (50\sqrt{3})$

$BD = 50 \times 3 = 150$  m

From  $\triangle ACD$ ,

$\tan \angle CAD = \text{Perpendicular} / \text{Base}$

$\tan 30^\circ = CD / AD$

$1/\sqrt{3} = CD / (50\sqrt{3})$

$CD = 50$  m

$\therefore$  Distance travelled by the bird

$= BC = BD + CD = 150 \text{ m} + 50 \text{ m} = 200 \text{ m} = 0.200 \text{ km}$

Time taken to cover this distance = 2 minutes =  $2/60$  hr =  $1/30$  hr

$\therefore$  Speed

$= \text{Distance travelled} / \text{Time required}$

$= 0.200 \times 30 \text{ km/hr}$   
 $= 0.200 \times 30 \text{ km/hr}$   
 $= 6 \text{ km/hr}$   
 Option D is the correct answer

## 1500 + Free Must Solved SSC Questions (With Solutions)

105. The perimeter of an isosceles, right angled triangle is  $2p$  unit. The area of the same triangle is :

- A  $(3 - 2\sqrt{2})p^2$  sq.unit
- B  $(2 + \sqrt{2})p^2$  sq.unit
- C  $(2 - \sqrt{2})p^2$  sq.unit
- D  $(3 - \sqrt{2})p^2$  sq.unit

**Answer:** A

**Explanation:**

lets assume the sides to be  $(a, b, c)$ . (In isosceles  $a=b$ ; also as it is right angled  $c = a \times \sqrt{2}$ ) (c is the hypotenuse)

$$a+b+c = 2p$$

$$a+a+\sqrt{2}a = 2p$$

$$a = \frac{2p}{(2+\sqrt{2})}$$

$$\text{Now area of triangle (A)} = \frac{1}{2} \times ab$$

$$A = \left(\frac{1}{2}\right) \times a^2$$

$$A = \left(\frac{1}{2}\right) \left(\frac{2p}{(2+\sqrt{2})}\right)^2$$

$$= 2p^2 / (4 + 4\sqrt{2} + 2)$$

$$= 2p^2 / (6 + 4\sqrt{2})$$

$$= p^2 / (3 + 2\sqrt{2})$$

$$A = (3 - 2\sqrt{2})p^2 \text{ sq.unit}$$

106.  $\triangle ABC$  and  $\triangle DEF$  are similar and their areas be respectively  $64 \text{ cm}^2$  and  $121 \text{ cm}^2$ . If  $EF = 15.4 \text{ cm}$ ,  $BC$  is:

- A 12.3 cm
- B 11.2 cm
- C 12.1 cm
- D 11.0 cm

**Answer:** B

**Explanation:**

$\triangle ABC$  and  $\triangle DEF$  are similar.

$$\frac{\triangle ABC}{\triangle DEF} = \left(\frac{BC}{EF}\right)^2$$

$$\frac{64}{121} = \left(\frac{BC}{15.4}\right)^2$$

$$BC = 11.2$$

107. If  $G$  is the centroid of  $\triangle ABC$  and  $AG = BC$ , then  $\angle BGC$  is:

- A  $75^\circ$
- B  $45^\circ$

**C**  $90^\circ$

**D**  $60^\circ$

**Answer: C**

**Explanation:**

$AG = 2GM$

As  $AG = BC$  for the given condition

$2GM = BC$  (where M is the midpoint of BC)

thus  $BM = MG = MC$

$\angle MGB$  and  $\angle GBM$  are equal

$\angle MGC$  and  $\angle GCM$  are equal

so  $\angle MGB + \angle MGC = \angle GBM + \angle GCM$

that is  $\angle BGC = \angle GBM + \angle GCM$

As the sum of all three angles is  $180^\circ$

$\angle BGC$  is  $90^\circ$

## General Science Notes for SSC CGL

108. If  $\tan(x + y) \tan(x - y) = 1$ , then the value of  $\tan x$  is :

**A**  $\sqrt{3}$

**B** 1

**C**  $1/2$

**D**  $1/\sqrt{3}$

**Answer: B**

**Explanation:**

$$\tan(x + y) = \frac{\tan x + \tan y}{1 - \tan x \tan y}$$

$$\tan(x - y) = \frac{\tan x - \tan y}{1 + \tan x \tan y}$$

$$\tan(x + y) \tan(x - y) = 1$$

$$\frac{\tan x + \tan y}{1 - \tan x \tan y} \times \frac{\tan x - \tan y}{1 + \tan x \tan y} = 1$$

$$\frac{\tan^2 x - \tan^2 y}{1 - \tan^2 x \tan^2 y} = 1$$

$$\tan^2 x - \tan^2 y = 1 - \tan^2 x \tan^2 y$$

$$\tan^2 x + \tan^2 x \tan^2 y = 1 + \tan^2 y$$

$$\tan^2 x (1 + \tan^2 y) = 1 + \tan^2 y$$

$$\tan^2 x = 1$$

$$\tan x = 1$$

Option B is the correct answer.

109. In a partnership business, A invests  $1/6$ th of the capital for  $1/6$  of the total time, B invests  $1/4$  of the capital for  $1/4$  of the total time and C, the rest of the capital for the whole time. Out of a profit of 19,400, B's share is :

- A 2000
- B 1200
- C 1600
- D 1800

**Answer: D**

**Explanation:**

let the total capital be Rs z and total time be y

hence ratio of profit division for A,B,C will be

$$\frac{z}{6} \times \frac{y}{6} : \frac{y}{4} \times \frac{z}{4} : y \times \frac{7z}{12}$$

$$A:B:C = 4:9:84$$

$$\text{hence profit for B} = \frac{9}{97} \times 19400 = 1800$$

110. A jar contains a mixture of two liquids A and B in the ratio 4 : 1. When 10 litre of the mixture is replaced with liquid B, the ratio becomes 2 : 3. The volume of liquid A present in the jar earlier was:

- A 20 litre
- B 10 litre
- C 16 litre
- D 15 litre

**Answer: D**

**Explanation:**

$$\frac{QNR}{total} = \frac{QNR(initial)}{total} \left(1 - \frac{\text{Replaced Quantity}}{total}\right)$$

QNR is the quantity which has not entered again

so here QNR is A

$$\frac{A}{5x} = \frac{4x}{5x} \left(1 - \frac{10}{5x}\right)$$

$$A = 4(x-2)$$

$$B = 5x - 4x + 8 = x+3$$

$$\frac{4x-8}{x+3} = \frac{2}{3}$$

$$12x - 24 = 2x + 6$$

$$10x = 30$$

$$x = 3$$

$$\text{so volume} = 5x = 5 \times 3 = 15 \text{ ltr}$$

## Free SSC Study Material (18,000 Solved Questions)

111. If  $(5x^2 - 3y^2) : xy = 11:2$ , and x,y are positive, then the value of x/y is:

- A  $\frac{7}{2}$
- B  $\frac{5}{2}$
- C  $\frac{3}{2}$

**D**  $5/3$

**Answer: C**

**Explanation:**

it is given that  $(5x^2 - 3y^2):xy = 11:2$

let divide the numerator and denominator of left hand side of the given equation by  $y^2$

we will get ,

$$5\left(\frac{x}{y}\right)^2 - 3 = \frac{11}{2}$$

let  $\frac{x}{y} = k$

$$\text{So, } \frac{5k^2 - 3}{k} = \frac{11}{2}$$

Solving this we get ,  $k = \frac{3}{2}$

hence  $\frac{x}{y} = \frac{3}{2}$

112. By decreasing  $15^\circ$  of each angle of a triangle, the ratios of their angles are 2:3:5, The radian measure of greatest angle is :

**A**  $11\pi/24$

**B**  $\pi/12$

**C**  $\pi/24$

**D**  $5\pi/24$

**Answer: A**

**Explanation:**

After decreasing  $15^\circ$  from each angle of triangle let the values of corresponding angles be  $2x$ ,  $3x$  and  $5x$  so that their ratio would be  $2x:3x:5x$  or  $2:3:5$ .

Thus the value of angles of triangle must be  $(2x + 15^\circ)$ ,  $(3x + 15^\circ)$  and  $(5x + 15^\circ)$ .

We know that,

Sum of angles of triangle =  $180^\circ$

$$\therefore (2x + 15^\circ) + (3x + 15^\circ) + (5x + 15^\circ) = 180^\circ$$

$$10x + 45^\circ = 180^\circ$$

$$x = 13.5^\circ$$

Hence, the value of the greatest angle of triangle =  $5x + 15^\circ = 5 \times 13.5 + 15 = 82.5^\circ$

$$= \frac{82.5}{180} \pi$$

$$= 11\pi/24$$

Hence, the radian measure of greatest angle is  $11\pi/24$

113. The least value of  $4\operatorname{cosec}^2 \alpha + 9\sin^2 \alpha$  is:

**A** 14

**B** 10

**C** 11

**D** 12

**Answer: D**

**Explanation:**

We know that  $\operatorname{cosec} \alpha = 1/\sin \alpha$ , hence applying A.M  $\geq$  G.M logic, we get

$$\text{A.M of given equation} = (4 \operatorname{cosec}^2 \alpha + 9 \sin^2 \alpha) / 2 \dots (1)$$

G.M of given equation =  $\sqrt{(4 \operatorname{cosec}^2 \alpha \cdot 9 \sin^2 \alpha)}$

$$= \sqrt{4 \cdot 9}$$

$$= \sqrt{36} = 6 \dots (2)$$

Now, we know that  $A.M \geq G.M$

From equations (1) and (2) above we get,

$$\Rightarrow (4 \operatorname{cosec}^2 \alpha + 9 \sin^2 \alpha) / 2 \geq 6$$

Multiplying both sides by 2

$$(4 \operatorname{cosec}^2 \alpha + 9 \sin^2 \alpha) \geq 12$$

The minimum value will be 12.

Option D is the correct answer.

## SSC Exam Free Videos (Youtube)

114. The greatest number that will divide 19, 35 and 59 to leave the same remainder in each case is:

A 9

B 6

C 7

D 8

**Answer: D**

**Explanation:**

Let the same remainder in every case be  $y$

hence we need to find HCF of  $19-y$ ,  $35-y$  and  $59-y$

using difference method,

$$35 - y - 19 + y = 16$$

$$59 - y - 35 + y = 24$$

HCF of 16 and 24 is 8

hence 8 is the highest number which on dividing 19, 35 and 59 will leave same remainder

115. The average temperature of Monday, Tuesday and Wednesday was  $30^\circ \text{C}$  and that of Tuesday, Wednesday and Thursday was  $33^\circ \text{C}$ . If the temperature on Monday was  $32^\circ \text{C}$ , then the temperature on Thursday was :

A  $33^\circ \text{C}$

B  $30^\circ \text{C}$

C  $41^\circ \text{C}$

D  $32^\circ \text{C}$

**Answer: C**

**Explanation:**

$$\text{Average} = \frac{\text{Sum of Elements}}{\text{Number of Elements}}$$

it is given that average temperature of Monday, Tuesday and Wednesday was  $30^\circ \text{C}$  and that of Tuesday, Wednesday and Thursday was  $33^\circ \text{C}$

$$\text{Sum of temperatures on Monday, Tuesday, Wednesday} = 30 \times 3 = 90 \dots (1)$$

$$\text{Sum of temperatures on Thursday, Tuesday, Wednesday} = 33 \times 3 = 99 \dots (2)$$

$$\text{it is given that temperature on Monday} = 32 \dots (3)$$

hence using equation 1 and 3

Tuesday + Wednesday =  $90 - 32 = 58$  ....(4)

using equation 2 and 4

Thursday =  $99 - 58 = 41$  Celsius

116. If  $a = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$  and  $b = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$  then  $\frac{a^2}{b} + \frac{b^2}{a}$

A 900

B 970

C 1030

D 930

**Answer: B**

**Explanation:**

Give :  $a = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$

$$\Rightarrow a = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}} \times \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}-\sqrt{2}}$$

$$\Rightarrow a = \frac{(\sqrt{3}-\sqrt{2})^2}{3-2}$$

$$\Rightarrow a = 5 - 2\sqrt{6}$$

Squaring both sides, we get :  $a^2 = 49 - 20\sqrt{6}$

Similarly,  $b = 5 + 2\sqrt{6}$  and  $b^2 = 49 + 20\sqrt{6}$

To find :  $\frac{a^2}{b} + \frac{b^2}{a}$

$$= \frac{a^3+b^3}{ab} = \frac{(a+b)(a^2+b^2-ab)}{ab}$$

$$= \frac{[(5-2\sqrt{6})+(5+2\sqrt{6})][(49-20\sqrt{6})+(49+20\sqrt{6})-(5-2\sqrt{6})(5+2\sqrt{6})]}{(5-2\sqrt{6})(5+2\sqrt{6})}$$

$$= \frac{10[49+49-(25-24)]}{25-24}$$

$$= 10 \times 97 = 970$$

$$\Rightarrow \text{Ans - (B)}$$

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117. The next term of the series -1, 6, 25, 62, 123, 214, \_\_\_\_\_ is :

A 345

B 143

C 341

D 343

**Answer: C**

**Explanation:**

let the missing term be y



here the given pattern is -1, 6, 25, 62, 123, 214, y

-1 6 25 62 123 214 y

7 19 37 61 91 y-214

12 18 24 30 36

and hence  $y - 214 - 91 = 36$

$$y = 305 + 36 = 341$$

118. O is the circum centre of the triangle ABC with circumradius 13 cm. Let BC = 24 cm and OD is perpendicular to BC. Then the length of OD is.

A 7cm

B 3cm

C 4cm

D 5cm

**Answer: D**

**Explanation:**

Given, Cord BC = 24, radius OB = 13. D be the mid point of BC, then OD will be perpendicular to BC.

So, BOD forms a right triangle.

$$\text{so, } OD = \sqrt{OB^2 - BM^2}$$

$$= \sqrt{13^2 - 12^2}$$

$$= 5$$

119. If  $ax + by = 6$ ,  $bx - ay = 2$  and  $x^2 + y^2 = 4$ , then the value of  $(a^2 + b^2)$  would be:

A 10

B 2

C 4

D 5

**Answer: A**

**Explanation:**

it is given that

$$ax + by = 6 \dots\dots\dots(1)$$

$$bx - ay = 2 \dots\dots\dots(2)$$

$$\text{and } x^2 + y^2 = 4$$

now multiply 1 and 2nd equation by a and b respectively

we get

$$a^2x + aby = 6a$$

$$b^2x - aby = 2b$$

adding above equations we get,

$$a^2 + b^2 x = 6a + 2b$$

$$x = \frac{6a+2b}{a^2+b^2}$$

Similarly,

$$\text{we get } y = \frac{6a-2b}{a^2+b^2}$$

putting above values in  $x^2 + y^2 = 4$

we get,  $a = 1$  and  $b = 3$

hence  $1^2 + 3^2 = 10$

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120. The area of the largest triangle that can be inscribed in a semi circle of radius  $x$  in square unit is :

- A  $4x^2$
- B  $x^2$
- C  $2x^2$
- D  $3x^2$

**Answer: B**

**Explanation:**

The largest triangle that can be inscribed in a semi circle of radius  $x$  must have either base or height twice of radius.

$$\begin{aligned}\text{Area of triangle} &= \frac{bh}{2} \\ &= \frac{2x \times x}{2} \\ &= x^2\end{aligned}$$

121. D and E are the midpoints of AB and AC of  $\triangle ABC$ ; BC is produced to any point P; DE, DP and EP are joined. Then,

- A  $\triangle PED = \frac{1}{4} \triangle ABC$
- B  $\triangle PED = \triangle BEC$
- C  $\triangle ADE = \triangle BEC$
- D  $\triangle BDE = \triangle BEC$

**Answer: A**

**Explanation:**

$$\text{Area of a triangle} = \frac{1}{2} \times \text{base} \times \text{height}$$

Given, D and E are the mid-points of AB and AC of  $\triangle ABC$

$$\therefore \frac{AE}{AC} = \frac{AE}{AC} = \frac{AD}{AB}$$

$\triangle ABC$  and  $\triangle ADE$  are similar by SAS (Side, Angle and Side) as  $\frac{AE}{AC} = \frac{AD}{AB}$  and common angle  $\angle A$

$$\therefore \frac{AE}{AC} = \frac{DE}{BC}$$

As, E is mid-point of AC

$$\therefore AC = 2AE$$

$$DE = BC/2 \text{ -----equ.(1)}$$

Now, the height of triangle ABC is AF.

Now, AT will be half of AF as  $\triangle ADE$  is in a proportion of 1: 2 with  $\triangle ABC$ .

QP = TF as both are the perpendicular distances between same parallel lines

$$\therefore QP = AF/2 \text{ -----equ(2)}$$

$$\text{Area of triangle PED} = \frac{1}{2} \times QP \times DE$$

From equation 1 and 2 ....

$$\text{Area of triangle PED} = \frac{1}{2} \times \frac{AF}{2} \times \frac{BC}{2} \text{ -----equ (3)}$$

$$\text{Area of triangle ABC} = \frac{1}{2} \times AF \times BC \text{ -----equ(4)}$$

Dividing equation 3 and 4, we have

$$\frac{\text{Area of triangle PED}}{\text{Area of triangle ABC}} = \frac{\frac{1}{2} \times \frac{AF}{2} \times \frac{BC}{2}}{\frac{1}{2} \times AF \times BC} = \frac{1}{4}$$

$$\triangle PED = \frac{1}{4} \triangle ABC$$

122. If  $a + 1/a = 1$ , then the value of  $a^2 + 1/a^2$  is :

- A -2
- B 2
- C -1
- D 4

**Answer: C**

**Explanation:**

it is given that  $a + 1/a = 1$

and we need to find value of  $a^2 + \frac{1}{a^2}$

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

$$= 1^2 - 2 = -1$$

### SSC CGL Free Online Coaching

123. The mean of 19 observations is 24. If the mean of the first 10 observations is 17 and that of the last 10 observations is 24, find the 10th observation.

- A 65
- B 37
- C -46
- D 53

**Answer: C**

**Explanation:**

it is given that mean of 19 observations is 24

$$\text{mean} = \frac{\text{Sum}}{\text{Number of Elements}}$$

$$24 = \frac{\text{Sum}}{19}$$

$$\text{Sum} = 456$$

It is given that mean of the first 10 observations is 17 and that of the last 10 observations is 24

$$\text{Sum of first 10 terms} = 17 \times 10 = 170$$

$$\text{Sum of last 10 terms} = 24 \times 10 = 240$$

$$10\text{th term} = (170 + 240) - 456$$

$$= -46$$

124. A watch is sold at a profit of 30%. Had it been sold for Rs. 80 less, there would have been a loss of 10%. What is the cost price in rupees ?

- A 150
- B 200
- C 400
- D 800

**Answer: B**

**Explanation:**

let the cost price of the watch be Rs y

if the watch is sold at 30% profit then Selling Price = 1.3 y

it is given that if i would sold it for 80 Rs less then there would be 10% loss

that is  $1.3y - 80 = 0.9y$

$$0.4y = 80$$

$$y = 200$$

125. A train overtakes two persons who are walking in the same direction in which the train is running, at the rate of 2 kmph and 4 kmph and passes them completely in 9 and 10 seconds respectively. The length of the train (in metres)

**A** 72

**B** 45

**C** 54

**D** 50

**Answer: D**

**Explanation:**

Speed of person 1 = 2 kmph

Relative speed of train with respect to person 1 =  $s - 2$  kmph

Time taken by train to cross person 1 = 9 seconds =  $9/3600$  hours

Speed of person 2 = 4 kmph

Relative speed of train with respect to person 2 =  $s - 4$  kmph

Time taken by train to cross person 2 = 10 seconds =  $10/3600$  hours

The distance covered is equal to the length of the train.

Since the length of train is constant, the product of speed and time must be the same.

$$(s - 2) \times \frac{9}{3600} = (s - 4) \times \frac{10}{3600}$$

$$(s - 2)(9) = s - 4(10)$$

$$9s - 18 = 10s - 40$$

$$s = 22 \text{ kmph}$$

$$\text{Length of train} = (s - 2) \times \frac{9}{3600}$$

$$= 20 \times \frac{9}{3600}$$

$$= 20 \text{ ms}$$

$$= 50 \text{ m}$$

Hence Option D is the correct answer

## SSC CHSL Previous Question papers (download pdf)

126. The length of the common chord of two circles of radii 15 cm and 20 cm whose centres are 25 cm apart is (in cm) :

**A** 20

**B** 30

**C** 24

**D** 15

**Answer: C**

**Explanation:**

the length of common cord be 'x'. Radii be  $r_1, r_2$ . Distance between the centres be 'd'. Then ,

$$x = \frac{\sqrt{(r_1+r_2+d)(r_1+r_2-d)(r_1-r_2+d)(-r_1+r_2+d)}}{d}$$

$$x = \frac{\sqrt{(15+20+25)(15+20-25)(15-20+25)(-15+20+25)}}{25}$$

$$= 24$$

127. If a commission of 10% is given on the marked price of a work, the publisher gains 20%. If the commission is increased to 15%, the gain percent is:

- A 15%
- B 16 2/3 %
- C 13 1/3 %
- D 15 1/6 %

**Answer: C**

**Explanation:**

Let CP = 100 and Marked Price = X.

SP = 100 + 20% of 100 = 120.

10% commission was given on SP. SP = X - 10% of X

120 = X - (10X/100)

X = 1200/9 = 133.33. So, MP = 133.33.

If 15% commission was given, then

SP = 133.33 - 15% of 133.33 = SP = 133.33 - 20

SP = 113.33.

Gain = 133.33 - 100.

% Gain = 13.33%.

128. If  $2\sqrt{x} = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$

- A 6
- B 30
- C  $\sqrt{15}$
- D 16

**Answer: D**

**Explanation:**

it is given that

$$2\sqrt{x} = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} - \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$$

$$\text{here, } \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} \times \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}+\sqrt{3}} = \frac{(\sqrt{5}+\sqrt{3})^2}{2}$$

$$\text{similarly, } \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}} = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}} \times \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}-\sqrt{3}} = \frac{(\sqrt{5}-\sqrt{3})^2}{2}$$

$$\frac{(\sqrt{5}+\sqrt{3})^2}{2} - \frac{(\sqrt{5}-\sqrt{3})^2}{2} = 2\sqrt{x}$$

$$8 = 2\sqrt{x}$$

$$x = 16$$

129. If  $x = 2 + \sqrt{3}$ , then the value,  $\sqrt{x} + \frac{1}{\sqrt{x}}$

- A  $\sqrt{3}$
- B  $\sqrt{6}$
- C  $2\sqrt{6}$
- D 6

**Answer:** B

**Explanation:**

$$x = 2 + \sqrt{3}$$

$$\frac{1}{x} = 2 - \sqrt{3}$$

$$(\sqrt{x} + \frac{1}{\sqrt{x}})^2 = x + \frac{1}{x} + 2$$

$$(\sqrt{x} + \frac{1}{\sqrt{x}})^2 = 4 + 2 = 6$$

$$\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$$

so the answer is option B.

130. If 12 men or 18 women can reap a field in 14 days, then working at the same rate, 8 men and 16 women can reap the same field in :

- A 9 days
- B 5 days
- C 7 days
- D 8 days

**Answer:** A

**Explanation:**

$$\text{Work done by a man in 1 day} = \frac{1}{14 \times 12} = \frac{1}{168}$$

$$\text{Work done by 8 men in 1 day} = \frac{8}{168} = \frac{1}{21}$$

$$\text{Work done by a woman in 1 day} = \frac{1}{14 \times 18} = \frac{1}{252}$$

$$\text{Work done by 16 women in 1 day} = \frac{16}{252}$$

$$\text{Work done by 8 men and 16 women in one day} = \frac{1}{21} + \frac{16}{252}$$

$$= \frac{12}{252} + \frac{16}{252} = \frac{28}{252} = \frac{1}{9}$$

Hence it takes 9 days for them to complete the work.

Hence Option A is the correct answer.

131. By selling 9 articles for a rupee, a man incurred a loss of 4%. To make a gain of 44%, the number of articles to be sold for a rupee is :

- A 5
- B 3
- C 4
- D 6

**Answer:** D

**Explanation:**

Given, 9 SP = 1 Rs

In this transaction, man incurred a loss of 4%. i.e.  $9 \text{ CP} \times 0.96 = 1 \text{ Rs} \Rightarrow \text{CP} = 11.57 \text{ Paise}$

So cost of 1 article is = CP = 11.57 Paise

To make a profit of 44% selling price should be  $\text{SP} = 1.44 \times 11.57 = 16.67 \text{ Paise}$

So number of article sold in Rs 1 =  $100/16.67 = 6$

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$$132. 1 - \frac{\sin^2 A}{1+\cos A} + \frac{1+\cos A}{\sin A} - \frac{\sin A}{1-\cos A}$$

**A**  $\cos A$

**B** 0

**C** 1

**D**  $\sin A$

**Answer: A**

**Explanation:**

$$\frac{\sin^2 A}{1+\cos A} - \frac{\sin A}{1-\cos A} = \frac{\sin^2 A(1-\cos A) + \sin A(1+\cos A)}{1^2 - \cos^2 A} = \frac{\sin^2 A(1-\cos A) + \sin A(1+\cos A)}{\sin^2 A}$$

$$\frac{\sin^2 A(1-\cos A) + \sin A(1+\cos A)}{\sin^2 A} = (1 - \cos A) + \frac{(1+\cos A)}{\sin A}$$

$$\frac{\sin^2 A}{1+\cos A} - \frac{\sin A}{1-\cos A} = (1 - \cos A) + \frac{(1+\cos A)}{\sin A}$$

$$1 - \frac{\sin^2 A}{1+\cos A} + \frac{1+\cos A}{\sin A} - \frac{\sin A}{1-\cos A}$$

$$= 1 - \left[ (1 - \cos A) + \frac{1+\cos A}{\sin A} \right] + \frac{(1+\cos A)}{\sin A}$$

$$= 1 - (1 - \cos A) - \frac{1+\cos A}{\sin A} + \frac{(1+\cos A)}{\sin A} = \cos A$$

Hence Option A is the correct answer.

133. If  $a^3 - b^3 = 56$  and  $a - b = 2$ , then the value of  $(a^2 + b^2 + ab)$  is :

**A** 10

**B** 12

**C** 28

**D** 18

**Answer: C**

**Explanation:**

it is given that  $a^3 - b^3 = 56$

$$\text{we know } a^3 - b^3 = (a - b)(a^2 + b^2 + ab)$$

$a - b = 2$  (Given)

hence

$$(a^2 + b^2 + ab) = \frac{56}{2} = 28$$

134. If  $\tan \theta - \cot \theta = \alpha$  and  $\cos \theta \sin \theta = b$ , then the value of  $(a^2 + 4)(b^2 - 1)^2$  is:

- A 4
- B 1
- C 2
- D 3

**Answer: A**

**Explanation:**

$$\sin(2a) = 2\sin(a/2)\cos(a/2)$$

$$\cos(2a) = 2\cos^2 a - 1 = 1 - 2\sin^2 a$$

$$\sin^2 a + \cos^2 a = 1$$

$$\operatorname{cosec}^2 a - \cot^2 a = 1$$

Given,

$$\tan \theta - \cot \theta = a$$

$$(\sin \theta / \cos \theta) - (\cos \theta / \sin \theta) = a$$

$$(\sin^2 \theta - \cos^2 \theta) / \cos \theta \sin \theta = a$$

$$= -2\cos 2\theta / \sin 2\theta = a$$

$$a = -2\cot 2\theta$$

$$\text{Also given, } \cos \theta - \sin \theta = b$$

Squaring both sides and using  $(a - b)^2 = a^2 + b^2 - 2ab$ , we get,

$$\cos^2 \theta + \sin^2 \theta - 2\cos \theta \sin \theta = b^2$$

$$1 - \sin 2\theta = b^2$$

We have to find the value of

$$(a^2 + 4)(b^2 - 1)^2$$

$$(4\cot^2 2\theta + 4)(1 - \sin 2\theta - 1)^2$$

$$4(\operatorname{cosec}^2 2\theta)(-\sin 2\theta)^2$$

$$= 4$$

Option A is the correct answer.

## Join SSC Daily Quiz Telegram Group

135. Area of the trapezium formed by x axis; y axis and the lines  $3x+4y=12$  and  $6x+8y=60$  is:

- A 37.5 sq. unit
- B 31.5 sq. unit
- C 48 sq. unit
- D 36.5 sq. unit

**Answer: B**

**Explanation:**

The points of the lines  $3x+4y=12$  and  $6x+8y=60$  on the coordinate axis are (3,0),(0,4) ; (10,0),(0,7.5) respectively.

Distance between the lines  $3x+4y=12$  and  $6x+8y=60$  is (  $6x+8y=60$  is same as  $3x+4y=30$  )

$$\frac{c_1 - c_2}{\sqrt{a^2 + b^2}} = \frac{30 - 12}{\sqrt{3^2 + 4^2}} = 3.6$$

Length of parallel sides is 5 & 12.5

$$\text{Area of trapezium} = \frac{1}{2}(a + b)h = \frac{1}{2}(5 + 12.5)3.6$$

$$= 31.5$$

136. Area of the triangle formed by the graph of the line  $2x - 3y + 6 = 0$  along with the coordinate axes is

- A  $1/2$  sq. units
- B  $3/2$  sq. units



C 3 sq. units

D 6 sq. units

**Answer: C**

**Explanation:**

the line  $2x - 3y + 6 = 0$  meets the coordinate axes at  $(-3, 0)$  and  $(0, 2)$ .

So, base = 2 and height = 3

$$\text{Area of the triangle} = \frac{bh}{2} \\ = 3$$

137. If  $(a^2 - b^2) \sin \theta + 2ab \cos \theta = a^2 + b^2$ , then the value of  $\tan \theta$  is

A  $\frac{a^2 + b^2}{2ab}$

B  $\frac{a^2 - b^2}{2}$

C  $\frac{a^2 - b^2}{2ab}$

D  $\frac{a^2 + b^2}{2}$

**Answer: C**

**Explanation:**

$$\cos(a - b) = \cos a \cos b + \sin a \sin b$$

$$(a^2 - b^2) \sin \theta + 2ab \cos \theta = a^2 + b^2$$

$$\frac{a^2 - b^2}{a^2 + b^2} \sin \theta + \frac{2ab}{a^2 + b^2} \cos \theta = \frac{a^2 + b^2}{a^2 + b^2}$$

$$\text{Let } \frac{(a^2 - b^2)}{(a^2 + b^2)} = \sin A,$$

$$\text{then } \frac{2ab}{a^2 + b^2} = \cos A$$

$$\sin A \sin \theta + \cos A \cos \theta = 1$$

$$\cos(A - \theta) = 1$$

$$A - \theta = 0^\circ \text{ (as, } \cos 0^\circ = 1)$$

$$\theta = A$$

$$\therefore \tan \theta = \tan A$$

$$\tan \theta = \frac{\sin A}{\cos A}$$

$$\tan \theta = \frac{\frac{(a^2 - b^2)}{(a^2 + b^2)}}{\frac{2ab}{a^2 + b^2}}$$

$$\tan \theta = \frac{(a^2 - b^2)}{2ab}$$

$$\tan \theta = \frac{(a^2 - b^2)}{2ab}$$

$$\tan \theta = \frac{(a^2 - b^2)}{2ab}$$

Option C is the correct answer.

## SSC CGL Free Mock Test

138. Prabhat took a certain amount as a loan from a bank at the rate of 8% p.a. simple interest and gave the same amount to Ashish as a loan at the rate of 12% p. a. If at the end of 12 years, he made a profit of 960 in the deal, then the original amount was:

A 3356

B 1000

C 2000

D 3000

**Answer: C**

**Explanation:**

$$\text{Simple Interest} = \frac{P \times R \times T}{100}$$

profit made = Rs 960

R (at which loan is taken) = 8%

R (at which it is given to friend) = 12%

$$\text{i.e. } \frac{P \times 12 \times 12}{100} - \frac{P \times 8 \times 12}{100} = 960$$

$$P \frac{4 \times 12}{100} = 960$$

P = Rs 2000

139. **AB is a diameter of a circle with centre O. CD is a chord equal to the radius of the circle. AC and BD are produced to meet at P. Then the measure of  $\angle APB$  is :**

**A**  $120^\circ$

**B**  $30^\circ$

**C**  $60^\circ$

**D**  $90^\circ$

**Answer: C**

**Explanation:**

Given CD is equal to the radius. Thus triangle OCD is an equilateral triangle.  $\therefore \angle COD = 60^\circ$

Triangles OCA and triangles ODB are isosceles triangles as their two sides are radii.

In triangle OCA, OC = OA (both are radius)

$\therefore \angle OAC = \angle OCA$  (angles opposite to the equal sides are equal)

Let  $\angle OAC = \angle OCA = a$

Thus  $\angle AOC = 180^\circ - 2a$

In triangle ODB, OD = OB (both are radius)

$\therefore \angle OBD = \angle ODB$  (angles opposite to the equal sides are equal)

Let  $\angle OBD = \angle ODB = b$

Thus  $\angle BOD = 180^\circ - 2b$

Sum of angles in a straight line =  $180^\circ$

$\therefore$  At point O,  $(180^\circ - 2a) + 60^\circ + (180^\circ - 2b) = 180^\circ$

$$2a + 2b = 240^\circ$$

$$a + b = 120^\circ$$

In triangle PAB,  $\angle APB + a + b = 180^\circ$

$$\angle APB = 180^\circ - a - b$$

$$\angle APB = 180^\circ - 120^\circ = 60^\circ$$

140. **R and r are the radius of two circles ( $R > r$ ). If the distance between the centre of the two circles be d, then length of common tangent of two circles is :**

**A**  $\sqrt{r^2 - d^2}$

**B**  $\sqrt{d^2 - (R - r)^2}$

**C**  $\sqrt{(R - r)^2 - d^2}$

**D**  $\sqrt{R^2 - d^2}$

**Answer: B**

**Explanation:**

We have,  $\text{Hypotenuse}^2 = \text{base}^2 + \text{perpendicular}^2$

Radii of the circles which intersect the tangents are parallel as both of them are perpendicular to the tangent.

Now, we draw a line parallel to the line which joins the centre of both the circles which intersects the extended radius of small circle at A and let the extended length be 'a'

So,  $R = r + a$  i.e.  $a = R - r$

Now a right angled triangle is formed as shown in the figure as tangents and radii intersect at  $90^\circ$

Applying Pythagoras theorem:

$$(\text{Length of tangent})^2 + a^2 = d^2$$

$$(\text{Length of tangent})^2 = d^2 - (R - r)^2$$

$$\text{Length of tangent} = \sqrt{d^2 - (R - r)^2}$$

## SSC CGL Previous Papers (DOWNLOAD PDF)

141. P is a point outside a circle and is 13 cm away from its centre. A secant drawn from the point P intersects the circle at points A and B in such a way that PA = 9 cm and AB = 7 cm. The radius of the circle is :

A 5.5cm

B 5cm

C 4cm

D 4.5cm

**Answer: B**

**Explanation:**

PC = 13 cm, PA = 9 cm and AB = 7 cm.

From the external point P we have drawn a tangent at point L. Then we have drawn CL.

According to the property of tangent [A tangent to a circle is perpendicular to the radius at the point of tangency.] we can say,  $PL \perp LC$ .

$\therefore$  For  $\triangle PLC$ ,  $PL^2 + LC^2 = PC^2$  .....equ(1)

We know that, if a secant segment and tangent segment are drawn to a circle from the same external point, the product of the length of the secant segment and its external part equals the square of the length of the tangent segment.

According to this property:  $(PL)^2 = PA \times PB$

$$(PL)^2 = PA \times (PA + AB)$$

$$(PL)^2 = 9 \times (9 + 7)$$

$$(PL)^2 = 144$$

From (1) we can say,

$$144 + LC^2 = 13^2$$

$$LC^2 = 169 - 144 = 25$$

$$LC = 5 \text{ cm.}$$

142. If  $a + \frac{1}{a+2} = 0$ , then the value of  $(a+2)^2 + (a+\frac{1}{a+2})^3$  is

A 2

B 6

C 4

D 3

**Answer: A**

**Explanation:**

it is given that  $a + \frac{1}{a} = -2$

it is possible only when  $a = -1$

hence  $a + 2 = 1$

and so

$$(a+2)^2 + \frac{1}{(a+2)^3} = -1^2 + \frac{1}{-1^2} = 2$$

143. If  $\alpha$  is a positive acute angle and  $2\sin\alpha + 15\cos^2\alpha = 7$ , then the value of  $\cot\alpha$  is:

A  $\frac{3}{4}$

B  $\frac{2}{3}$

C  $\frac{\sqrt{5}}{2}$

D  $\frac{2}{\sqrt{5}}$

**Answer: A**

**Explanation:**

$$\sin^2\alpha + \cos^2\alpha = 1 \text{ (identity)}$$

$$\cos^2\alpha = 1 - \sin^2\alpha$$

$$2\sin\alpha + 15\cos^2\alpha = 7$$

put  $1 - \sin^2\alpha$  instead of  $\cos^2\alpha$

$$2\sin\alpha + 15(1 - \sin^2\alpha) = 7$$

$$-15\sin^2\alpha + 2\sin\alpha + 8 = 0$$

$$\text{Let } \sin\alpha = x$$

$$-15x^2 + 2x + 8 = 0$$

Solving for x we get,

$$x = \frac{4}{5} \text{ and } x = -\frac{2}{3}$$

$x = \frac{4}{5}$  is the real solution

$$\sin\alpha = \frac{4}{5}$$

$$\sin^2\alpha = \frac{16}{25}$$

$$\sin^2\alpha + \cos^2\alpha = 1 \Rightarrow \sin^2\alpha = 1 - \cos^2\alpha$$

$$1 - \cos^2\alpha = \frac{16}{25} \Rightarrow \cos^2\alpha = \frac{9}{25} \Rightarrow \cos\alpha = \frac{3}{5}$$

$$\cot\alpha = \frac{\cos\alpha}{\sin\alpha} = \frac{(3/5)}{(4/5)} = \frac{3}{4}$$

Option A is the correct answer.

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144.  $\frac{1+876542 \times 876544}{876543 \times 876543}$  is equal to

A 3

B 0

C 1

D 2

**Answer: C**

**Explanation:**

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

and as  $\frac{1+876542 \times 876544}{876543 \times 876543}$  is of the same form so it is equal to 1

145. The perimeters of two similar triangles  $\triangle ABC$  and  $\triangle PQR$  are 36 cm and 24 cm respectively. If  $PQ = 10$  cm, then  $AB$  is:

A 25 cm

- B** 10 cm
- C** 15 cm
- D** 20 cm

**Answer: C**

**Explanation:**

In Similar triangles , corresponding sides are of same proportion.

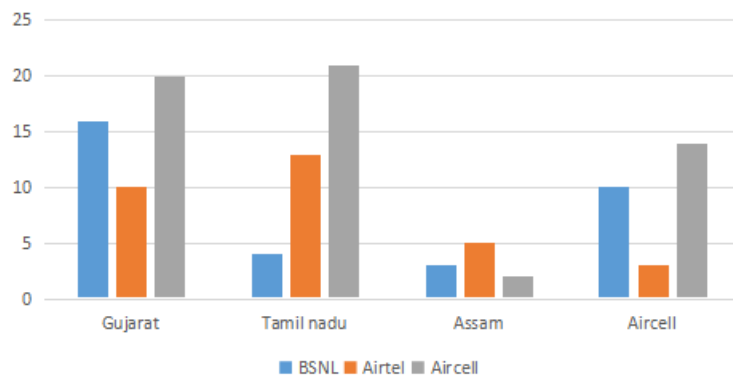
$$\frac{\text{Perimeter } \triangle ABC}{\text{Perimeter } \triangle PQR} = \frac{AB}{PR}$$

$$\frac{36}{24} = \frac{AB}{10}$$

$$AB = 15$$

**Instructions [146 - 150 ]**

The number of mobile simcards in 4 states are given in multiple bar diagrams. Study the diagram and answer the questions.



146. In Assam, the ratio of Aircell simcard and Airtel simcard sold is:

- A** 3 : 2
- B** 2 : 5
- C** 5 : 2
- D** 2 : 3

**Answer: B**

**Explanation:**

In Assam, no.of aircel simcards sold = 2

no.of airtel simcards sold = 5

ratio = 2 : 5

so the answer is option B.

## SSC CGL Tier-2 Previous Papers PDF

147. In which state are there the largest number of owners of Airtel simcard ?

- A** Tamil Nadu
- B** Gujarat
- C** Kerala

**D** Assam

**Answer:** A

**Explanation:**

airtel simcards sold in gujrat = 10

airtel simcards sold in tamilnadu = 13

airtel simcards sold in assam = 5

airtel simcards sold in kerala = 3

so the answer is option A.

148. **Average of simcard sold in the four states in lakhs is**

**A** 30.25

**B** 40.5

**C** 35

**D** 33.75

**Answer:** A

**Explanation:**

simcards sold in Gujrat =  $16+10+20 = 46$

simcards sold in Tamilnadu =  $4+13+21 = 38$

simcards sold in Assam =  $3+5+2 = 10$

simcards sold in kerala =  $10+3+14 = 27$

total = 121

average =  $\frac{121}{4} = 30.25$

so the answer is option A.

149. **The range of BSNL simcard sold in the 4 states in lakhs is :**

**A** 12

**B** 15

**C** 14

**D** 13

**Answer:** D

**Explanation:**

Range = largest number - smallest number

16 BSNL simcards were sold in Gujrat, is the largest number &

3 BSNL simcards were sold in assam is the smallest number

so, range =  $16 - 3 = 13$

so the answer is option D.

## SSC CGL Important Questions PDF

150. **Of all the simcards sold in all the four states, the number of simcards sold in Gujarat is (approx)**

- A 40%
- B 38%
- C 35%
- D 42%

**Answer: B**

**Explanation:**

simcards sold in Gujarat =  $16+10+20 = 46$

simcards sold in Tamilnadu =  $4+13+21 = 38$

simcards sold in Assam =  $3+5+2 = 10$

simcards sold in kerala =  $10+3+14 = 27$

total = 121

percentage of simcards sold in Gujarat =  $\frac{46}{121} = 38.02 \sim 38\%$

so the answer is option B.

## 1500 + Free Must Solved SSC Questions (With Solutions)

### Reasoning

**Instructions [151 - 159]**

Select the related letter/word/number from the given alternatives:

151. EVFU : TGSJ :: IRTQ : \_\_?\_\_

- A KWLX
- B PKOL
- C OLPK
- D PKLO

**Answer: B**

**Explanation:**

Expression = EVFU : TGSJ :: IRTQ : \_\_?\_\_

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
Z	Y	X	W	V	U	T	S	R	Q	P	O	N	M	L	K	J	I	H	G	F	E	D	C	B	A

Pairs of opposite letters are used.

E ↔ V and F ↔ U

Then, for the second term, U (-1 letter) = T

Again, T ↔ G and S ↔ H

Similarly, I ↔ R and T ↔ Q

Thus, Q (-1 letter) = P

∴ P ↔ K and O ↔ L

⇒ IRTQ : **PKOL**

⇒ Ans - (B)

## General Science Notes for SSC CGL

152.  $L \times M : 12 \times 13 :: U \times W : \underline{\hspace{1cm}} ? \underline{\hspace{1cm}}$

**A**  $21 \times 22$

**B**  $24 \times 26$

**C**  $9 \times 11$

**D**  $21 \times 23$

**Answer:** D

**Explanation:**

Position of number in the English alphabet series is given.

Eg = L = 12 and M = 13

Similarly, U x W =  $21 \times 23$

=> Ans - (D)

153. **CFIL : XURQ :: ORUX : ?**

**A** ROLI

**B** RITO

**C** LIFC

**D** MJFC

**Answer:** C

**Explanation:**

Expression = CFIL : XURQ :: ORUX : ?

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
↓	↓	...																			...	↓			
Z	Y	X	W	V	U	T	S	R	Q	P	O	N	M	L	K	J	I	H	G	F	E	D	C	B	A

Pairs of opposite letters are used.

O -> L

R -> I

U -> F

X -> C

Thus, ORUX : **LIFC**

=> Ans - (C)

154. **CFIL : ABCD ::  $\underline{\hspace{1cm}} ? \underline{\hspace{1cm}}$  : WXYZ**

**A** YBEH

**B** DCBA

**C** JHPS

**D** XURO

**Answer:** A



**Explanation:**

Expression = CFIL : ABCD :: \_\_?\_\_ : WXYZ

The pattern followed is :

C	F	I	L
(-2)	(-4)	(-6)	(-8)
A	B	C	D

Similarly, for WXYZ :

Y	B	E	H
(-2)	(-4)	(-6)	(-8)
W	X	Y	Z

=> Ans - (A)

## Free SSC Study Material (18,000 Solved Questions)

155. **Zoology : Animal :: Psychology : \_\_?\_\_**

- A** Animal
- B** Humanbeing
- C** Animal and humanbeing
- D** Plant

**Answer: C**

**Explanation:**

Zoology is the scientific study of animals. Similarly, Psychology is study of the mind and how it functions. It is the study of human and animal behaviour.

=> Ans - (C)

156. **Life starts : Embryo :: Life ends : \_\_?\_\_**

- A** Old age
- B** Dead body
- C** Illness
- D** Death

**Answer: B**

**Explanation:**

Life starts with the formation of embryo. When life ends dead body is left.

=> Ans - (B)

157. **Man : Mammal :: \_\_?\_\_**

- A** Hail : Snow
- B** Native : Inhabitant
- C** Offspring : Family
- D** Liberty : Literate

**Answer: C**

**Explanation:**

Man is a mammal. Man belongs to the class Mammal. Similarly, offspring is a part of family.

=> Ans - (C)

## SSC Exam Free Videos (Youtube)

158. 1: 8:: 4 :?\_

- A 64
- B 512
- C 128
- D 32

**Answer: D**

**Explanation:**

Expression = 1: 8:: 4 :?\_

Both the numbers on the left are multiplied by 4.

$$\text{Eg} = 1 \times 4 = 4$$

$$\text{Similarly, } 8 \times 4 = 32$$

=> Ans - (D)

159. 6: 2:: 8 :\_\_?\_\_

- A 1
- B 3
- C 7
- D 5

**Answer: B**

**Explanation:**

Expression = 6: 2:: 8 :\_\_?\_\_

The pattern followed is =  $6 - 2 = 4$ ;  $\frac{4}{2} = 2$

$$\text{Similarly, } 8 - 2 = 6; \frac{6}{2} = 3$$

=> Ans - (B)

**Instructions [160 - 170 ]**

Find the odd number/ letters/number pair from the given alternatives.

- A 81
- B 93
- C 66
- D 72

**Answer: A**

**Explanation:**

Among the given numbers, only  $81 = 9^2$  is a perfect square, hence it is the odd one.

=> Ans - (A)

## SSC Free Preparation App

**A** Frog

**B** Tortoise

**C** Crab

**D** Fish

**Answer: A**

**Explanation:**

Frog is an amphibian, hence it is the odd one out.

=> Ans - (A)

**A** 186 - 69

**B** 168 - 570

**C** 1001 - 100

**D** 5270 - 2936

**Answer: A**

**Explanation:**

The sum of digits are same only in the first option.

(A) :  $1+8+6 = 15$ ;  $6+9 = 15$

(B) :  $1+6+8 = 15$ ;  $5+7+0 = 12$

(C) :  $1+0+0+1 = 2$ ;  $1+0+0 = 1$

(D) :  $5+2+7+0 = 14$ ;  $2+9+3+6 = 20$

=> Ans - (A)

**A** (64, 216)

**B** (216, 02)

**C** (343, 01)

**D** (125, 27)

**Answer: B**

**Explanation:**

Except in (216, 02), in all other pairs both the numbers are perfect cubes.

=> Ans - (B)

## Daily Free SSC Practice Set

- A** Jammu and Kashmir
- B** Haryana
- C** Himachal Pradesh
- D** Arunachal Pradesh

**Answer:** D

**Explanation:**

Jammu and Kashmir, Haryana and Himachal Pradesh are northern states of India, while Arunachal Pradesh is situated in the east, hence it is the odd one out.

=> Ans - (D)

- A** IVEF
- B** VEENS
- C** EINN
- D** VEIIDD

**Answer:** D

**Explanation:**

(A) : IVEF = FIVE

(B) : VEENS = SEVEN

(C) : EINN = NINE

(D) : VEIIDD = DIVIDE

=> Ans - (D)

- A** 17
- B** 27
- C** 37
- D** 47

**Answer:** B

**Explanation:**

Among the given numbers, only 27 is a non prime, else all are prime numbers.

=> Ans - (B)

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- A** 63852
- B** 52638
- C** 28761
- D** 85362

**Answer:** C

**Explanation:**

Except in the number 28761, in all others the digits are the same, i.e. combination of '2,3,5,6,8'.

=> Ans - (C)

**A** Number

**B** Form

**C** Weight

**D** Size

**Answer: A**

**Explanation:**

Number is different from the others. Form, weight and size represent a shape.

=> Ans - (A)

**A** Commission

**B** Team

**C** Agenda

**D** Board

**Answer: C**

**Explanation:**

Except Agenda, all other denotes a group of persons.

=> Ans - (C)

## SSC CHSL Previous Question papers (download pdf)

**A** Addition

**B** Subtract

**C** Multiplication

**D** Division

**Answer: B**

**Explanation:**

Except Subtract, all others are Nouns. The Noun for Subtract (Verb) is Subtraction.

=> Ans - (B)

**Instructions [160 - 163]**

A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

160. DF, GJ, IM, NQ, RT, ?

**A** UW

**B** YZ

**C** XZ

**D** UX

**Answer: D**

**Explanation:**

The first letter of each term in even place is the next letter from the second letter of the previous term.

The first letter of sixth term is U since the second letter of the previous term is T.

Hence Option B and Option C can be neglected.

The second letter of each term in even place is the third letter from the first letter of the term.

The second letter of sixth term is X.

The missing term is UX.

Hence Option D is the correct answer.

161. **BIP ? D**

**A** W

**B** S

**C** R

**D** U

**Answer: A**

**Explanation:**

Each letter in the series is the seventh letter from the preceeding term. The seventh letter from P is W.

Hence Option A is the correct answer.

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162. **AAC BBD CCE DDF EEG F?**

**A** FG

**B** GH

**C** FH

**D** DG

**Answer: C**

**Explanation:**

Each letter of a term is the next letter of the corresponding letters in the preceeding term.

The last term is EEG . Hence the next term is FFH.

Hence Option C is the correct answer.

163. **RAZ SBY TCX UDW VEV ?**

**A** WFU

**B** FWU

**C** XGX

**D** ZAT

**Answer: A**

**Explanation:**

First and second letters of the a term is the next letter of the corresponding letters in the preceeding term. The last letter of a term is the previous letter of the last letter in the preceeding term.

Fifth Term is VEV. Hence the sixth term is WFU.

Hence Option A is the correct answer.

**Instructions [164 - 165]**

(2526) : Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

164. a \_ba\_c\_aad\_aa\_ea

**A** babbd

**B** babbc

**C** bacde

**D** babbb

**Answer: C**

**Explanation:**

Option C : a**b**b**a**c**c**a**a**d**d**a**a**e**e**a

All the terms in the series repeat twice except the first and the last term.

Hence Option C is the correct answer.

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165. aa\_aa bb\_b\_aa\_aa bb\_bb.

**A** bbbba

**B** aabbb

**C** babba

**D** bbbba

**Answer: C**

**Explanation:**

Split the letter series into series of 5 letters each.

Option C : aa**b**aa bb**a**bb aa**b**aa bb**a**bb

The middle letter in each series is different from the rest of the terms.

Hence Option C is the correct answer.

166. If DEAF is equal to 32, what will be LEAF ?

**A** 48

**B** 50

**C** 52

**D** 56

**Answer: A**

**Explanation:**

If A=1, B=2 and so on, then the values of D+E+A+F=16 hence it is coded as  $16 \times 2 = 32$ . similarly, L+E+A+F=24, therefore it will be coded as  $24 \times 2 = 48$ .

hence the correct answer is option A.

167. In a certain code, "CERTAIN" is coded as "XVIGZRM", "SEQUENCE" is coded as "HVJFVMXV", How would "REQUIRED" be coded ?

- A VJIFWTRV
- B WVJRIFVI
- C IVJFRIVW
- D FJIVWVIR

**Answer: C**

**Explanation:**

The code for each of the letters are given :

R -> I  
E -> V  
Q -> J  
U -> F  
I -> R  
R -> I  
E -> V  
D -> W

Thus, REQUIRED : **IVJFRIVW**

=> Ans - (C)

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168. If P denotes  $\div$ , Q denotes  $\times$ , R denotes  $+$ , and S denotes  $-$ , then,  $18\ Q\ 12\ P\ 4\ R\ 5\ S\ 6$  ?

- A 53
- B 51
- C 57
- D 95

**Answer: A**

**Explanation:**

$18\ Q\ 12\ P\ 4\ R\ 5\ S\ 6$  will translate to

$18 \times 12 \div 4 + 5 - 6$ . on applying the rules of BODMAS will be equal to 53.

therefore the correct answer is option A.

169. Find the wrong number in the series from the given alternatives.

17, 36, 53, 68, 83, 92

- A 53
- B 68
- C 83
- D 92

**Answer: C**



**Explanation:**

The terms in the series are  $17 + (17+19) + (17+19+17) + (17+19+17+15) + (17+19+15+15) + (17+19+15+13+11)$ .  
Each term adds the odd number which precedes the one added to the previous term, except for the fifth term.  
The correct sequence would be 17,36,53,68,81,92.  
Hence Option C is the correct answer.

170. From the given alternatives select the word which cannot be formed using the letters of the given word.  
'CONSTITUTIONAL'

- A LOCATION
- B TUTION
- C TALENT
- D CONSULT

**Answer: C**

**Explanation:**

From the given alternatives the word which cannot be formed using the letters of the given word 'CONSTITUTIONAL' is TALENT as there is no 'E' in 'CONSTITUTIONAL'.  
hence the correct answer is optnio C.

## SSC CGL Free Mock Test

171. If  $25 \div 5 = 15$ ,  $30 \div 6 = 20$ , then  $35 \div 7 = ?$

- A 20
- B 50
- C 25
- D 75

**Answer: C**

**Explanation:**

the pattern that can be seen is that  
 $25/5 = 5 \times 3$   
 $30/6 = 5 \times 4$   
by similar logic  $35/7 = 5 \times 5 = 25$ .  
hence the correct answer is option C

172. If  $33 + 45 = 30$ ,  $90 + 26 = 40$ , then  $30 + 45 = ?$

- A 14
- B 16
- C 18
- D 15

**Answer: D**

**Explanation:**

The sum of digits of the number will be multiplied by 5.

Eg =  $33 + 45 = 3 + 3 + 4 + 5 = 15$ ;  $1 + 5 = 6$ ;  $6 \times 5 = 30$

and  $90 + 26 = 9 + 0 + 2 + 6 = 17$ ;  $1 + 7 = 8$ ;  $8 \times 5 = 40$

Similarly,  $30 + 45 = 3 + 0 + 4 + 5 = 12$ ;  $1 + 2 = 3$ ;  $3 \times 5 = 15$

=> Ans - (D)

173. It was Shriram's and Sreedevi's 12th Wedding Anniversary. Shriram said. "When we got married, Sreedevi was  $\frac{3}{4}$ th of my age, but now she is  $\frac{5}{6}$ th of my age". What actually are their present ages ?

A Shriram 36, Sreedevi 30

B Shriram 30, Sreedevi 24

C Shriram 40, Sreedevi 34

D Shriram 38, Sreedevi 32

**Answer:** A

**Explanation:**

Let the present age of Shriram be  $6x$

=> Present age of Sreedevi =  $5x$

Also, 12 years ago, Sreedevi was  $\frac{3}{4}$ th of Shriram's age

$$\Rightarrow 5x - 12 = \frac{3}{4}(6x - 12)$$

$$\Rightarrow 20x - 48 = 18x - 36$$

$$\Rightarrow x = 6$$

=> Shriram's present age =  $6 \times 6 = 36$  years

Sreedevi's present age =  $6 \times 5 = 30$  years

## SSC CGL Previous Papers (DOWNLOAD PDF)

174. If  $64 + 14 = 5$ ,  $92 + 31 = 7$ ,  $26 + 11 = 6$ , then  $56 + 22 = ?$

A 39

B 7

C 36

D 11

**Answer:** B

**Explanation:**

The sum of digits of the second number is subtracted from the sum of digits of first number.

$$\text{Eg} = (6 + 4) - (1 + 4) = 10 - 5 = 5$$

$$\text{and } (9 + 2) - (3 + 1) = 11 - 4 = 7$$

$$\text{and } (2 + 6) - (1 + 1) = 8 - 2 = 6$$

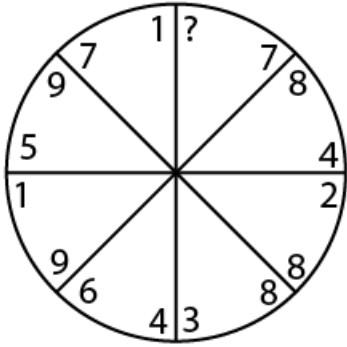
$$\text{Similarly, } (5 + 6) - (2 + 2) = 11 - 4 = 7$$

=> Ans - (B)

**Instructions [175 - 176]**

Select the missing number from the given responses.

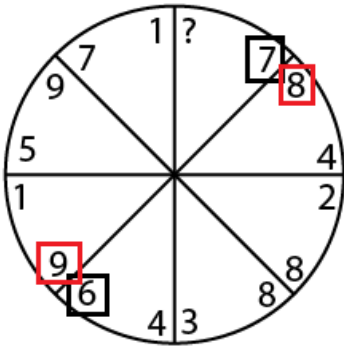
175.



- A 2
- B 4
- C 3
- D 6

**Answer:** A

**Explanation:**



Let the missing term be  $x$ .

For each sector in the circle the values the difference between the value in reb box will be the same as the difference btween the values in the black boxes.

Hence  $3 - 1 = 4 - x$

$x = 2$

Hence OptionA is the correct answer.

176.

7	6	9
2	8	4
4	3	?
36	42	26

- A 2
- B 3
- C 4
- D 5

**Answer:** A

**Explanation:**

(Value in row 1 + value in row 2)  $\times$  Value in Row 3 = Value in Row 4

Let the unknown be  $x$ .

$$(9+4) \times x = 26$$

$$\text{Hence } x = \frac{26}{13}$$

$$x = 2$$

Hence Option A is the correct answer

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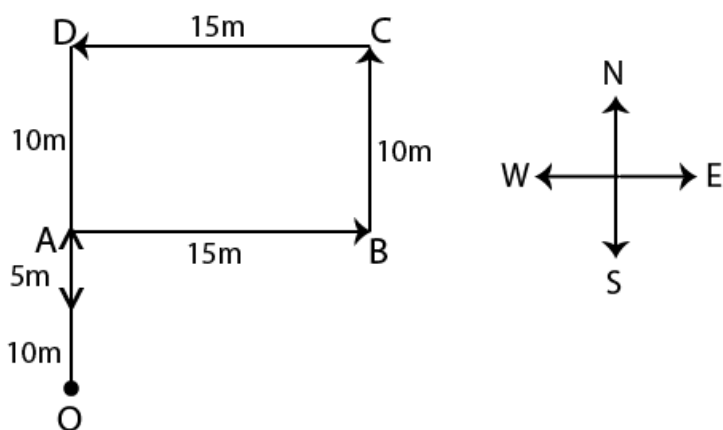
177. Sherly starting from a fixed point goes 15 m towards North and then after turning to his right he goes 15 m. Then he goes 10, 15 and 15 metres after turning to his left each time. How far is he from his starting point ?

- A 5 metres
- B 10 metres
- C 20 metres
- D 15 metres

**Answer: B**

**Explanation:**

The path of Sherley can be traced as O-A-B-C-D-E as shown:



it can be seen that the distance between start and finish points is 10m. hence the correct answer is option B.

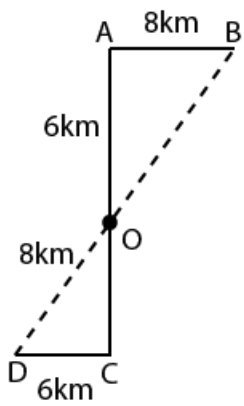
178. Ram and Sham start walking in opposite directions. Ram covers 6 kms and Sham 8 kms. Then Ram turns right and walks 8 kms and Sham turns left and. walks 6 kms. How far each is from the starting point?

- A 8 kms
- B 9 kms
- C 10 kms
- D 11 kms

**Answer: C**

**Explanation:**

The paths of Ram and Shyaam can be traced as AB and CD respectively as shown.



thus the total distance of both from their starting points will be OB and OD respectively: which will be both equal to  $\sqrt{8^2 + 6^2} = 10$

hence the correct answer is option C.

#### Instructions [179 - 180]

Two statements are followed by two conclusions numbered I and II. Which one of the four alternatives is correct ?

179. **Statements :**

- I. All teachers are aged.
- II. Some women are teachers.

**Conclusions :**

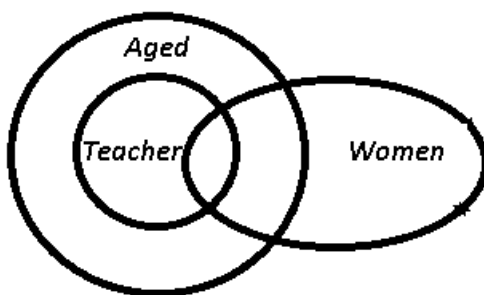
- I. All aged are women.
- II. Some women are aged.

- A** Only conclusion I follows
- B** Only conclusion II follows
- C** Neither conclusion I nor II follows
- D** Both conclusions I and II follow

**Answer: B**

**Explanation:**

The venn diagram for above statements is :



**Conclusions :**

- I. All aged are women = false
- II. Some women are aged = true

Thus, only conclusion II follows

=> Ans - (B)

**SSC CGL Tier-2 Previous Papers PDF**

180. **Statements :**

I. All skaters are good swimmers.

II. All good swimmers are runners.

**Conclusions**

I. Some runners are skaters.

II. Some skaters are good swimmers.

**A** Only conclusion I follows

**B** Only conclusion II follows

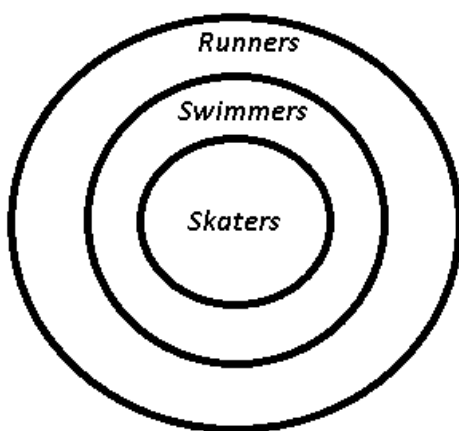
**C** Both conclusions I and II follow

**D** Neither conclusion I nor II follows

**Answer: C**

**Explanation:**

The venn diagram for above statements is :



**Conclusions**

I. Some runners are skaters = true

II. Some skaters are good swimmers = true

Thus, both conclusions I and II follow

=> Ans - (C)

181. If Alphabets are serially numbered, one of the answers given below has not a meaningful word hidden in it. Identify the answer.

**A** 5, 1, 3, 5, 20, 8,18

**B** 18, 5, 8, 1, 3, 5, 20

**C** 20, 5, 8, 1, 3, 5,18

**D** 5, 18, 5, 8,1, 3, 5, 20

**Answer: D**

**Explanation:**

If Alphabets are serially numbered, then

(A) : 5, 1, 3, 5, 20, 8,18 = Eacethr

(B) : 18, 5, 8, 1, 3, 5, 20 = rehacet

(C) : 20, 5, 8, 1, 3, 5,18 = tehacer

(D) : 5, 18, 5, 8,1, 3, 5, 20 = erehacet

The first three words combine to form the word 'TEACHER' while no meaningful word can be formed from the last group of letters.

=> Ans - (D)

182. If LUXOR is coded as 30, then GUILDS will be coded as ?

- A 36
- B 38
- C 24
- D 40

**Answer: C**

**Explanation:**

If LUXOR is coded as 30, then the pattern we can infer is as follows:

if we assign 1=A then B=2 and so on we will find the value of L+U+X+O+R=90 which when divided by 3 will give the value 30. similarly, for GUILDS the value will be 7+9+12+4+19+21=72 which when divided by 3 gives 24. hence the answer is option C.

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183. In the following list of English alphabets, one alphabet has not been used. Identify the same.

X N F A P S R W L T M D E X M G B C X Q J L O P V R C Q J Z O H S G O D I P T S M R A B E F G N U N E

- A I
- B K
- C J
- D V

**Answer: B**

**Explanation:**

Going by the options, we see that :

X N F A P S R W L T M D E X M G B C X Q J L O P V R C Q J Z O H S G O D I P T S M R A B E F G N U N E

Clearly, among the options given, only 'K' is not used.

Ans - (B)

184. How many 9's are followed by and preceded by numbers divisible by 2 ?

8 9 6 5 3 5 9 6 8 3 4 9 6 5 2 6 9 7 3 7 2 9 4 1 3 7 9 4 1 7 3 4 9 8 4 5 3 9 7 6 1 5 3 1 9 5 7 4 2 9 6 8 5 3 2 9 5 7 4 8 9 4 5 1

- A 6
- B 8
- C 10
- D 12

**Answer: A**

**Explanation:**

We need to find the number of 9's immediately preceded and followed by a number divisible by 2

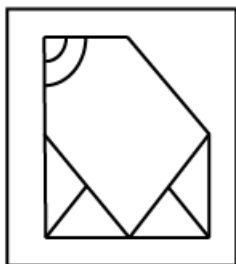
=> We need to find : (even) 9 (even)

8 9 6 5 3 5 9 6 8 3 4 9 6 5 2 6 9 7 3 7 2 9 4 1 3 7 9 4 1 7 3 4 9 8 4 5 3 9 7 6 1 5 3 1 9 5 7 4 2 9 6 8 5 3 2 9 5 7 4 8 9 4 5 1

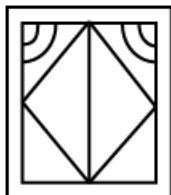
Thus, there are '6' such 9's

Ans - (A)

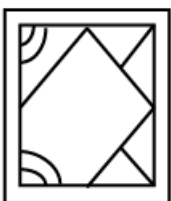
185. From the given answer figures, select the one in which the question figure is hidden/embedded



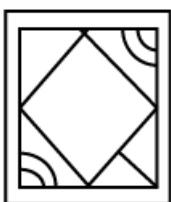
A



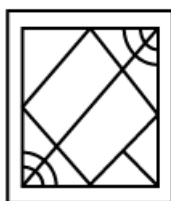
B



C



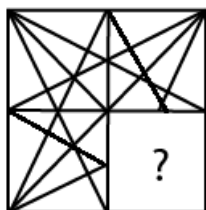
D



Answer: B

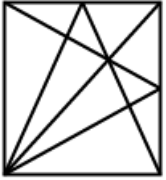
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186.

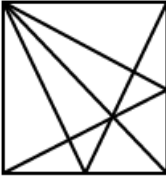




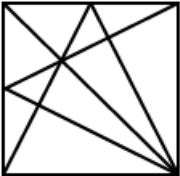
A



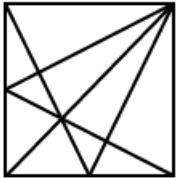
B



C



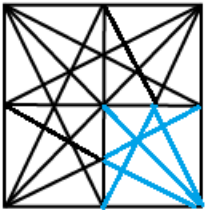
D



**Answer: C**

**Explanation:**

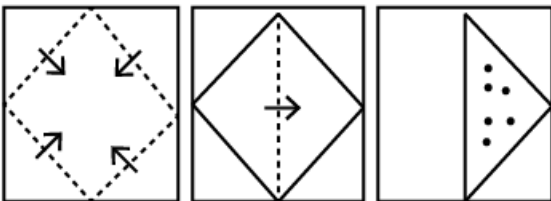
When we complete the above figure, we get :



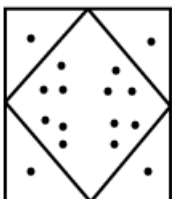
Now, the third figure resembles the above missing part in blue colour.

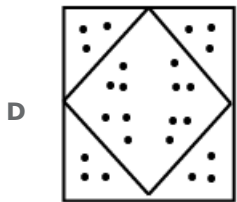
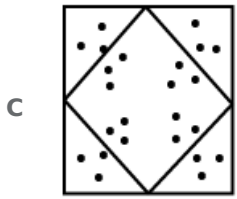
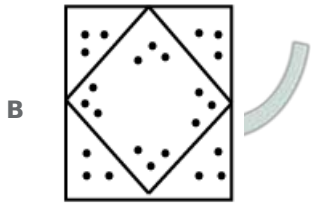
=> Ans - (C)

187.



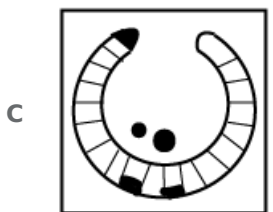
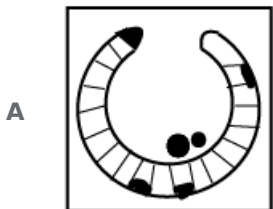
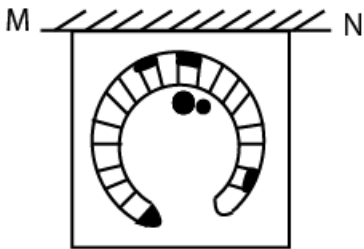
A





Answer: D

188.



D



**Answer:** A

**Explanation:**

Since the mirror is in horizontal position, the image will just appear upside down.

In the figure, the bigger dot is on the left of the smaller and they have a gap between them, similarly in the mirror image it will appear as it is.

=> (C) & (D) are eliminated.

In the figure, one dot is in the front of half filled box, and the other is not, it will appear as it is in the mirror

=> (B) is also eliminated.

Ans - (A)

## General Science Notes for SSC CGL

189. Identify the set for the word 'STAR'.

Matrix I

	0	1	2	3	4
0	G	V	E	A	C
1	R	O	N	G	S
2	M	N	E	S	H
3	O	T	I	T	A
4	N	S	N	E	F

Matrix II

	5	6	7	8	9
5	R	E	O	N	C
6	N	P	V	E	S
7	M	T	I	O	N
8	E	A	I	C	C
9	N	T	A	R	S

**A** 23, 76, 33, 98

**B** 14, 87, 98, 97

**C** 69, 96, 03, 56

**D** 99, 31, 86, 98

**Answer:** D

**Explanation:**

(A) - 23, 76, 33, 98 = STTR

(B) - 14, 87, 98, 97 = SIRA

(C) - 69, 96, 03, 56 = STAE

(D) - 99, 31, 86, 98 = **STAR**

=> Ans - (D)

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