

# HCL Mock – 2

## English

### Topic – Active Voice – Passive Voice

1) In the following question, a sentence has been given in Active/ Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/ Active Voice.

The puzzle was solved by the students.

- a) The students solved the puzzle.
- b) The students had solved the puzzle.
- c) The students have solved the puzzle.
- d) The students will solve the puzzle.

Correct Choice: a

Explanation:

The sentence is in the indicative mood and passive voice. Follow the rules below to convert a sentence in the indicative mood to active voice:

1. The subject clause will become the object clause. Here, the subject THE PUZZLE will change to the object, and the object THE STUDENTS will change into the subject and begin the sentence.

2. Replace WAS SOLVED with SOLVED.

3. Remove the conjunction BY before THE STUDENTS.

Option (a) is the right answer.

## Topic – Single Fillers

2) In the given sentence, a blank is given indicating that something is missing. From the given four options, choose the one that provides the correct word to be filled in the blank, thereby making the sentence grammatically and contextually correct.

The government should \_\_\_\_\_ that the insurance companies don't harass the patients while reimbursing treatment costs.

- a) Constrained
- b) Target
- c) Ensure
- d) Endure

Correct Choice: c

Explanation:

(c) is the correct answer. We need a verb in its base form as the modal verb (SHOULD) always takes the base form after it. ENSURE is a verb which means 'to safeguard'. It will fit here as the sentence talks about protecting the patient against the harassment by insurance companies.

Constrained- Restricted, Target(noun)- Aim, Endure- Undergo.

## Topic - Antonyms

3) In the following question, choose the word opposite in meaning to the given word.

Benevolent

- a) Unkind
- b) Friendly
- c) Pacify
- d) Underestimate

Correct Choice: a

Explanation:

(a) is the correct answer. BENEVOLENT means 'kind or charitable'. UNKIND is the antonym of it.

Friendly- Amicable, Pacify-Appease, Underestimate-Underrate.

## Topic - Idioms / Phrasal Verbs

(4-5) In the question below, an idiom is given, followed by four options. Select the option that gives the correct meaning of the idiom.

4) Meet one's Waterloo

- a) To care for something deeply
- b) To be defeated
- c) To conquer
- d) To utilise time efficiently

Correct Choice: b

Explanation:

(b) is the correct answer. MEET ONE'S WATERLOO means 'to face a defeat or suffer a loss'. (b) conveys the requisite meaning of the idiom.

(4-5) In the following question, a sentence is given with a phrase or idiom in brackets. Select the option given below that can replace the bracketed phrase.

5) The government (will come out with) a white paper in four months to cut taxes on steel companies.

- a) Would reprimand
- b) Will introduce
- c) Would launched
- d) No improvement

Correct Choice: b

(b) is the correct answer. The sentence talks of a white paper that would be launched by the government. (b) conveys the requisite meaning.

(a) is incorrect as reprimanded means 'to criticize' thus does not convey the meaning of the phrase.

(c) is grammatically incorrect as the modal verb 'WOULD' always takes the base form verb after it; LAUNCHED is a second form verb.

### Topic – Error Location

6) In the following question, one part of the sentence may have an error. Select the option containing the error as your answer.

The discovery of the (A)/ cosmic microwave background have (B)/ cemented the case for the (C)/ Big Bang origin of the universe. (D)

- a) A
- b) B
- c) C
- d) D

Correct Choice: b

Explanation:

(b) is the correct answer. The error is in part B, replace the plural verb(HAVE) with the singular verb(HAS) to agree with the singular noun(DISCOVERY).

## Topic – Spelling Test

7) In the following question, four different words are given, out of which only one is correctly spelled. Find the correctly spelled word.

- a) Tweaking
- b) Termenating
- c) Tweesting
- d) Traking

Correct Choice: a

Explanation:

(a) is the correct answer. TWEAKING is the correct word which means 'pulling something sharply'.

Terminating- Closing, Twisting- Changing, Tracking- Following.

## Topic – Idioms / Phrasal Verbs

8) In the question below, a sentence is given with an idiom in brackets, followed by four options. Select the option that gives the correct meaning of the idiom.

He should (have smell a rat) when a caller asked his card number.

- a) have sensed that something is wrong
- b) have defended himself against danger
- c) have declined
- d) No improvement

Correct Choice: a

Explanation:

(a) is the correct answer. TO SMELL A RAT means 'to believe there is something wrong'. (a) conveys the requisite meaning of the idiom.



## Topic – Para – Jumbled Sentences

9) In the question given below, rearrange the fragments in the correct order, and choose the correct option.

P: India has been reeling under a major water crisis.

Q: The impact of drought has been identified in more than 50 per cent of districts.

R: The extent and magnitude of water scarcity vary across regions.

S. It has tied the nation together to explore possible ways to handle this grappling situation of the water crisis.

- a) PQRS
- b) QPRS
- c) SQPR
- d) RPQS

Correct Choice: a

Explanation:

(a) is the correct answer. The correct sequence is -PQRS. P begins the sentence by introducing the subject - WATER CRISIS IN INDIA. Q follows P by identifying the regions of water scarcity. R follows Q by stating the extent of the problem which is variable across different regions. S concludes it telling us how the water crisis has united the nation to explore ways to tackle the water crisis.

## Topic - Para – Jumbled Sentences

10) In the question given below, rearrange the fragments in the correct order, and choose the correct option.

P: The demographic dividend can only be availed if there are sufficient opportunities to grow.

Q: India is a fast-growing economy with a very young population.

R: The government has been making efforts to create a conducive environment for self-employment and growth.

S: This is necessary if India has to rise to be a global power in the near future.

- a) PQRS
- b) QPRS
- c) PQSR
- d) QPSR

Correct Choice: b

Explanation:

(b) is the correct answer. The correct sequence is QPRS. Q begins the sentence by introducing the subject- INDIAN ECONOMY. P follows Q as it talks about how the country can reap the benefits of demographic dividend. R follows P by stating the government's steps to stimulate growth. S concludes it by stating the capability of India to become a global power

## Topic – Choose Grammatical Inappropriate Words

11) In the question below, a sentence is given with four words highlighted in bold. From the options, choose the number of highlighted in bold which are contextually or grammatically inappropriate.

His **avuncular** manner and **trenchant** for the occasional **humourous** remarks **endured** him to football fans, for if ever there was a man who wore his heart on his sleeve, it was he.

- a) 0
- b) 1
- c) 2
- d) 3

Correct Choice: c

Explanation:

The sentence talks about his avuncular manner (kind and friendly manner) and preference for occasional humourous (funny) remarks made him beloved of football fans, for he wore his heart on his sleeve. TRENCHANT means vigorous, which is unsuitable here; PENCHANT means preference and will fit here. ENDURED means tolerated, which is inapt here; ENDEARED (caused to be loved or liked) will be more suitable here. Since 2 words are inapt here, (c) is the right answer.

## Topic- Para – Jumbled Sentences

(12-13) Directions: A set of six statements is given below jumbled in any random order. One of the sentences does not belong to the paragraph. Rearrange the remaining sentences to make a meaningful paragraph and answer the questions.

P. The perils of long migrations are many, and in some instances the obstacles that must be overcome may make a move impossible.

Q. In multiple parts of the world, the majority of native butterflies are on the move as a result of local climate warming.

R. They are leaving their natural homes and taking up residence in places with cooler average temperatures.

S. The arrival of new species to the area appears to be directly associated with increases in local temperatures in southwestern Europe. T. Although the latter is a region historically home to few moths and butterflies, in the last century alone, some 89 species of these insects have migrated there permanently, having flown north from southern Europe.

U. This phenomenon has been well characterized in Europe and the United Kingdom.

12) Which of the following provides the correct final order of the statements?

- a) RSQUP
- b) QPSRT
- c) QRUTS
- d) RQTSU

Correct Choice: c

Explanation:

QRUTS is the final order and P is the odd sentence. Q begins the passage by introducing the main idea discussed in the passage - the majority of native butterflies are migrating due to local climate warming. R follows by telling us where they are going - places with cooler average temperatures. U follows by telling us the parts of the world where this has been observed - Europe and the UK. T follows by telling us about the UK specifically, and how many species have migrated there. S concludes by telling us the regions from where they have migrated and why. Thus, (c) is the right answer.

13) P is odd sentence as it talks about the perils of migration, which is not discussed in any of the other statements.

Which of the following statements best sums up the central idea of the passage?

- a) The perils of migration for insects
- b) Human-caused factors that prompt migration of butterflies
- c) Reasons behind the rise in local temperatures in southern Europe
- d) The migration of native butterflies due to rise in temperatures

Correct Choice: d

Explanation:

The passage revolves around how native butterflies are migrating due to local climate warming. Thus, (d) best sums this up, which makes it the right answer.

A forms the main idea of the odd sentence P, not of the passage. B and C are incorrect as the passage does not investigate the reasons behind the rise in local temperatures. E is incorrect as the passage talks of the migration of butterflies, not their extinction.

## Topic – Error Location

14) In the question below, three sentences are given, each divided into four parts, which may or may not contain grammatical errors. From the options, choose the one that provides the combination of the part(s) of each sentence that are incorrect.

1. An efficient and prosperous (A)/ animal agriculture historically (B)/ have been the mark of (C)/ a strong, well-developed nation. (D)

2. Such an agriculture permits a (A)/ nation to stored large quantities of grains and other foodstuffs (B)/ in concentrated form to be utilized to raise animals (C)/ for human consumption during such emergencies as war or natural calamity. (D)

3. Furthermore, meat has long (A)/ been known for its high (B)/ nutritive value, producing (C)/ stronger, healthier people. (D)

- a) 1-A, 3-C
- b) 1-C, 2-B
- c) 1-D, 2-D
- d) 2-A, 3-B

Correct Choice: b

Explanation:

The incorrect parts are 1-C and 2-B.

1-C: replace the plural verb HAVE with the singular verb HAS as the noun AGRICULTURE is singular. 2-B - replace the second form verb STORED

as the infinitive construction TO + VERB will take the base form of the verb. 3-no error. Thus, (b) is the right answer.

### Topic – Error Location

15) In the question below, three sentences are given, each divided into four parts, which may or may not contain grammatical errors. From the options, choose the one that provides the combination of the part(s) of each sentence that are incorrect.

1. As an example, El Niño events (A)/ occurs when the easterly trade winds (B)/ in the tropical Pacific (C)/ weaken or reverse direction. (D)
2. This shuts down the upwelling (A)/ of deep, cold waters off the west coast (B)/ of South America, warms the eastern Pacific, and reverses the (C)/ atmospheric pressure gradient in the western Pacific. (D)
3. As a result, air at the (A)/ surface move eastward from (B)/ Australia and Indonesia towards (C)/ the central Pacific and the Americas. (D)

- a) 1-A, 2-C
- b) 1-B, 2-A, 3-D
- c) 1-B, 2-D
- d) 1-B, 3-B

Correct Choice: d

Explanation:

The incorrect parts are 1-B and 3-B.

1-B: replace the singular verb OCCURS with the plural OCCUR as the subject EVENTS is plural. 2-no error. 3-B: replace the plural verb MOVE with the singular MOVES as the subject AIR is singular. Thus, (d) is the right answer.

# Quantitative Aptitude

## Topic - Geometry

16) In a rhombus ABCD, if  $\angle DBC = 40^\circ$  and  $AB = 12$  cm, then find the value of  $\angle DAB$ .

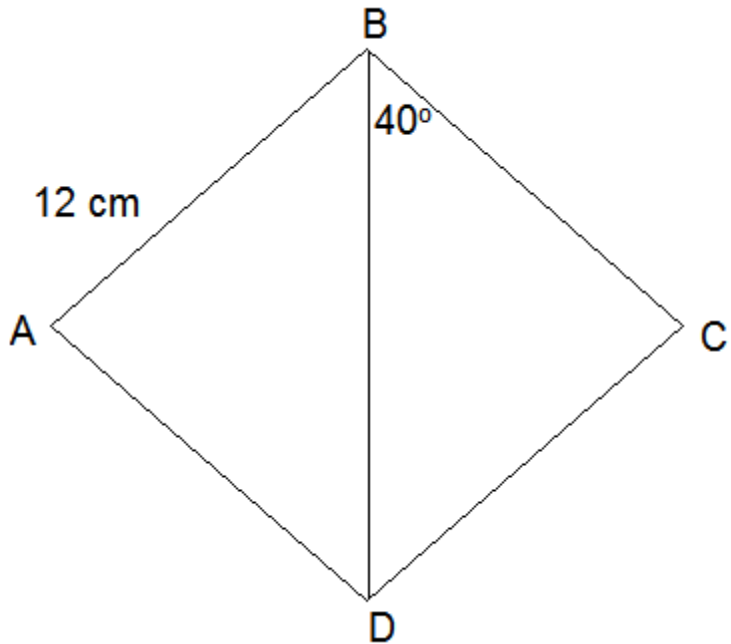
- a)  $80^\circ$
- b)  $120^\circ$
- c)  $100^\circ$
- d)  $60^\circ$

Correct Choice: c

Explanation:

According to the question,





In a rhombus all the sides are equal.

Therefore,  $AB = BC = CD = DA = 12 \text{ cm}$

Since,  $BC = CD$  therefore,  $\angle DBC = \angle BDC = 40^\circ$

In  $\triangle BCD$ ,  $\angle BCD + \angle CBD + \angle BDC = 180^\circ$

Or,  $\angle BCD = 180^\circ - 40^\circ - 40^\circ = 100^\circ$

Since, opposite angles of rhombus are equal therefore,  $\angle BAD = \angle BCD = 100^\circ$

Hence, option c.

## Topic - Percentages

17) If a number 'x' is subtracted from another number 'y' then the resultant is 75% of the 'x'. The sum of 'x' and 'y' is 143. Find the difference between 'x' and 'y'.

- a) 26
- b) 28
- c) 39
- d) 42

Correct Choice: c

Explanation:

According to the question,

$$(y - x) = 0.75x$$

$$\text{Or, } y - 1.75x = 0 \dots\dots (1)$$

$$\text{Also, } y + x = 143 \dots\dots (2)$$

On solving equation (1) and (2), we get

$$x = 52 \text{ and } y = 91$$

$$\text{Therefore, required difference} = 91 - 52 = 39$$

Hence, option c.

## Topic – Geometry (Triangles)

18) The perimeter of an isosceles triangle is 132 cm. The equal sides of the triangle is  $(7/8)$ th of its base. Find the base of the isosceles triangle.

- a) 46 cm
- b) 48 cm
- c) 56 cm
- d) 36 cm

Correct Choice: b

Explanation:

Let the base of the triangle be  $8a$  cm.

Therefore, other two sides of the triangle =  $(7/8) \times 8a = 7a$  cm

According to the question,

$$7a + 7a + 8a = 132$$

$$\text{Or, } 22a = 132$$

$$\text{Or, } a = 132/22 = 6 \text{ cm}$$

Therefore, base of the triangle =  $8a = 48$  cm

Hence, option b.

## Topic - Trigonometry

19) Find the value of  $(\frac{2}{3})(\sin^2 60^\circ + \cos 30^\circ - \tan 60^\circ) + \operatorname{cosec}^2 45^\circ$

- a)  $(5 - 2\sqrt{3})/2$
- b)  $(3 - 4\sqrt{3})/4$
- c)  $(6 - 5\sqrt{3})/3$
- d)  $(3 - 4\sqrt{3})/2$

Correct Choice: a

Explanation:

$$\begin{aligned} & (\frac{2}{3})\{(\frac{\sqrt{3}}{2})^2 + (\frac{\sqrt{3}}{2}) - \sqrt{3}\} + (\sqrt{2})^2 \\ &= (\frac{2}{3})(\frac{3}{4} + \frac{\sqrt{3}}{2} - \sqrt{3}) + 2 \\ &= (5 - 2\sqrt{3})/2 \end{aligned}$$

Hence, option a.

## Topic – Data Sufficiency on Percentages

20) The question consists of two statements numbered “I and II” given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

There are four numbers ‘A’, ‘B’, ‘C’ and ‘D’. The average of all these four numbers is 1 more than ‘B’. Find the value of ‘D’

Statement I: ‘A’ is 175% more than ‘C’. The average of ‘B’ and ‘C’ is 26.

Statement II: When 191 is added to ‘D’ it becomes 575% more than ‘B’.

- a) The data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- b) The data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- c) The data either in statement I alone or in statement II alone are sufficient to answer the question.
- d) The data given in both statements I and II together are not sufficient to answer the question.

Correct Choice: d

Explanation:

Let ‘B’ =  $x$

Therefore, average of all the four numbers =  $(x + 1)$

Statement I:

$$\text{‘C’} = 2 \times 26 - x = (52 - x)$$

Therefore, ‘A’ =  $2.75(52 - x)$

$$\text{Or, } D = 4(x + 1) - \{2.75(52 - x) + x + 52 - x\}$$

$$\text{Or, } D = 4x + 4 - 143 + 2.75x - 52$$

$$\text{Or, } D = 6.75x - 191$$

So, data in statement I alone is not sufficient to answer the question.

Statement II:

$$D + 191 = 6.75x$$

$$\text{Or, } D = 6.75x - 191$$

So, data in statement II alone is not sufficient to answer the question.

Combining statement I and II, we cannot find the value of 'D'

Therefore, data given in both statements I and II together are not sufficient to answer the question.

Hence, option d.

### Topic- Data Sufficiency on Discounts

21) The question consists of two statements numbered "I and II" given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

The sum of the cost price and selling price of an article is Rs. 10125. Find the cost price of the article.

Statement I: The discount offered on the article is 5% of its cost price.

Statement II: The article is marked up by 30%.

- a) The data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- b) The data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- c) The data either in statement I alone or in statement II alone are sufficient to answer the question.
- d) The data in both statements I and II together are necessary to answer the question.

Correct Choice: d

Explanation:

Let the cost price of the article be Rs.  $x$

Therefore, selling price of the article = Rs.  $(10125 - x)$

Statement I:

Discount offered on article = Rs.  $0.05x$

Therefore, marked price of article =  $(10125 - x + 0.05x) = \text{Rs. } (10125 - 0.95x)$

So, data in statement I alone is not sufficient to answer the question.

Statement II:

Marked price of the article = Rs.  $1.3x$

So, data in statement II alone is not sufficient to answer the question.

Combining statement I and II together,

$$1.3x = 10125 - 0.95x$$

$$\text{Or, } x = 10125/2.25 = 4500$$

Therefore, data in both statements I and II together are necessary to answer the question.

Hence, option d.

## Topic - Data Sufficiency on Areas

22) There are four statements I, II, III and IV are given below. Which of the two statements together can answer the question?

There are two fields one rectangular and other squared. The ratio of the length of each side of squared field and the length of the rectangular field is 5:4, respectively. Find each side of the squared field.

Statement I: The cost of fencing the rectangular field at the rate of Rs. 10.2/metre is Rs. 4080

Statement II: If each side of the squared field had been 10 metres more, then the ratio of the breadth of the rectangular field and each side of the squared field would have been 1:2, respectively.

Statement III: If a path of width 5 m is constructed along the sides on the inner side of the rectangular field, the area of path will be 1900 m<sup>2</sup>.

Statement IV: Area of the rectangular field is 9600 m<sup>2</sup>.

- a) Only I and II
- b) Only II and III
- c) Only I and III
- d) both (a) and (b)

Correct Choice: d

Explanation:

Let each side of squared field be '5x' metres and length of rectangular field be '4x' metres

Let the breadth of the rectangular field be 'y' metres

Statement I:

According to the question,

$$2 \times (4x + y) = 4080/10.2$$

$$4x + y = 200$$

Statement II:



According to the question,

$$\{y/(5x + 10)\} = 1/2$$

$$\text{Or, } 2y = 5x + 10$$

Statement III:

According to the question,

$$4xy - \{(4x - 10)(y - 10)\} = 1900$$

$$\text{Or, } 4x + y = 200$$

Statement IV:

According to the question,

$$4xy = 9600$$

Combining statement I and II:

$$4x + y = 200$$

$$\text{Or, } 8x + 2y = 400$$

$$\text{Or, } 8x + 5x + 10 = 400$$

$$\text{Or, } x = 390/13 = 30$$

Each side of the squared field =  $5x = 150$  metres

So, data in statement I and II together is sufficient to answer the question.

Combining statement II and III:

$$4x + y = 200$$

$$\text{Or, } 8x + 2y = 400$$

$$\text{Or, } 8x + 5x + 10 = 400$$

$$\text{Or, } x = 390/13 = 30$$

Each side of the squared field =  $5x = 150$  metres

Therefore, data in statement II and III together is sufficient to answer the question.

Combining statement I and III:

$$4x + y = 200$$

Therefore, data in statement I and III together is not sufficient to answer the question.

Hence, option d.

### Topic – Mixtures & Allegations

23) 120 litres of a mixture contains \_\_\_\_\_ litres of acetone and rest water. When \_\_\_\_\_ % of mixture is taken out in container A and then 4 litres of acetone is added in container A, the ratio of acetone to water in the resultant mixture in container A becomes \_\_\_\_\_.

I. 50, 40, 6:7

II. 90, 60, 29:9

III. 80, 15, 5:

- a) Only III
- b) Only I and III
- c) Only II and III
- d) Only I and II

Correct Choice: d

Explanation:

For I:

Quantity of acetone in the mixture = 50 litres

Quantity of water in the mixture =  $120 - 50 = 70$  litres

Ratio of acetone to water = 5:7

40% of mixture =  $0.40 \times 120 = 48$  litres

Quantity of acetone in 40% of the mixture =  $48 \times \frac{5}{12} = 20$  litres

Quantity of water in 40% of the mixture =  $48 - 20 = 28$  litres

Required ratio =  $(20 + 4):28 = 6:7$

Therefore, I can be the answer.

For II:

Quantity of acetone in the mixture = 90 litres

Quantity of water in the mixture =  $120 - 90 = 30$  litres

Ratio of acetone to water in the mixture =  $90:30 = 3:1$

60% of mixture =  $0.60 \times 120 = 72$  litres

Quantity of acetone in 60% of the mixture =  $72 \times \frac{3}{4} = 54$  litres

Quantity of water in 60% of the mixture =  $72 - 54 = 18$  litres

Required ratio =  $(54 + 4):18 = 29:9$

Therefore, II can be the answer.

For III:

Quantity of acetone in the mixture = 80 litres

Quantity of water in the mixture =  $120 - 80 = 40$  litres

Ratio of acetone to water =  $80:40 = 2:1$

15% of the mixture =  $0.15 \times 120 = 18$  litres

Quantity of acetone in 15% of the mixture =  $18 \times \frac{2}{3} = 12$  litres

Quantity of water in 15% of the mixture =  $18 - 12 = 6$  litres

Required ratio =  $(12 + 4):6 = 8:3$

Therefore, III cannot be the answer.

Hence, option d.

## Topic – Time & Work

24) 'A' can complete a work alone in 18 days. 'B' is 25% less efficient than 'A' and 'C' is 20% more efficient than 'B'. 'A' and 'B' worked alternately for 10 days and then 'A' left. After that 'B' and 'C' worked alternately for 10 days. The remaining work is completed by 'D' alone in 5 days. Find the time taken by 'A' and 'D' to complete 75% of the work.

- a) 15 days 2 hours
- b) 11 days 6 hours
- c) 10 days 12 hours
- d) 14 days 8 hours

Correct Choice: b

Explanation:

Time taken by 'B' to complete the whole work alone =  $18/0.75 = 24$  days

Time taken by 'C' to complete the whole work alone =  $24/1.2 = 20$  days

Let the total work = 360 units (18, 24 and 20)

Efficiency of 'A' =  $360/18 = 20$  units/day

Efficiency of 'B' =  $360/24 = 15$  units/day

Efficiency of 'C' =  $360/20 = 18$  units/day

Amount of work done by 'A' and 'B' in 10 days =  $(20 + 15) \times 5 = 175$  units

Amount of work done by 'B' and 'C' in 10 days =  $(15 + 18) \times 5 = 165$  units

Remaining work =  $360 - (175 + 165) = 20$  units

Therefore, efficiency of 'D' =  $20/5 = 4$  units/day

Time taken =  $0.75 \times 360/(20 + 4) = 11$  days 6 hours

Hence, option b.

## Topic – Ratios & Proportions

25) The total number of people who travelled by train and that by flight on a certain day is 47500. The ratio of the number of males to females who travelled by train is 37:23. The number of males who travelled by flight is 5500 less than that by train. The number of females who travelled by flight is 4500. Find the difference between the number of females who travelled by train and number of males who travelled by flight.

- a) 1000
- b) 2000
- c) 3500
- d) 1500

Correct Choice: d

Explanation:

Let, the number of males and females who travelled by train be  $37x$  and  $23x$  respectively.

According to the question,

$$37x + 23x + 37x - 5500 + 4500 = 47500$$

$$\text{Or, } 97x = 48500$$

$$\text{Or, } x = 500$$

$$\text{Number of females who travelled by train} = 23x = 11500$$

$$\text{Number of males who travelled by flight} = 37x - 5500 = 13000$$

$$\text{Required difference} = 13000 - 11500 = 1500$$

Hence, option d.

## Topic - Percentages

26) The present income of 'A' is Rs. 15000 more than that of previous year. The present saving of 'A' is 20% of his income in the previous year. The expenditure of 'A' in previous year is Rs. 15000 less than that in present year. If the savings of 'A' in previous year is Rs. 5000, then find the present income of 'A'.

- a) Rs. 50000
- b) Rs. 25000
- c) Rs. 35000
- d) Rs. 40000

Correct Choice: d

Explanation:

Let the income of 'A' in previous year be Rs.  $x$

Therefore, present income of 'A' = Rs.  $(x + 15000)$

Present saving of 'A' = Rs.  $0.20x$

Present expenditure of 'A' =  $(x + 15000) - 0.20x = \text{Rs. } (0.80x + 15000)$

Expenditure of 'A' in previous year =  $0.80x + 15000 - 15000 = \text{Rs. } 0.80x$

Therefore, savings of 'A' in previous year =  $x - 0.80x = \text{Rs. } 0.20x$

According to the question,

$$0.20x = 5000$$

$$\text{Or, } x = 5000/0.20 = \text{Rs. } 25000$$

$$\text{Present income of 'A' } = (x + 15000) = \text{Rs. } 40000$$

Hence, option d.

## Topic – Problems on Trains

27) Train A after travelling 50 km meet with an accident due to which the train proceeds at 75% of its original speed and arrived at its destination 35 minutes late but had the accident had taken place 24 km further then the train would have arrived at its destination 25 minutes late. Find the time taken by the train to cover a distance of 744 km with its original speed.

- a) 15.75 hours
- b) 15.5 hours
- c) 14.5 hours
- d) 16.5 hours

Correct Choice: b

Explanation:

Let total distance be D km.

Let original speed of train A be  $4x$  km/min

Reduced speed =  $0.75 \times 4x = 3x$  km/min

According to question,

$$(D - 50)/3x - (D - 50)/4x = 35$$

$$(D - 50) \times (1/3x - 1/4x) = 35$$

$$(D - 50) \times 1/12x = 35$$

$$D - 50 = 420x$$

$$D = 420x + 50 \dots\dots\dots(i)$$

If the accident had taken place 24 km further then

$$(D - 50 - 24)/3x - (D - 50 - 24)/4x = 25$$

$$(D - 74)/3x - (D - 74)/4x = 25$$

$$(D - 74) \times \frac{1}{12}x = 25$$

$$D - 74 = 300x$$

$$D = 300x + 74 \dots\dots\dots(ii)$$

From equation (i) and (ii)

$$420x + 50 = 300x + 74$$

$$120x = 24$$

$$x = 0.2$$

Speed of train A =  $0.2 \times 4 = 0.8$  km/min =  $0.8 \times 60 = 48$  km/h

Desired Time =  $744/48 = 15.5$  hours

Hence, option b.

### Topic- Probability

28) What is the probability that a word formed after rearranging "QUINTESSENTIAL" such that all vowels are not together?

- a) 3/1001
- b) 998/1001
- c) 993/1001
- d) 5/1001

Correct Choice: b

Explanation:

Total number of ways of rearranging the letters of the given word =  $14!/(2! \times 2! \times 2! \times 2!) = 14!/32$

Number of ways of arranging letters such that all vowels are together =  $(9!/2! \times 2! \times 2!) \times (6!/2! \times 2!)$

Probability that all vowels are together =  $\{(9! \times 6!)/32\} \div [14!/32] = (9! \times 6!)/14! = 3/1001$

Desired probability =  $1 - 3/1001 = 998/1001$

Hence, option b.



## Topic – Boats & Streams

29) The downstream speed of a boatman is 50% more than upstream speed of boatman. The time taken by boatman to travel a distance of 216 km downstream and same distance back upstream is 10 hours. Find the downstream speed of the boatman.

- a) 45 km/h
- b) 60 km/h
- c) 40 km/h
- d) 54 km/h

Correct Choice: d

Explanation:

Let, speed of Boatman and stream be 'B' km/h and 's' km/h respectively.

According to question,

$$(B + s) = 1.5(B - s)$$

$$0.5B = 2.5s$$

$$B = 5s \dots (i)$$

Also,

$$216/(B + s) + 216/(B - s) = 10$$

$$216[(B - s) + (B + s)]/[(B - s)(B + s)] = 10$$

$$432B = 10[B^2 - s^2]$$

Using equation (i), we get,

$$432 \times 5s = 10[25s^2 - s^2]$$

$$2160s = 240s^2$$

$$s = 9 \text{ km/hour}$$

Therefore,  $B = 5 \times 9 = 45 \text{ km/h}$

So, downstream speed =  $45 + 9 = 54 \text{ km/h}$

Hence, option d.

### Topic- Probability

30) There are 6 red and \_\_\_\_\_ yellow balls in a bag. A person draws 3 balls from the bag at random then the probability that it contains at least 2 yellow balls is \_\_\_\_\_.

The values given in which of the following options will fill the blanks in the same order in which is it given to make the above statement true:

A. 9, 60/91

B. 14, 91/114

C. 10, 39/56

a) Only A

b) Only B

c) Only C

d) All A, B and C

Correct Choice: d

Explanation:

For A:

$$\text{Required probability} = \{({}^9C_2 \times {}^6C_1) + {}^9C_3\}/{}^{15}C_3 = \{(36 \times 6) + 84\}/455 = 300/455 = 60/91$$

So, A can be the answer.

For B:

$$\text{Required probability} = \{({}^{14}C_2 \times {}^6C_1) + {}^{14}C_3\}/{}^{20}C_3 = \{(91 \times 6) + 364\}/{}^{20}C_3 = (910 \times 3 \times 2)/(20 \times 19 \times 18) = 91/114$$

So, B can be the answer.

For C:

$$\text{Required probability} = \{({}^{10}C_2 \times {}^6C_1) + {}^{10}C_3\}/{}^{16}C_3 = \{(45 \times 6) + 120\}/{}^{16}C_3 = (390 \times 3 \times 2)/(16 \times 15 \times 14) = 39/56$$

So, C can be the answer.

Hence, option d.

# Logical Reasoning

## Topic –Completing the Analogous Pair

31) In the following question, select the related letters from the given alternatives.

JPD: GMA :: NTW : ?

- a) TQK
- b) NYR
- c) KQT
- d) UIP

Correct Choice: c

Explanation:

Given

JPC: GMZ :: NTW

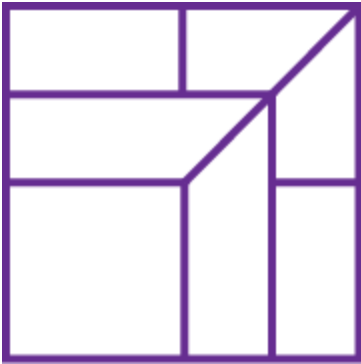
So, the pattern is J-3=G, P-3=13, D-3=A.

N-3=K, T-3=Q, W-3=T.

Hence, option c.

## Topic – Counting the Figures

32) How many quadrilaterals are there in the following figure?



- a) 6
- b) 8
- c) 9
- d) More than 10

Correct Choice: d

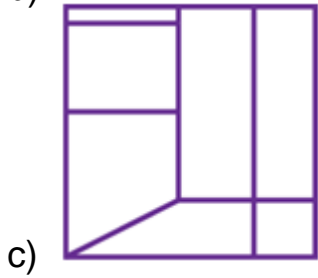
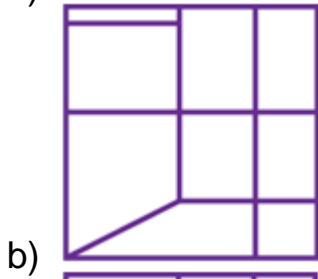
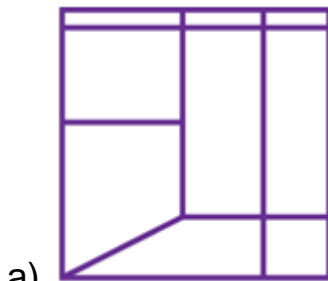
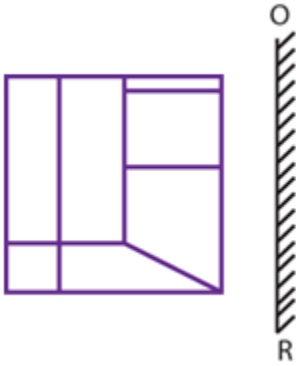
Explanation:

There are more than 10 quadrilaterals present in the figure.

Hence, option d.

## Topic – Mirror Images

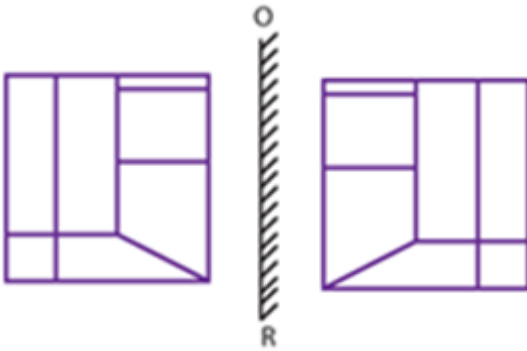
33) If a mirror is placed on the line OR, then which of the answer figures is the right image of the given figure?





d)  
Correct Choice:c

Explanation:



Hence, option c.

## Topic – Substitution Coding

34) If water is called Red, Red is called Mango, Mango is called Blue, Blue is called Rain, Rain is called Violet, Violet is called Snake, Snake is called Green and Green is called White in a certain language, then what is the color of Sky called in that language?

- a) Blue
- b) Rain
- c) Mango
- d) Red

Correct Choice: b

Explanation:

The color of Sky is Blue and Blue is called Rain.

Hence, option b.

## Topic – Odd Man Out

35) Find out the odd word from the given alternatives.

- a) Beirut
- b) Hanoi
- c) Shanghai
- d) Islamabad

Correct Choice: c

Explanation:

All are capitals cities of countries except Shanghai.

Lebanon-Beirut

Vietnam-Hanoi

Pakistan-Islamabad

Hence, option c.



### Topic – Blood Relations

36) Pointing to the photograph of a girl, Ram said “She has no sister or daughter but her mother is the only daughter of my mother”. How is the girl in the photograph related with Ram’s mother?

- a) Sister-in-law
- b) Daughter-in-law
- c) Niece
- d) Grand daughter

Correct Choice: d

Explanation:

Ram’s mother’s only daughter’s daughter which means Ram and the girl’s mother are siblings. Thus, the girl in the photograph is the granddaughter of Ram’s mother.

Hence, option d.

## Topic – Logical deduction (Cause & Effect Reasoning)

37) In the question below, two statements (I) and (II) are given. These statements may be either independent causes or may be effects of independent causes or a common cause. One of these statements may be the effect of the other statement. Read both the statements and decide which of the following answer choice correctly depicts the relationship between these two statements.

I. Goat's milk has certain characteristics differing from cow's milk that make it more easily digested by infants, invalids, and persons with allergies.

II. Goat's milk is more widely purchased by hospital mess halls than cow's milk.

- a) Statement I is the cause and statement II is its effect
- b) Statement II is the cause and statement I is its effect
- c) Both the statements I and II are independent causes
- d) Both the statements I and II are effects of independent causes

Correct Choice: a

Explanation:

I is the cause and II is its effect - I tells us how goat's milk is more digestible by infants, invalids and allergic persons, and II gives its effect - it is purchased more by hospital messes than cow's milk. Thus, (a) is the right answer.

## Topic – Alphabet Test

(38-40) Directions: Answer the questions based on the information given below.

Ten numbers starting from 2 are written from top to bottom. The letters of “HINT” are written in alphabetical order from top to bottom against odd prime number.

There is one alphabet between N and E.

Two alphabets are between I and B.

D is against the number, which is multiple of 3.

There is one alphabet between C and A.

F is against the number, which is multiple of 5.

38) How many alphabets are between D and F?

- a) Two
- b) Four
- c) Three
- d) Six

Correct Choice: c

Explanation:

So, H, I, N and T are against 3, 5, 7 and 11 respectively. There is one alphabet between N and E. Two alphabets are between I and B. D is against the number, which is multiple of 3.

So, we have two cases,

Numbers	Case 1	Case 2
2		B
3	H	H
4		
5	I	I
6	D	D
7	N	N
8	B	
9	E	E
10		
11	T	T

Now, there is one alphabet between C and A. F is against the number, which is multiple of 5. So, case 2 is rejected.

Numbers	Case 1
2	A/C
3	H

4	C/A
5	I
6	D
7	N
8	B
9	E
10	F
11	T

There are three alphabets between D and F.

Hence, option c.

39) Which alphabet is just below I?

- a) B
- b) D
- c) A
- d) N

Correct Choice: b

Explanation:

So, H, I, N and T are against 3, 5, 7 and 11 respectively. There is one alphabet between N and E. Two alphabets are between I and B. D is against the number, which is multiple of 3.

So, we have two cases,

Numbers	Case 1	Case 2
2		B

3	H	H
4		
5	I	I
6	D	D
7	N	N
8	B	
9	E	E
10		
11	T	T

Now, there is one alphabet between C and A. F is against the number, which is multiple of 5. So, case 2 is rejected.

Numbers	Case 1
2	A/C
3	H
4	C/A
5	I
6	D
7	N
8	B

9	E
10	F
11	T

D is just below I.

Hence, option b.

### Topic - Syllogisms

(40-41) In the question below there are three statements followed by three conclusions I, II and III. You have to take the three given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follows from the three statements disregarding commonly known facts.

40)

Statements:

Some shoes are socks.

Each sock is shirt.

No shoe is T-shirt.

Some T-shirt are gloves.

Conclusions:

I. Some shirts are not T-shirts.

II. Some gloves are shirts.

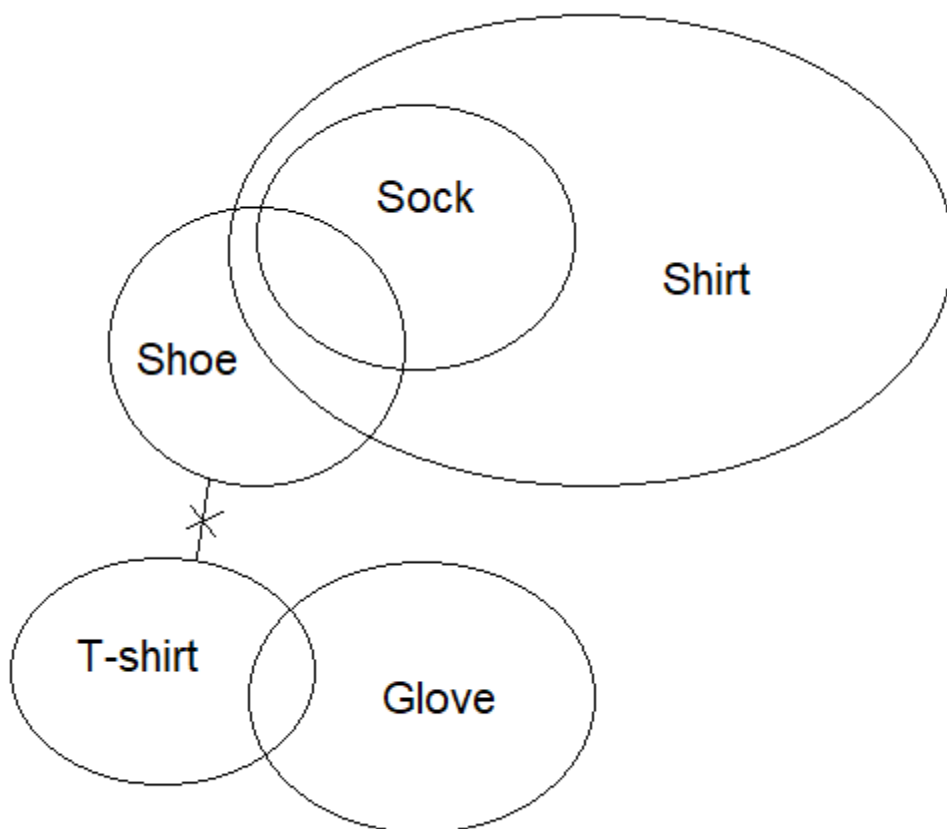
III. Each shoe is shirt.

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

Correct Choice: a

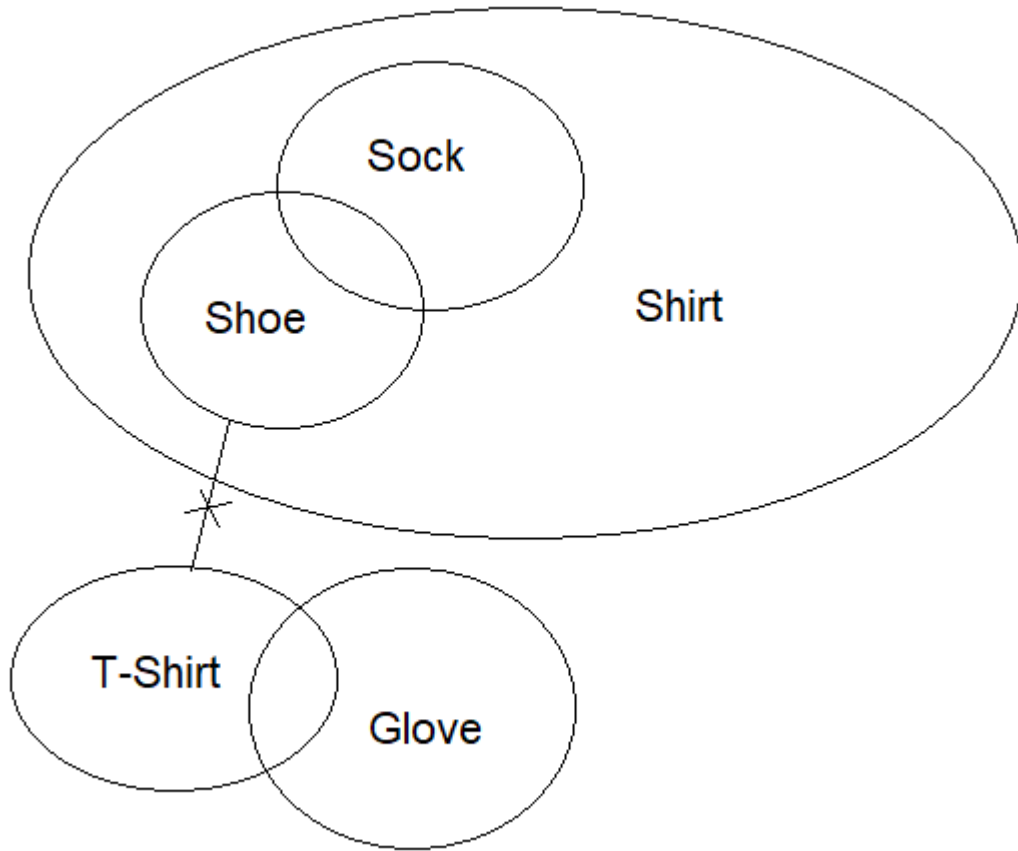
Explanation:

Following figure can be formed from the statements.



Or





So, only conclusion I follows.

Hence, option a.

(40-41) In the question below there are three statements followed by three conclusions I,II and III. You have to take the three given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follows from the three statements disregarding commonly known facts.

41)

Statements:

20% plant are animal.

25% animal are grass.

Each animal is species.

No species is sapiens.

Conclusions:

I. No animal is sapiens.

II. Some species are grass.

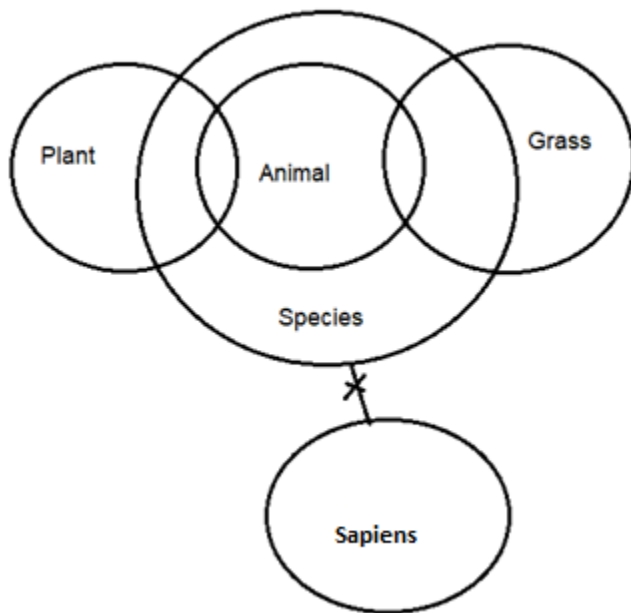
III. Some plant are grass.

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

Correct Choice: b

Explanation:

Following figure can be formed from the statements.



So, both conclusion I and II follow.

Hence, option b.

## Topic – Alphabet Test

42) If all the letters of the word 'QUICKWITTED' are replaced by 3<sup>rd</sup> succeeding letter then the letters is arranged in alphabetical order, which is the 4<sup>th</sup> letter from left end?

- a) T
- b) L
- c) N
- d) W

Correct Choice: b

Explanation:

QUICKWITTED

Letters are replaced by 3<sup>rd</sup> preceding letter, so, TXLFNZLWWHG

When these letters are arranged in alphabetical order, FGHLLNTWWXZ

L is the 4<sup>th</sup> letter from left end.

Hence, option b.

## Topic – Coding - Decoding

(43-45) Directions: Answer the questions based on the information given below.

In a code language,

“Today worth theme parent” is coded as “U\$18, N\$5, O\*20, B\$4”

“Win regard run four” is coded as “J%9, S\*4, V%21, V#18”

“Hell works same stood” is coded as “M#12, N#5, L\$18, P\$15”

“Where about tire cases” is coded as “V\$15, S\$5, F\$19, S#

43) What is the code for ‘KITE’?

- a) V%4
- b) U#6
- c) U#5
- d) S%3

Correct Choice: c

Explanation:

There are 4 types of symbols in the code \$, \*, %, #. ‘\$’ is used for the words containing 5 letters, ‘\*’ is used for the words containing 6, ‘%’ is used for the words containing 3 letters, ‘#’ is used for the words containing 4 letters. The number, in the words containing even number of letters, represent the position of last letter while the number, in the words containing odd number of letters, represent the position of middle letter in English Alphabetical series. The alphabet in the code is the immediate succeeding letter of second last alphabet of the word.

Example -

‘TODAY’

As, there are five letters. So, the symbol would be '\$'.

Now, the number of letters in the word is 5. So, the number would be 4 which represents D.

The second last letter is A. So, the alphabet would be B.

Therefore, the code for 'TODAY' is 'B\$4'.

Now, the code for 'KITE' is 'U#5'.

Hence, option c.

44) What would be the word for "F\*18"?

- a) FINISH
- b) GATE
- c) RUDE
- d) DINNER

Correct Choice: d

Explanation:

There are 4 types of symbols in the code \$, \*, %, #. '\$' is used for the words containing 5 letters, '\*' is used for the words containing 6, '%' is used for the words containing 3 letters, '#' is used for the words containing 4 letters. The number, in the words containing even number of letters, represent the position of last letter while the number, in the words containing odd number of letters, represent the position of middle letter in English Alphabetical series. The alphabet in the code is the immediate succeeding letter of second last alphabet of the word.

Example -

'TODAY'

As, there are five letters. So, the symbol would be '\$'.

Now, the number of letters in the word is 5. So, the number would be 4 which represents D.

The second last letter is A. So, the alphabet would be B.

Therefore, the code for 'TODAY' is 'B\$4'.

"F\*18" is coded for 'DINNER'.

Hence, option d.

45) What is the code for "CHARGE"?

- a) G#5
- b) H\*5
- c) I\$7
- d) H\*6

Correct Choice: b

Explanation:

There are 4 types of symbols in the code \$, \*, %, #. '\$' is used for the words containing 5 letters, '\*' is used for the words containing 6, '%' is used for the words containing 3 letters, '#' is used for the words containing 4 letters. The number, in the words containing even number of letters, represent the position of last letter while the number, in the words containing odd number of letters, represent the position of middle letter in English Alphabetical series. The alphabet in the code is the immediate succeeding letter of second last alphabet of the word.

Example -

'TODAY'

As, there are five letters. So, the symbol would be '\$'.

Now, the number of letters in the word is 5. So, the number would be 4 which represents D.

The second last letter is A. So, the alphabet would be B.

Therefore, the code for 'TODAY' is 'B\$4'.

The code for 'CHARGE' is 'H\*5'

Hence, option b.

# General Awareness

## Topic - Soils

46) Which one of the following is most widespread and most productive category of soil in India?

- a) Black Soil
- b) Laterite Soil
- c) Red Soil
- d) Alluvial Soil

Correct Choice: d

Explanation:

Alluvial soil in India is mainly found in northern plains. These Alluvial soil is being deposited every year By the rivers like Ganga, Brahmaputra and Indus. These are most widespread and productive soil in India.

## Topic – Government Schemes

47) Which of the following is the nodal ministry for 'Beti Bachao Beti Padhao' Scheme?

- a) Ministry of Human Resource Development
- b) Ministry of Health and Family Welfare
- c) Ministry of Rural Development
- d) Ministry of Women and Child Development

Correct Choice: d

Explanation:

Alarmed by the sharp decline in Child Sex Ratio (CSR), Beti Bachao, Beti Padhao (BBBP) programme was launched on 22 January 2015 by PM Narendra Modi, to address the issue of decline in CSR in 100 gender critical districts. The scheme is jointly run by the Ministry of Women and Child Development, the Ministry of Health and Family Welfare and the Ministry of Human Resource Development, while Ministry of Women and Child Development is the nodal ministry for the programme.



## Topic – Mountains & Peaks

48) In which of the following hill range is “Dodabeta” peak situated?

- a) Nallamala Hills
- b) Anaimalai Hills
- c) Cardamom Hills
- d) Nilgiri Hills

Correct Choice: d

Explanation:

Doddabetta is the highest mountain in the Nilgiri Hills, at height of 2637 metres.

## Topic - Polity

49) What is the minimum age prescribed for appointment as a Judge of Supreme Court in India?

- a) 25 Years
- b) 35 Years
- c) 45 Years
- d) No Minimum Age

Correct Choice: d

Explanation:

Constitution has not prescribed a minimum age for appointment as a judge of the Supreme Court.

## Topic – Countries&Capitals

50) Montevideo is the capital of which country?

- a) Bolivia
- b) Mexico
- c) Uruguay
- d) Seychelles

Correct Choice: c

Explanation:

Uruguay is a country in the southeastern region of South America. Montevideo is its capital and 'Uruguayan Peso' is its currency.

# Technical (Computers)

## Topic - Complicated Declarations

51) What will be the output of the following C code?

```
#include <stdio.h>

struct student
{
    int no;
    char name[20];
};

struct student s;

void main()
{
    s.no = 8;
    printf("%s", s.name);
}
```

a) Nothing

b) Compile time error

c) Junk

d) 8

Correct Choice: a

## Topic - Precedence and Order of Evaluation

52) What will be the output of the following C function?

```
#include <stdio.h>

void reverse(int i);

int main()
{
    reverse(1);
}

void reverse(int i)
{
    if (i > 5)
        return ;
    printf("%d ", i);
    return reverse((i++, i));
}
```

a) 1 2 3 4 5

b) Segmentation fault

c) Compilation error

d) Undefined behaviour

Correct Choice:a

## Topic - Assignment Operators & Expressions

53) What will be the output of the following C code?

```
#include <stdio.h>

int main()
{
    int x = 2, y = 2;
    x /= x / y;
    printf("%d\n", x);
    return 0;
}
```

a) 2

b) 1

c) 0.5

d) Undefined behaviour

Correct Choice: a

## Topic - Conditional Expressions

54) What will be the output of the following C code?

```
#include <stdio.h>

int main()
{
    int x = 1;
    short int i = 2;
    float f = 3;
    if (sizeof((x == 2) ? f : i) == sizeof(float))
        printf("float\n");
    else if (sizeof((x == 2) ? f : i) == sizeof(short int))
        printf("short int\n");
}
```

- a) float
- b) short int
- c) Undefined behaviour
- d) Compile time error

Correct Choice: a

## Topic - Switch Statements

55) What will be the output of the following C code? (Assuming that we have entered the value 1 in the standard input)

```
#include <stdio.h>

void main()
{
    char *ch;
    printf("enter a value between 1 to 3:");
    scanf("%s", ch);
    switch (ch)
    {
        case "1":
            printf("1");
            break;
        case "2":
            printf("2");
            break;
    }
}
```



- a) 1
- b) Compile time error
- c) 2
- d) Run time error

Correct Choice: b

### Topic - If-then-else Statements

56) What will be the output of the following C code?

```
#include <stdio.h>

int main()
{
    int x = 0;
    if (x == 1)
        if (x == 0)
            printf("inside if\n");
        else
            printf("inside else if\n");
    else
        printf("inside else\n");
}
```

- a) inside if
- b) inside else if
- c) inside else
- d) compile time error

Correct Choice: c

### Topic - Register Variables

57) What will be the output of the following C code?

```
#include <stdio.h>
register int x;
void main()
{
    printf("%d", x);
}
```

- a) Varies
- b) 0
- c) Junk value
- d) Compile time error

Correct Choice: d

## Topic - Functions Returning Non-integers

58) What will be the output of the following C code?

```
#include <stdio.h>

int *m();

void main()
{
    int *k = m();
    printf("hello ");
    printf("%d", k[0]);
}

int *m()
{
    int a[2] = {5, 8};
    return a;
}
```

- a) hello 5 8
- b) hello 5
- c) hello followed by garbage value
- d) Compilation error

Correct Choice: c

## Topic - External Variables

59) Which of the following is an external variable in the following C code?

```
#include <stdio.h>
```

```
int func (int a)
```

```
{
```

```
    int b;
```

```
    return b;
```

```
}
```

```
int main()
```

```
{
```

```
    int c;
```

```
    func (c);
```

```
}
```

```
int d;
```

a) a

b) b

c) c

d) d

Correct Choice: d

## Topic - Scope of a Variable

60) What is the scope of an external variable?

- a) Whole source file in which it is defined
- b) From the point of declaration to the end of the file in which it is defined
- c) Any source file in a program
- d) From the point of declaration to the end of the file being compiled

Correct Choice:d

## Topic - C-Preprocessor

61) What will be the output of the following C code?

```
#include <stdio.h>
#define foo(m, n) m * n = 10
int main()
{
    printf("in main\n");
}
```

- a) In main
- b) Compilation error as lvalue is required for the expression  $m*n=10$
- c) Preprocessor error as lvalue is required for the expression  $m*n=10$
- d) None of the mentioned

Correct Choice:a

Explanation: Preprocessor just replaces whatever is given compiler then checks for error at the replaced part of the code. Here it is not replaced anywhere.

Output:

```
$ cc pgm1.c
```

```
$ a.out
```

```
in main
```

## Topic - Macro Substitution

62) What will be the output of the following C code?

```
#include <stdio.h>

void f();

int main()
{
    #define foo(x, y) x / y + x
    f();
}

void f()
{
    printf("%d\n", foo(-3, 3));
}
```

- a) -8
- b) -4
- c) Compile time error
- d) Undefined behaviour

Correct Choice: b

## Topic - Conditional Inclusion

63) What will be the output of the following C code?

```
#include <stdio.h>

#define COLD

int main()
{
    #ifdef COLD
    printf("COLD\t");
    #undef COLD
    #endif

    #ifdef COLD
    printf("HOT\t");
    #endif
}
```

- a) HOT
- b) COLD
- c) COLD HOT
- d) No Output

Correct Choice: b



## Topic- Pointers and Function Arguments

64) What will be the output of the following C code?

```
#include <stdio.h>

void foo(float *);

int main()
{
    int i = 10, *p = &i;
    foo(&i);
}

void foo(float *p)
{
    printf("%f\n", *p);
}
```

- a) 10.000000
- b) 0.000000
- c) Compile time error
- d) Undefined behaviour

Correct Choice: b

## Topic - Multidimensional Arrays

65) What will be the output of the following C code?

```
#include <stdio.h>

void main()
{
    int a[2][3] = {1, 2, 3, , 4, 5};
    int i = 0, j = 0;
    for (i = 0; i < 2; i++)
        for (j = 0; j < 3; j++)
            printf("%d", a[i][j]);
}
```

- a) 1 2 3 junk 4 5
- b) Compile time error
- c) 1 2 3 0 4 5
- d) 1 2 3 3 4 5

Correct Choice: b