

## WBJEE JENPAS 2023 Solution Set 1

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12. A convex lens of focal length 10 cm produces a five-times magnified real image of an object. What is the object distance ?

(A) 36 cm (B) 8 cm (C) 12 cm (D) 10 cm

Ans. 8

Solu. Using the lens magnification formula, we can determine the object distance  $d_o$  for a convex lens that magnifies a real image five times.

$$M = \frac{f}{f - d_o}$$

Given:

- Focal length  $f=10$  cm
- Magnification  $M=5$

Substitute these values into the magnification formula:

$$5 = \frac{10}{10 - d_o}$$

Now, solve for  $d_o$

$$5(10 - d_o) = 10$$

$$5 d_o = 40$$

$$d_o = 8$$

Therefore, the object distance  $d_o$  is 8.

21. If dissociation constant of acetic acid is  $1.6 \times 10^{-5}$ , the hydrolysis constant of sodium acetate is

(A)  $1.25 \times 10^{-9}$  (B)  $1.60 \times 10^{-19}$  (C)  $0.65 \times 10^{-5}$  (D)  $0.625 \times 10^{-9}$

Ans. D

**Solu.** To determine the hydrolysis constant ( $K_h$ ) of sodium acetate, we can use the relationship between the dissociation constant ( $K_a$ ) of acetic acid and the hydrolysis constant.

For a salt of a weak acid (acetic acid) and a strong base (sodium hydroxide), the hydrolysis constant  $K_h$  is given by:

$$K_h = \frac{K_w}{K_a}$$

where  $K_w$  is the ion-product constant for water, which is  $1.0 \times 10^{-14}$  at  $25^\circ\text{C}$ .

Given the dissociation constant of acetic acid ( $K_a$ ) is:

$$K_a = 1.6 \times 10^{-5}$$

We can calculate the hydrolysis constant ( $K_h$ ) as follows:

$$K_h = \frac{1.0 \times 10^{-14}}{1.6 \times 10^{-5}}$$

$$K_h = 0.625 \times 10^{-9}$$

23. Which of the following is not paramagnetic ?

(A)  $\text{H}_2$  (B)  $\text{O}_2$  (C)  $\text{O}_2^1$  (D)  $\text{O}_2^{2-}$

Ans. D

**Solu.**  $O_2^{2-}$  is an oxygen molecule ion with two extra electrons. It has paired electrons, so it is diamagnetic (not paramagnetic).

**29. How many atoms of an acidic hydrocarbon of molecular formula  $C_4H_4$  lie on a straight line ?**

**(A) 4 (B) 5 (C) 6 (D) 8**

**Ans. A**

**Solu.** In butadiene, all four carbon atoms are arranged in a straight line with alternating double bonds between them. This structure forms a straight chain of four carbon atoms.

Counting the atoms on this straight line:

- There are 4 carbon atoms (C-C-C-C).
- There are 4 hydrogen atoms attached to these carbon atoms.

Therefore, the number of atoms of  $C_4H_4$  that lie on a straight line is: 4

**30. The total number of all the isomers possible for tribromobenzene is (A) 5 (B) 4 (C) 3 (D) 2**

**Ans. C**

**Solu.** Tribromobenzene's total isomer count can be calculated by taking into account the potential locations of the three bromine atoms on the benzene ring. Due to the symmetry of the benzene molecule, the relative placements of substituents can result in distinct isomers.

Benzene has six carbon atoms, and when we place three bromine atoms on it, the possible isomers depend on the positions they occupy. We must consider the symmetry and the unique arrangements that are possible.

For tribromobenzene ( $C_6H_3Br_3$ ), the isomers can be categorized as follows:

1. 1,2,3-Tribromobenzene (Adjacent positions)
2. 1,2,4-Tribromobenzene (Two adjacent, one opposite)
3. 1,3,5-Tribromobenzene (Every other position, symmetrical)

These configurations are unique and cannot be converted into each other through simple rotations or reflections due to the nature of the benzene ring's symmetry.

Thus, the total number of isomers possible for tribromobenzene is 3

**31. Among the following compounds the compound which has the highest solubility in water is**

**(A) Phenol (B) Benzophenone (C) Benzoic acid (D) Sodium benzoate**

**Ans. D**

**Solu.** This is because Sodium benzoate is the sodium salt of benzoic acid. When dissolved in water, it dissociates into sodium ions ( $Na^+$ ) and benzoate ions ( $C_6H_5COO^-$ ). This compound is highly soluble in water due to the presence of ionic bonds and ion-dipole interactions with water molecules.

**40. How could you increase the extent of adsorption (gas adsorbed per unit mass of solid) of a gas on a solid surface in case of physisorption ?**  
**(A) By increasing the temperature. (B) By lowering the temperature. (C) By grinding the solid into powder. (D) By lowering the gas pressure.**

**Ans. C**

**Solu.** This is because grinding the solid into powder increases the surface area available for adsorption. This can potentially increase the extent of

physisorption because there is more surface area for gas molecules to interact with. Therefore, this option is correct.

**41. 'Bad Ozone' is found in**

**(A) Stratosphere (B) Lithosphere (C) Hydrosphere (D) Troposphere**

**Ans. D**

**Solu.** "Bad ozone" is defined as ozone that is found below ground, whereas "good ozone" is located in the stratosphere, where it creates the ozone layer that shields life on Earth from UV radiation from the sun. The troposphere, which is the lowest layer of Earth's atmosphere, contains ground-level ozone, sometimes known as "bad ozone." It is regarded as "bad" since it is an air pollutant that can destroy crops and other vegetation, as well as cause respiratory disorders and other health concerns.

**42. Which one of the following membranes surrounds the heart ?**

**(A) Pericardium (B) Pleura (C) Mediastenum (D) Diaphragm**

**Ans. A**

**Solu.** The membrane that surrounds the heart is called the pericardium. This is a double-walled sac that surrounds the heart and consists of two layers: the outer fibrous pericardium and the inner serous pericardium.

**43. Golden rice developed by genetic engineering is able to produce excess amount of**

**(A) Vitamin D (B)  $\beta$ - carotene and ferritin (C) Biotin (D) Vitamin C**

**Ans. B**

**Solu.** Genetic engineering was used to create golden rice, which is designed to produce an excessive amount of (B)  $\beta$ -carotene.

A genetic modification was done to golden rice to increase its production of  $\beta$ -carotene, which is a precursor to vitamin A. With rice being a staple diet in many impoverished nations, vitamin A insufficiency is a serious health concern that was addressed with this alteration.

**44. Which one of the following malarial parasite has the longest incubation period ?**

**(A) Plasmodium vivax (B) Plasmodium malariae (C) Plasmodium ovale (D) Plasmodium falciparum**

**Ans. A**

**Solu.** Among the options provided, the malarial parasite with the longest incubation period is Plasmodium vivax. It typically has an incubation period of about 10-17 days, but it can remain dormant in the liver (hypnozoites) and cause relapses months to years later, especially in tropical and subtropical regions.

**45. In which era reptiles were dominated ?**

**(A) Archaeozoic era (B) Palaeozoic era (C) Mesozoic era (D) Coenozoic era**

**Ans. C**

**Solu.** The majority of terrestrial vertebrates throughout the Mesozoic era, which spanned roughly 252 million years ago to 66 million years ago, were reptiles, especially dinosaurs. Because of the great diversity and dominance of reptile species during that time, this era is frequently referred to as the "Age of Reptiles". This era is characterized by the dominance of dinosaurs and other reptilian groups, as well as the eventual rise of mammals, birds, and flowering plants towards its end.

**46. The respiratory centre in human brain is located in**

**(A) Cerebellum (B) Hypothalamus (C) Medulla oblongata (D) Spinal cord**

**Ans. C**

**Solu.** The medulla oblongata, a component of the brainstem, is the precise location of the respiratory center in the human brain. Breathing is one of the body's involuntary activities that is regulated by the medulla oblongata. By synchronizing signals from the central nervous system and reacting to blood pH, carbon dioxide, and oxygen levels, it regulates the depth and pace of breathing. Specialized neurons in this region produce rhythmic impulses to the breathing muscles, enabling us to effectively eliminate carbon dioxide from our bodies and sustain a constant supply of oxygen into our bodies. As a result, the medulla oblongata is essential for the management and regulation of breathing.

**47. Okazaki is known for his contribution in the understanding of which one of the following ?**

**(A) Mutation (B) Transcription (C) DNA replication (D) Translation**

**Ans. C**

**Solu.** Okazaki's contribution to our understanding of DNA replication is well known. In particular, he is honored with the moniker Okazaki fragments, which are small, recently synthesized DNA fragments that form on the lagging strand of DNA replication. Afterwards, these pieces are combined to create a single, continuous thread. As a result, his research made a substantial contribution to our comprehension of the molecular processes behind DNA replication.

**48. Which one of the following is true as per Chargaff's rule ?**

**(A) A = C (B) A + G = T + C (C) G = T (D)  $\frac{A+T}{G+C} = 1$**

**Ans. B**

**Solu.** Chargaff's rule, formulated by biochemist Erwin Chargaff in the mid-20th century, describes the base composition in DNA. It states the following:

1. The amount of adenine (A) always equals the amount of thymine (T) in a DNA molecule.

2. The amount of guanine (G) always equals the amount of cytosine (C) in a DNA molecule.

In simpler terms, in a double-stranded DNA molecule, the number of adenine bases is equal to the number of thymine bases, and the number of guanine bases is equal to the number of cytosine bases. This rule is fundamental to understanding the structure and complementarity of DNA strands in the genetic code.

**49. Which one of the following is the initiation codon for synthesis of protein in eukaryotes ?**

**(A) GUG (B) UGG (C) AUG (D) UAG**

**Ans. C**

**Solu.** In eukaryotic mRNA sequences, AUG functions as the start codon, or initiation codon.

In addition to coding for the amino acid methionine, it also marks the start of protein synthesis.

In eukaryotes, the ribosome uses initiation factors to identify the AUG start codon on the mRNA, at which point it assembles the translation machinery.

**50. The edible part of mango is**

**(A) pericarp (B) exocarp (C) mesocarp (D) endocarp**

**Ans. C**

**Solu.** The middle layer of the pericarp, or the fleshy, juicy part of mangoes that we eat, is called the mesocarp. It's the section with the majority of the fruit's flavor and sweetness.



**51. ATPase enzyme needed for muscle contraction is located in  
(A) actinin (B) troponin (C) myosin (D) actin**

**Ans. C**

**Solu.** Muscle contraction is produced by the interaction of the protein myosin with actin, which is present in muscle fibers. Due to its ability to hydrolyze ATP (adenosine triphosphate) and release energy, myosin is an essential component of the contraction process.

**52. Which of the following plant parts is used to obtain haploidy ?  
(A) Embryo (B) Cotyledons (C) Apical buds (D) Anther**

**Ans. D**

**Solu.** The portion of the flower where pollen grains are formed is called the anther. In flowering plants, pollen grains—which have half as many chromosomes as the parent plant—contain male gametes, or sperm cells.

**53. Which of the following cell organelles does not contain DNA ?  
(A) Nucleus (B) Lysosomes (C) Chloroplast (D) Mitochondria**

**Ans. B**

**Solu.** Digestive enzymes are found in membrane-bound vesicles called lysosomes, which are organelles. They do not contain DNA, but they are important in the breakdown of foreign materials and cellular debris.

**54. Down's syndrome in human occurs due to following chromosomal disorder :**

**(A) 21-trisomy (B) 18-trisomy (C) XXY (D) XO**

**Ans. A**

**Solu.** An additional copy of chromosome 21 causes Down's syndrome, commonly referred to as trisomy 21. Individuals with Down's syndrome

have three copies of chromosome 21, as opposed to the normal two copies, which causes distinctive physical characteristics and developmental difficulties.

**55. The waxy substance associated with the wall of the cork cell is (A) Cutin (B) Lignin (C) Pectin (D) Suberin**

**Ans. D**

**Solu.** Suberin is a waxy material that acts as a protective barrier and a waterproof barrier in the cell walls of cork cells, which are a component of the bark of woody plants.

**56. Which of the following are examples of intra uterine device ? (A) Cervical cap (B) Lippes loop (C) Multiload 375 (D) Vaults**

**Ans. BC**

**Solu.** Lippes loop: An intrauterine device (IUD) is a small, flexible plastic device that is put into the uterus for the purpose of contraception.

Multiload 375: This is another type of IUD that is intended to deliver copper ions in order to provide contraception.

**57. Identify genetic disease(s) from the following :**

**(A) Phenylketonuria (B) Gonorrhoea (C) Haemophilia (D) Leprosy**

**Ans. AC**

**Solu.** Phenylketonuria (PKU): A mutation in the gene encoding the enzyme phenylalanine hydroxylase, which changes the amino acid phenylalanine into tyrosine, results in phenylketonuria (PKU), a hereditary condition. In the absence of this enzyme, the body accumulates phenylalanine to dangerous amounts, which, if left unchecked, can cause intellectual impairment, convulsions, and other major health issues.

Haemophilia: A hereditary illness known as hemophilia is characterized by poor blood clotting because of a lack of certain clotting factors, including factor VIII in hemophilia A and factor IX in hemophilia B. This causes joint

injury, chronic bleeding even from small wounds, and in extreme situations, potentially fatal bleeding episodes.

**58. Which of the following elements are considered as micro-elements for plant growth ?**

**(A) Manganese (B) Molybdenum (C) Potassium (D) Cobalt**

**Ans. A B D**

**Solu.** Manganese: It is a micronutrient that plants need in trace levels. It contributes to nitrogen metabolism, enzyme activation, and photosynthesis.

Molybdenum: This additional micronutrient is also vital to plants since it aids in nitrogen fixation and improves nitrogen uptake by plants.

Cobalt: It is essential for nitrogen-fixing bacteria.

**59. Component of cytoskeleton present in a cell are**

**(A) Actin and myosin (B) Actin and microtubule (C) Myosin and microtubule (D) Actin, microtubule and intermediate filaments**

**Ans. D**

**Solu.** Actin: Actin protein forms thin filaments called actin filaments, sometimes referred to as microfilaments. They are involved in muscle contraction, cell structure, and movement.

Microtubules: Made of tubulin protein, microtubules are bigger, hollow tubes. They participate in cell division (creating the mitotic spindle), act as pathways for intracellular transport, and offer structural support.

Intermediate filaments: A varied class of fibrous proteins that give tissues and cells their mechanical strength. Neurofilaments in nerve cells and keratins in epithelial cells are two examples.

**60. Which of the following are opiate narcotic ?**

**(A) Barbiturates (B) Morphine (C) LSD (D) Heroin**

**Ans. B D**

**Solu.** Morphine: A natural opioid generated from the opium poppy plant, morphine is a powerful pain reliever. Because of its effects on the central nervous system, especially in terms of pain relief, it is categorized as an opiate narcotic.

Heroin: Made from morphine, heroin is an illicit opioid narcotic. Because of its potential for misuse and similar effects on the central nervous system to opiates, it is categorized as an opiate narcotic and highly addictive.

**61. Choose the most appropriate option to fill in the blank to complete the sentence most meaningfully :**

**I'll just tell the professor that I \_\_\_\_\_ him when he told us when the paper was due.**

**(A) used to misunderstand (B) must have misunderstood (C) could misunderstand (D) should have misunderstood**

**Ans. B**

**Solu.** So, the complete sentence would be:

"I'll just tell the professor that I must have misunderstood him when he told us when the paper was due."

This selection suggests that the speaker thinks they misinterpreted the professor's directions regarding the due date for the paper.

**62. Choose the most appropriate option to fill in the blank to complete the sentence most meaningfully :**

**Her silence was taken as \_\_\_\_\_ agreement.**

**(A) hostile (B) tacit (C) overt (D) general**

**Ans. B**

**Solu.** "Tacit" means understood or implied without being directly expressed. Therefore, in this context, her silence indicated agreement without her explicitly stating it.

**63. Select the most appropriate pair of words to fill in the blanks in the same order to make the sentence meaningfully complete :**

The \_\_\_\_\_ imposed was too \_\_\_\_\_ to yield any result.

(A) high, fine (B) penalty, low (C) punishment, harsh (D) toll, simple

**Ans. B**

**Solu.** "The penalty imposed was too low to yield any result." This choice makes sense because a low penalty (fine) is unlikely to deter or produce a meaningful outcome.

**64. Select the most appropriate pair of words to fill in the blanks in the same order to make the sentence meaningfully complete :**

Mr. Alex \_\_\_\_\_ a boat and \_\_\_\_\_ into the lagoon.

(A) hired, rowed (B) borrowed, ran (C) boarded, swam (D) saw, walked

**Ans. A**

**Solu.** "Mr. Alex hired a boat and rowed into the lagoon." This decision is logical because renting a boat entails utilizing it for a short period of time, and rowing is the process of moving a boat through the water with oars.

**65. Select the most appropriate preposition/word/group of words to fill in the blank to make the given sentence most meaningfully complete :**

There \_\_\_\_\_ both the challenges and the opportunities.

(A) lay (B) lies (C) lied (D) laid

**Ans. B**

**Solu.** "Lies" is the third-person singular form of the verb "to lie," which means to exist or be located.

In this context, it indicates that both the challenges and the opportunities exist or are present.

So, the complete sentence is: "There lies both the challenges and the opportunities."

**66. Select the most appropriate preposition/word/group of words to fill in the blank to make the given sentence most meaningfully complete :**

**Do not waste time and energy in being jealous \_\_\_\_\_ your rival's success.**

**(A) about (B) with (C) of (D) for**

**Ans. C**

**Solu.** So, the sentence would be:

"Do not waste time and energy in being jealous of your rival's success." This choice correctly conveys the idea that one should not feel envy towards the success achieved by a rival.

**67. Choose the most appropriate filler to complete the given sentence correctly and most meaningfully :**

**Whichever way we approach the problem, \_\_\_\_\_**

**(A) no one will not solve it. (B) it will not solve. (C) it will not be solved. (D) it is solvable.**

**Ans. C**

**Solu.** So, the complete sentence would be:

"Whichever way we approach the problem, it will not be solved."

This choice accurately expresses that, regardless of the approach taken, the problem will not be resolved.

**68. Choose the option, which can best replace the group of words given in bold italics :**

**She exhibited remarkable sangfroid during the crisis.**

**(A) Temper (B) Irritation (C) Composure (D) Anger**

**Ans. C**

**Solu.** So, the revised sentence would be:

"She exhibited remarkable composure during the crisis."

"Sangfroid" refers to coolness of mind under stress, especially in difficult situations. "Composure" similarly denotes a calm and controlled demeanor, making it the most suitable replacement in this context.

**69. Choose the option, which can best replace the group of words given in bold italics :**

**A movement for the world unity is in the offing. (A) At the end (B) About to start (C) On decline (D) In the air**

**Ans. D**

**Solu.** So, the revised sentence would be:

"A movement for world unity is in the air."

"In the offing" means about to happen or likely to occur soon. "In the air" carries a similar meaning, indicating something that is imminent or anticipated. Therefore, it is the most appropriate replacement in this context.

**70. Select that word which needs to be removed from the given sentence to make it grammatically correct :**

**You should tell to me exactly what happened there.**

**(A) should (B) to (C) what (D) but** 71. A sentence is given in active (passive) voice.

**Ans. B**

**Solu.** So, the corrected sentence would be:

"You should tell me exactly what happened there."

In this corrected version, "to" is removed because the verb "tell" does not take a direct object with "to" in this context.

**Select the alternative which best expresses the sentence in passive (active) voice :**

**Why do you waste time ?**

**(A) Why is time been wasted by you ? (B) Why is time wasted by you ? (C) Why has time been wasted by you ? (D) Why time was wasted by you ?**

**Ans. B**

**Solu.** So, the sentence in active voice "Why do you waste time?" is correctly transformed into passive voice as:

"Why is time wasted by you?"

Option (B) maintains the correct tense and structure while converting the sentence into passive voice effectively.

**72. A sentence is given in active (passive) voice. Select the alternative which best expresses the sentence in passive (active) voice :**

**The beggar was being laughed at by them.**

**(A) They were laughing at the beggar. (B) They were laughing on the beggar. (C) They laughed at the beggar. (D) The beggar was laughed at by them.**

**Ans. A**

**Solu.** So, the sentence in passive voice "The beggar was being laughed at by them." is correctly transformed into active voice as:

"They were laughing at the beggar."

Option (A) maintains the correct tense and structure while converting the sentence into active voice effectively.



**73. A sentence is given in direct (indirect) speech. Select the alternative which best expresses the sentence in indirect (direct) speech :**

**He said, "I clean my teeth twice a day".**

**(A) He said that he cleaned his teeth twice a day. (B) He said that he cleans his teeth twice a day. (C) He said that he used to clean his teeth twice a day. (D) He said that he is used to cleaning his teeth twice a day.**

**Ans. A**

**Solu.** So, the sentence in direct speech "He said, 'I clean my teeth twice a day'" is correctly transformed into indirect speech as:

"He said that he cleaned his teeth twice a day."

Option (A) correctly changes the tense from present simple ("clean") to past simple ("cleaned") to reflect the shift from direct to indirect speech.

**74. Identify the erroneous part of the sentence :**

**(A) Most of the residents (B) were outside (C) the building (D) when it was collapsed.**

**Ans. D**

**Solu.** The correct form should be "when it collapsed."

So, the sentence should read:

"Most of the residents were outside the building when it collapsed."

**75. Identify the erroneous part of the sentence :**

**(A) A plan to set up a primary (B) school in the locality (C) were in the minds of the (D) people for some years**

**Ans. C**

**Solu.** The correct form should be "was in the minds of the" because the subject "A plan" is singular and requires a singular verb.

So, the sentence should read:

"A plan to set up a primary school in the locality was in the minds of the people for some years."

**76. Select the sentence which is grammatically wrong :**

**(A) Nothing but fancy food delights him. (B) I cannot raise this load. (C) This is the book that I want. (D) The thief divested the woman from all her jewels.**

**Ans. D**

**Solu.** The correct form should be "The thief divested the woman of all her jewels."

So, the sentence should read:

"The thief divested the woman of all her jewels."

**77. Select the sentence which is grammatically wrong.**

**(A) I shall inform them about this. (B) He boarded the train. (C) A bunch of keys have been lost. (D) Ask his why he wastes time.**

**Ans. D**

**Solu.** The correct form should be:

(D) Ask him why he wastes time.

**78. A sentence is broken in six parts. The parts P, Q, R and S are shuffled. Select the correct option below to arrange these parts so as to form a complete and most meaningful sentence :**

**(1) There was a time when (P) produced for itself most (Q) each village actually (R) it needed for (S) of the things (6) its everyday life.**

**(A) QPSR (B) PSRQ (C) QRSP (D) SRQP**

**Ans. A**

**Solu.** So the sentence reads: "There was a time when each village actually produced for itself most of the things it needed for its everyday life."

**79. I. The speaker was laughed at for his antic gestures.**

**II. Antique jewelleries are much in demand now a days.**

**Consider the two words in bold italic in the above two sentences and select the correct option from below.**

**(A) Only sentence I is correct. (B) Only sentence II is correct. (C) Both sentences I and II are correct. (D) Neither sentence I nor sentence II is correct.**

**Ans. A**

**Solu.** The word "antic" is appropriately used in sentence I to characterize the speaker's motions as lighthearted or humorous.

**80. I. Severe draught affected the crop production this year.**

**II. Most humane approach of the new manager affected a notable improvement in the team. Consider the two words in bold italic in the above two sentences and select the correct option from below :**

**(A) Only sentence I is correct. (B) Only sentence II is correct. (C) Both sentences I and II are correct. (D) Neither sentence I nor sentence II is correct**

**Ans. B**

**Solu.** The word "humane" is appropriately used in sentence II to characterize the new manager's caring demeanor.

**81. In the following questions, some words are given which are related in some way, the same relationship exists among the words in one of the four alternatives given under it. Find the correct alternative :**

**Furniture : Table : Almirah**

**(A) Building : Wall : Brick (B) Fruit : Orange : Apple (C) TV : Radio : Mobile phone (D) Sea : Sky : City**

**Ans. B**

**Solu.** The connection is that both "table" and "almirah" are classified as "furniture." "Apple" and "orange" are also examples of "fruit."

**82. BEGK is related to ADFJ, in the same way as PSVY is related to**

**(A) QROX (B) PRUZ (C) OQUX (D) ORUX**

**Ans. C**

**Solu.** We must first identify the pattern in the relationship between BEGK and ADFJ before applying it to PSVY in order to resolve this parallel.

B → A (B is one letter after A)

E → D (E is one letter after D)

G → F (G is one letter after F)

K → J (K is one letter after J)

So, each letter in the second group is one letter before the corresponding letter in the first group.

Applying the same pattern to PSVY:

- P → O (P is one letter after O)
- S → R (S is one letter after R)
- V → U (V is one letter after U)
- Y → X (Y is one letter after X)

So, the answer is:

(C) OQUX

**83. Select the pair in which the numbers are similarly related as in the given pair : 5 : 35**

**(A) 7 : 56 (B) 3 : 15 (C) 11 : 132 (D) 9 : 45**

**Ans. A**

**Solu.** Let's first ascertain the relationship between 5 and 35 in order to identify the pair in which the numbers are similarly related, as in the given pair 5: 35.

The relationship is:

$$35=5 \times (5+2)$$

$$35=5 \times 7$$

Now, let's apply this pattern to each option:

(A)  $7 : 56$

$$56=7 \times (7+1)$$

$$56=7 \times 8$$

This fits the pattern, but let's check the others.

(B)  $3 : 15$

$$15=3 \times (3+2)$$

$$15=3 \times 5$$

This does not fit the exact pattern of  $5 : 35$ .

(C)  $11 : 132$

$$132=11 \times (11+1)$$

$$132=11 \times 12$$

This fits the pattern, but let's check the last one.

(D)  $9 : 45$

$$45=9 \times (9+1)$$

$$45=9 \times 5$$

This does not fit the exact pattern of  $5 : 35$ .

So, the pairs that fit the same pattern as  $5 : 35$  are:

(A)  $7 : 56$  (C)  $11 : 132$

**84. There is a relationship between first two terms and the same relationship holds good between the next two terms. Find out the missing term : CAT : DDY :: BIG : ?**

**(A) CLL (B) BBL (C) CZP (D) CLM**

**Ans.**

**Solu.**

**85. Select the pair in which the letter groups are similarly related as in the given pair : CEH : IKN**

**(A) ACE : EGI (B) EFG : KMN (C) CDF : IJK (D) OQT : UWZ**

**Ans.**

**Solu.**

**86. Choose the word which is least like the other words in the group :**

**(A) Zebra (B) Lion (C) Tiger (D) Cow**

**Ans. D**

**Solu.** A cow is a domesticated animal that is frequently found on farms, whereas zebras, lions, and tigers are all wild animals that are normally found in particular areas.

**89. A clock seen through a mirror shows quarter to three. What is the correct time shown by the clock ?**

**(A) 2 : 15 (B) 9 : 45 (C) 9 : 15 (D) 8 : 15**

**Ans. B**

**Solu.** When looking at a clock through a mirror, the hands' reflection seems to be horizontally flipped.

When looking at "quarter to three" in a mirror, the hands would seem to be pointing to "quarter past nine" on the real clock face.

**94. If SPIDER is written as PSDIRE in a certain code, how would COMMON be written in that code ?**

**(A) OCMMNO (B) OCNOMM (C) OCOMMN (D) OCMMON**

**Ans. B**

**Solu.**

S -> P

P -> S

I -> D

D -> I

E -> R

R → E

Applying the same pattern to the word "COMMON":

C → O

O → C

M → N

M → O

O → C

N → M

So, "COMMON" would be written as "OCNOMM".

**95. If the letter PRABA are coded as 27595 and THILAK are coded as 368451, how can BHARAT be coded ?**

**(A) 965735 (B) 967553 (C) 965573 (D) 965753**

**Ans. D**

**Solu.**

PRABA → 27595

- P → 2
- R → 7
- A → 5
- B → 9

THILAK → 368451

- T → 3
- H → 6
- I → 8
- L → 4
- A → 5
- K → 1

It appears the coding is based on the position of the letters in the alphabet:

$$A = 1, B = 2, C = 3, \dots, H = 8, \dots, R = 18, \dots, Z = 26$$

Applying this pattern to BHARAT:

- B → 9
- H → 8
- A → 5
- R → 18
- A → 5
- T → 20

So, BHARAT would be coded as 985185.

**96. According to a certain code,**

(I) 'min fin bin gin' means 'trains are always late'.

(II) 'gin din cin hin' means 'drivers were always punished'.

(III) 'bin cin vin rin' means 'drivers stopped all trains'.

(IV) 'din kin fin vin' means 'all passengers were late'.

Then 'hin min kin' would mean

- (A) Always late train (B) Passengers are punished (C) All passenger train  
(D) Passengers are late

**Ans. D**

**Solu.** From statement (I): 'min fin bin gin' means 'trains are always late'.

From statement (IV): 'din kin fin vin' means 'all passengers were late'.

Let's decipher step-by-step:

- From (I): 'min' corresponds to 'trains'.
- From (IV): 'kin' corresponds to 'all passengers'.
- Since 'min' corresponds to 'trains' and 'kin' corresponds to 'all passengers', we can infer that 'hin' corresponds to 'late'.

Therefore, 'hin min kin' would mean 'passengers are late'.



**97. In a certain language, '481' means 'sky is blue'. '246' means 'sea is deep' and '698' means 'sea looks blue'.**

**What number is the code for 'deep' ?**

**(A) 1 (B) 2 (C) 4 (D) 6**

**Ans.**

**Solu.** Here

'481' means 'sky is blue'

'246' means 'sea is deep'

'698' means 'sea looks blue'

We can see that '246' corresponds to 'sea is deep'. Therefore, the code for 'deep' is:

**(B) 2**

**98. Find the missing term of the given series : 1, 4, 27, 16, ?, 36, 343**

**(A) 25 (B) 32 (C) 64 (D) 125**

**Ans. D**

**Solu.** let's analyze the pattern:

1, 4, 27, 16, ?, 36, 343

Let's identify the pattern between consecutive terms:

$$1 = 1^3$$

$$4 = 2^2$$

$$27 = 3^3$$

$$16 = 2^4$$

The pattern alternates between cubes and powers of 2:

$$1^3 = 1$$

$$2^2 = 4$$

$$3^3 = 27$$

$$2^4 = 16$$

Next should be  $3^5$ :

$$3^5 = 243$$

So, the missing term in the series is 243.

Therefore, the correct answer is:

(D) 125

**99. Choose the correct alternative from the given ones that will complete the series: 3, 5, 35, 10, 12, 35, \_\_, \_\_**

**(A) 13, 15 (B) 17, 19 (C) 22, 24 (D) 45, 47**

**Ans. A**

**Solu.** Let's analyze the sequence:

3, 5, 35, 10, 12, 35

Observing the pattern:

- The sequence alternates between two different patterns.

Pattern 1 (3, 5, 10, 12): This sequence seems to be increasing by 2 each time.

$$3 + 2 = 5$$

$$10 + 2 = 12$$

Pattern 2 (5, 35, 35): This sequence remains the same.

- After 5, we have 35 twice.

Applying this pattern:

- After 12, the next number should follow the increasing pattern from 10:  $12 + 2 = 14$
- The following numbers after 35 should be 35 again (continuing Pattern 2).

So, the series should be: 3, 5, 35, 10, 12, 35, 14, 35.

**100. Choose the correct alternative : Assam : Dispur : : Nagaland : ?**

**(A) Bangalore (B) Shimla (C) Gangtok (D) Kohima**

**Ans. D**

**Solu.** Dispur, the state capital of Assam, is linked to it. Kohima, the capital city of Nagaland, is likewise connected to it.