

SNAP Mock Test Paper -4

SECTION-I: GENERAL ENGLISH

DIRECTIONS from (Qs. 1-4): *In the following questions , sentences are given with blanks to be filled with an appropriate word(s). Four alternatives are suggested for each question. Choose the CORRECT alternative as your answer*

1. The _____ chosen for construction of the building is in the heart of the city.

(a) cite | (b) slight | (c) sight | (d) site

2. Mr. Murugan has been in this college _____ 2010.

(a) for | (b) since | (c) after | (d) before

3. We attended a _____ discourse.

(a) spiritual | (b) spirituous | (c) spirituality | (d) spiritually

4. The valley is known for its _____ growth of vegetation.

(a) luxurious | (b) luxury | (c) luxuriant | (d) luxuriously

DIRECTIONS: In the following questions, four alternatives are given for the idiom/phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the idiom/phrase.

5. An entrepreneur must keep his fingers on the pulse of the market to be successful.

(a) An entrepreneur must work day and night to be successful.

(b) An entrepreneur must keep a check on his funds to be successful.

(c) An entrepreneur must keep an eye on the stock market to be successful.

(d) An entrepreneur must be constantly aware of recent market developments to be successful.

6. Ram is very calculative and always has an axe to grind.

(a) has no result | (b) works for both sides | (c) has a private agenda | (d) fails to arouse interest

DIRECTIONS: In the following questions, four alternatives are given for the idiom/phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the idiom/phrase.

7. TRITE (Synonym)

(a) Commonplace | (b) Clever | (c) Brief | (d) Impudent

8. He was congratulated by his teacher on his brilliant success in the recent examination.

(Active Voice)

- (a) His teacher congratulated him on his brilliant success in the recent examination.
- (b) His teacher congratulated him for his success in the examination.
- (c) His teacher congratulated him on his success.
- (d) His teacher congratulated him.

9. Choose the correctly spelt word:

- (a) Dastitution | (b) Divienation | (c) Dysfunction | (d) Divarsion

10.

In the following items, some parts of the sentence have been jumbled up. You are required to re-arrange these parts which are labelled P, Q, R, and S to produce the correct sentence. Choose the proper sequence and mark accordingly.

The producer must

P: give enough information so that the consumer

Q: will understand how the product differs the competition

R: about the product but to buy it, the producer must

S: inform the consumer of his product and if he wants the consumer not only know

- (a) P-R-S-Q | (b) S-Q-P-R | (c) P-Q-S-R | (d) S-R-P-Q

11. In the questions given below, out of the four alternatives, choose the one which can be substituted for the given sentence: Clues available at a scene.

- (a) Circumstantial | (b) Derivative | (c) Inferential | (d) Suggestive

12. In the following questions, a sentence has been given in Direct/Indirect Speech. Out of the four alternatives suggested, select the one which best expresses the same sentence in Indirect/Direct Speech.

- (a) He told me that he had grown those carrots himself.
- (b) He told me that he grew those carrots himself.
- (c) He told me I grew these carrots myself.
- (d) He told me that he grew these carrots himself.

13. In the following questions, some of the sentences have errors and some have none. Find out which part of a sentence has an error. The number letter of that part is your answer. If there is no error, your answer is (d) i.e., No error. :

It is time for you (a)/ decide on your next (b)/ course of action. (c)/ No error (d)

14. In the following questions, a part of the sentence or the whole sentence is bold or underlined. Below are given alternatives to the bold or underlined part at (a), (b) and (c) which may improve the sentence. Choose the correct alternative. In case no

improvement is needed, your answer is 'No improvement'

(a) develops | (b) induces | (c) produces | (d) No improvement

15. Refuting the rationale behind frequent agitations for formation of separate States, a recent report _____

- (a) proved that such agitations result in loss of governmental property.
(b) indicated that the formation of small states does not necessarily improve the economy.
(c) suggested that only large scale agitations have been effective in bringing out desired change.
(d) recommended dividing large States into smaller ones to improve governance.

SECTION-II: QUANTITATIVE AND DATA INTERPRETATION & SUFFICIENCY

16. A invested 10% more than B. B invested 10% less than C. If total investment is Rs 14,450, how much did C get?

(a) Rs 5000 | (b) Rs 4800 | (c) Rs 5100 | (d) None of these

17. Single discount equivalent to successive discounts of 20%, 15% and 10% is:

(a) 32.7% | (b) 34.2% | (c) 36.2% | (d) 38.8%

18. Find unit digit in product $(2467)^{153} \times (341)^{72}$:

(a) 6 | (b) 7 | (c) 8 | (d) 9

19. Remainder when 7^{84} is divided by 342:

(a) 0 | (b) 1 | (c) 21 | (d) 340

20. X and Y can do a job in 25 and 30 days. They work together for 5 days and X leaves. Y finishes the rest in:

(a) 18 days | (b) 19 days | (c) 20 days | (d) 21 days

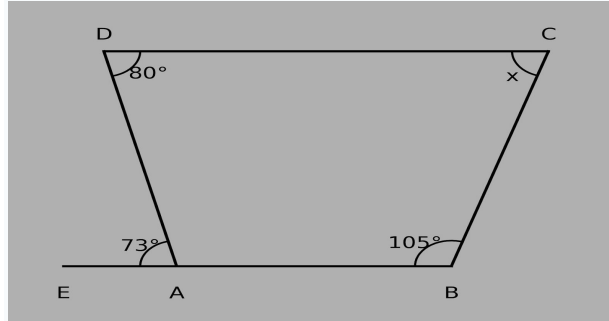
21. If m men do work in r days, days taken by (m+n) men:

(a) $(m+n)/mn$ | (b) $(m+n)/mr$ | (c) $mr/(m+n)$ | (d) $(m+n)r/mn$

22. Roots of $2\sqrt{x} + 2/\sqrt{x} = 5$ can be found by solving:

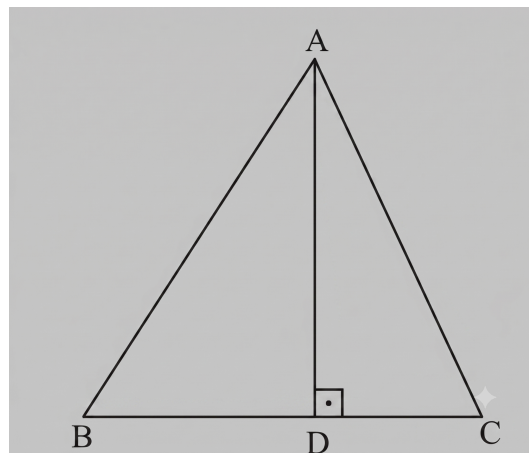
(a) $4x^2 - 25x + 4 = 0$ | (b) $4x^2 + 25x - 4 = 0$ | (c) $4x^2 - 17x + 4 = 0$ | (d) None of these

23. Quadrilateral ABCD with exterior angle 73° at A, Angle B = 105° , Angle D = 80° . Find x (Angle C):



(a) $x = 86^\circ$ | (b) $x = 60^\circ$ | (c) $x = 68^\circ$ | (d) $x = 107^\circ$

24. In Triangle ABC, $AB/AC = BD/DC$, Angle B = 70° , Angle C = 50° . Angle BAD = ?



(a) 30° | (b) 40° | (c) 50° | (d) 45°

25. Probability that when 12 balls are distributed among 3 boxes, the first contains 3 balls:

(a) $2^9 / 3^{12}$ | (b) $(12C3 * 2^9) / 3^{12}$ | (c) $(12C3 * 2^{12}) / 3^{12}$ | (d) None of these

26. Different ways to arrange letters of "MACHINE" so vowels occupy only odd positions:

(a) 800 | (b) 125 | (c) 348 | (d) 576

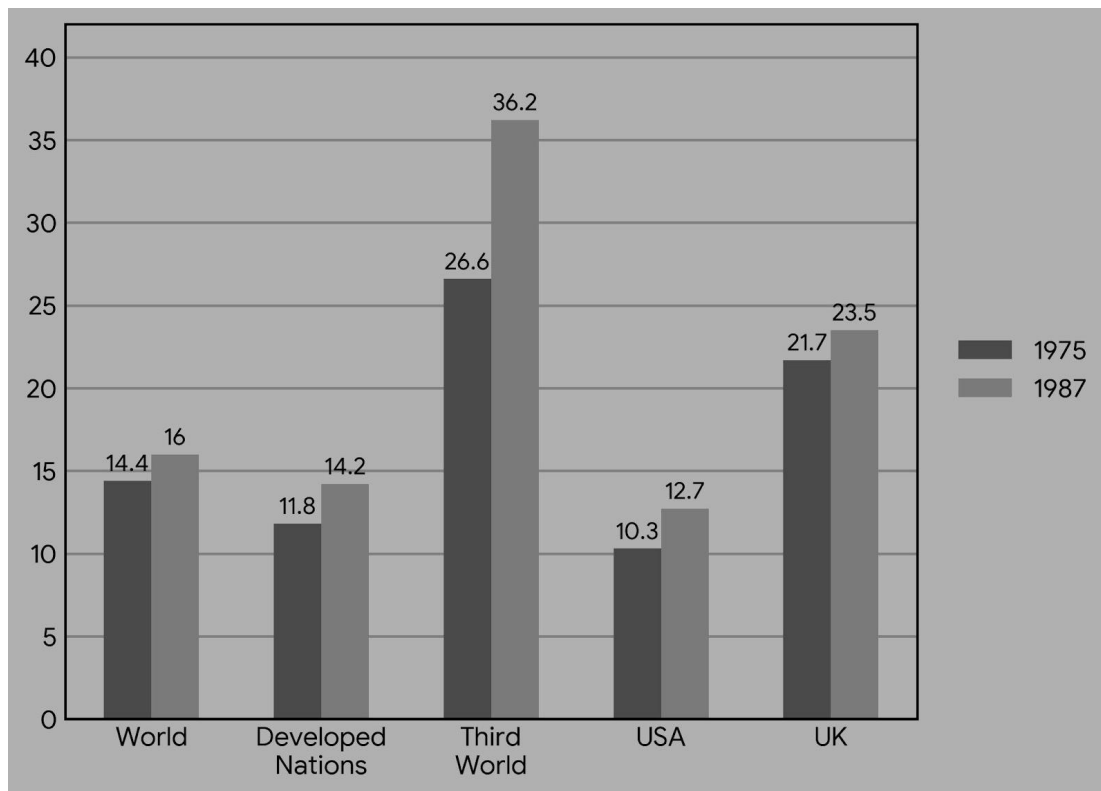
27. Edges of rectangular solid are 36 cm, 75 cm, 80 cm. Edge of cube of same volume:

(a) 60 cm | (b) 52 cm | (c) 46 cm | (d) None of these

28. For any two sets A and B, $A \cap (A \cup B) = ?$

(a) Complement of A | (b) Complement of B | (c) B | (d) A

29. Inflation rates in 1975 vs 1987 Bar Graph Data:



Region	World	Developed Nations	Third World	USA	UK
1975 (%)	14.4	11.8	26.6	10.3	21.7
1987 (%)	16.0	14.2	36.2	12.7	23.5

From 1975 to 1987, inflation rate in Third World increased by approx:

(a) 10% | (b) 20% | (c) 30% | (d) 36%

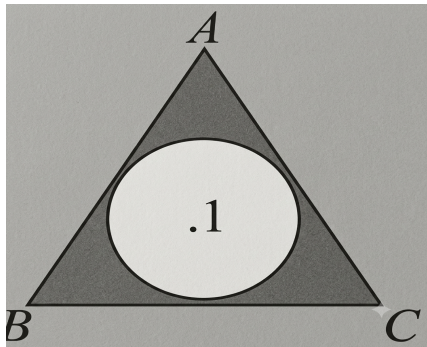
30. Sum to n terms of $11 + 103 + 1005 + \dots$:

(a) $(10/9) \cdot (10^n + 1) + n^2$ | (b) $(10/9) \cdot (10^n - 1) + n^2$ | (c) $(10/9) \cdot (10^n + 1) + n$ | (d) $(10/9) \cdot (10^n - 1) + n$

31. Train 300 m at 90 km/h crosses 200 m train running opposite at 60 km/h in:

(a) $7 \frac{1}{5}$ s | (b) 60 s | (c) 12 s | (d) 20 s

32. Area of shaded region between equilateral triangle of side 6 cm and its incircle:



(a) 6.15 cm^2 | (b) 5.15 cm^2 | (c) 4 cm^2 | (d) 3.12 cm^2

33. Water and alcohol ratio in container 1 is 2:3 and container 2 is 4:5. Mixing ratio for final alcohol:water = 7:5:

(a) 7 : 3 | (b) 5 : 3 | (c) 8 : 5 | (d) 2 : 7

34. Sum to infinity of $2\sqrt{3}$, $2\sqrt{2}$, $4/\sqrt{3}$, ...:

(a) $6(\sqrt{3} + \sqrt{2})$ | (b) $6(\sqrt{3} - \sqrt{2})$ | (c) $6 / (\sqrt{3} + \sqrt{2})$ | (d) None of these

35. If $a * b * c = \sqrt{\frac{(a+2)(b+3)}{(c+1)}}$, value of $(6 * 15 * 3)$:

(a) 6 | (b) 3 | (c) 4 | (d) Can't be determined

SECTION-III: ANALYTICAL & LOGICAL REASONING

36. In a certain code language, "TIRED" is written as "56" and "BRAIN" is written as "44". How is 'LAZY' written in that code language?

(a) 64 | (b) 61 | (c) 58 | (d) 43

37. COUNTRY is coded as BOWKXLF. DESPAIR is coded as:

(a) GBVMDFU | (b) ULDSVHG | (c) GBSPSXIO | (d) UFDNVBG

DIRECTIONS (Qs. 38-39): Study the following information carefully and answer the given questions:

A certain number of persons are sitting in a row such that all are facing north. N sits fifth to the right of O. Only three persons sit between N and P. Number of persons sitting between N and P is same as in between P and M. Only one person sits between M and H. M sits second from the end. I is three places away from H. Only eight persons sit between I and K. J sits second to the right of K. The number of persons sit between H and M is same as the number of persons sit to the left of O.

38. How many persons sit in the row?

(a) 8 | (b) 12 | (c) 16 | (d) 14

39. If Z sits 2nd left of I, position of J with respect to Z:

(a) 4th to left | (b) 5th to left | (c) 4th to right | (d) 5th to right

40. Expressions: $L > V < J + P$ and $S * A < D + F < E + K$ where A is sister of J. Which pair represents first cousins?

(a) LP | (b) SP | (c) SK | (d) SF

41. What will come in the place of the question mark (?), if it is provided that M is the paternal grandmother of F in the expression: ' $F \times R < S ? M$ '

(a) $>$ | (b) $<$ | (c) $+$ | (d) $\times$

42. At what time between 2 and 3 will clock hands be 12 minutes divisions apart?

(a) 20 min past 2 | (b) 24 (5/11) min past 2 | (c) 24 min past 2 | (d) 24 (12/13) min past 2

43. Plane mirror image of clock shows 2:35. Correct real time is:



(a) 2:35 | (b) 3:45 | (c) 9:15 | (d) 9:25

DIRECTIONS (Qs. 44-45): In questions, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

44. YVP, WTN, URL, ?

(a) SPJ
(b) TQLS
(c) VSP
(d) SRJ

45. 1, 3, 8, 19, 42, ?

(a) 65
(b) 71

- (c) 89
- (d) 93

46. Fill the blank in the middle of the series or end of the series.

DEF, \$DEF_2\$, \$DE_2F_2\$, \$D_2E_2F_2\$, ?

- (a) \$DEF_3\$
- (b) \$D_3EF_3\$
- (c) \$D_2E_3F\$
- (d) \$D_2E_2F_3\$

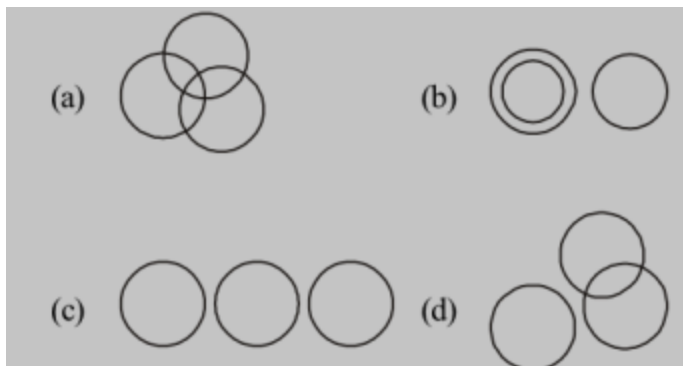
47. The following question is the comparison of weights of a few friends. Find the relationship that can definitely be deduced on the basis of the relations given.

Statements: Amit > Ishan = Johar, Ishan < Khitij > Lala = Manish, Lala > Fairoz = Salman < Totan

Conclusions: I. Amit > Mahesh, II. Khitij > Salman

- (a) Only conclusion I follows
- (b) Only conclusion II follows
- (c) Both I and II follows
- (d) Either I or II follows

48. Select the Venn diagram that best represents the relationship between the following classes: Chandigarh, India, Seoul



49.. Statement: There was a slow decline in number of patients with flu like symptoms visiting various health facilities in the city during the last fortnight.

Which of the following substantiates the facts mentioned in the above statement?

- (a) Majority of the people suffering from flu visit the health facilities in the city
- (b) There has been a continuous increase in the sale of medicines for curing flu in the city limits
- (c) People have started visiting the crowded places like malls and cinema halls during the last fortnight after cautioned gap of one month.
- (d) There is a sudden increase in the number of deaths caused by flu like symptoms followed by respiratory complications.

50. An arrangement machine, when given a particular Input, rearranges it following a

particular rule in each step. The following is the illustration of the input and the steps of arrangement.

Input: 23 10 27 19 17 7 21 15

Step 1: P Q K X Q R H W

Step 2: 10 23 15 16 7 22 16 17

Step 3: 7 7 7 9

Step 4: 0 2

Step 5: 2

As per rules followed in the step, give answer of the following questions.

Input: 20 13 14 21 19 16 9 22

What is the 3rd step of the input?

(a) 6 7 7 8

(c) 9 7 7 6

(d) 7 7 7 9

(b) 7 7 6 9

51. . Read the passage given below and select the assumption(s) that hold true based on the facts in the passage.

Cotton acreage in India during the current year has fallen by 10% as cotton growers have moved on the cultivation of other cash crops. This is the result of the cotton glut in world markets post-September 11 and the consequent slowdown in the world economy. But this scenario brought with it benefits to one segment of the industry yarn manufacturers - as they get higher prices for their produce. Some yarn manufacturers had stocked up low priced cotton last year. The combined effect of all this is evident in the rise in net profits and net margins of yarn manufacturers.

Assumptions: The farmers will again grow cotton next year due to the increased price of cotton yarn.

(a) If the assumption is definitely true

(b) If the assumption is probably true

(c) If the assumption is probably false

(d) If the assumption is definitely false

52 Find Odd number pair:

(a) (215, 338) | (b) (11, 134) | (c) (169, 292) | (d) (178, 308)

53 Statement: The Indian Council of Medical Research issued a warning two years ago, based on studies conducted in hospitals that resistance to antibiotics was found in 50% of patients. A large number of infants were dying due to infections that did not respond to treatment.

Courses of Action:

I. The revision of antibiotics classes by the World Health Organisation in its list of essential medicines is a welcome step in the global initiative to push back against antimicrobial resistance, the phenomenon of bacteria becoming resistant even to the most potent drugs.

II. Close scrutiny of these by national stewardship programmes such as those initiated by the ICMR is needed.

Which of the following will be the course of action?

- (a) Only I
- (b) Both I and II
- (c) Either I or II
- (d) Only II

54. Statement: Thousands of farmers in drought-hit western Madhya Pradesh have been protesting for over a week demanding that authorities increase the minimum price for their crops and waive their bank loans. Madhya Pradesh is one of several states that have suffered droughts and crop failures in recent years. Which of the following courses of action will help to improve the current scenario?

- (i) Government should punish those involved in the protests.**
- (ii) Cloud seeding should be used in such situations.**
- (iii) Government should constitute a team to assess the severity of drought and convince that appropriate compensation will be paid.**

- (a) Only (i)
- (b) Both (i) and (ii)
- (c) Only (iii)
- (d) Both (ii) and (iii)

55. You have got a compass and a straight-edge (un-marked ruler). Each time you use compass (to draw an arc) you will be paid Rs. 20 and for using ruler (to draw line) you will be paid Re. 1. You have to design a road map for the municipal corporation. For that some directions has been given below:

I. Roads will be straight and all turns are at exactly 90 degrees.

II. First road will be built 2km to the east of place A to reach B. 3 km to the south of B to reach C. 1 km to the east of C to reach D. From D 1 km north to reach E. Right turn to the east of the point E to reach F. G is 1 km to the south of F. H is 1 km to the East of G. I is 5 km away to the north of H. J is the final destination which is 4 km far from the East of I.

III. The blueprint should have all the constructions. How much you will earn from this drawing.

- (a) 1000
- (b) 809
- (c) 849
- (d) 491

56. Cause: The Government has recently increased its taxes on petrol and diesel by about 10 percent.

Which of the following can be a possible effect of the above cause?

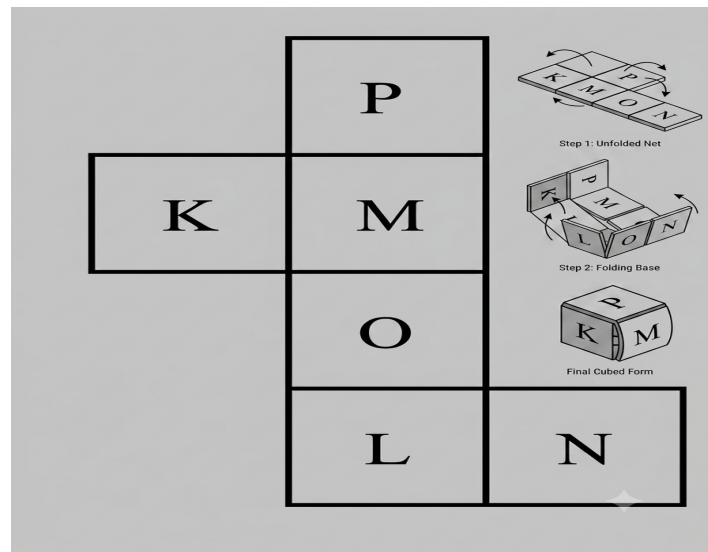
- (a) The petroleum companies will reduce the prices of petrol and diesel by about 10 percent.
- (b) The petroleum companies will increase the prices of petrol and diesel by about 10 percent.
- (c) The petroleum companies will increase the prices of petrol and diesel by about 5 percent.
- (d) The petrol pumps will stop selling petrol and diesel till the taxes are rolled back by the government.

57. What comes in the place of the blanks?

XXIV, XXII, XXV, XXIII, XXVI, __, __, XXV

- (a) XXIV, XXVII
- (b) XXVII, XXXVIII
- (c) XXV, XXVI
- (d) XXIV, XXV

58. A cube is made by folding the given sheet. In the cube so formed, what would be the letter on the opposite side of K?



- (a) N | (b) P | (c) L | (d) O

DIRECTIONS (Qs. 59-60): In each of the questions below are given four statements followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

59. Statement:

All lotus are beautiful.

All beautiful are Rose.

No Rose are stinky.

All sky are Rose

Conclusion:

- I. All stinky are beautiful is a possibility**

II. Some stinky are lotus.

III. Some Rose are Stinky is a possibility

IV. All beautiful can never be Sky

- (a) None follows
- (b) Only I and IV follow
- (c) Only II follows
- (d) Only II and III follow

60. Statement:

Some red are blue.

Some blue are grey.

All grey are white.

No white is black.

Conclusion:

I. No black is grey.

II. Some blue are white.

III. Some black are red.

IV. No black is red.

- (a) Only I and II follow
- (b) Only either III or IV follows
- (c) Only I and either III or IV follow
- (d) Only I, II and either III or IV follow

ANSWER KEYS

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	(d)	7	(a)	13	(b)	19	(b)	25	(b)
2	(b)	8	(a)	14	(c)	20	(b)	26	(d)
3	(a)	9	(c)	15	(c)	21	(c)	27	(a)
4	(c)	10	(d)	16	(a)	22	(c)	28	(d)
5	(c)	11	(a)	17	(d)	23	(c)	29	(d)
6	(c)	12	(a)	18	(b)	24	(a)	30	(b)
31	(c)	37	(d)	43	(d)	49	(c)	55	(b)
32	(a)	38	(c)	44	(a)	50	(d)	56	(b)
33	(b)	39	(b)	45	(c)	51	(c)	57	(a)
34	(a)	40	(b)	46	(d)	52	(d)	58	(a)
35	(a)	41	(d)	47	(b)	53	(b)	59	(a)
36	(a)	42	(c)	48	(b)	54	(c)	60	(d)

Hints & Solutions

1. (d) Site which means location is the correct use.
2. (b) 'Since' is usually followed by a time expression (last year, this morning, 4 o'clock etc.) or by a clause in the simple past tense.
3. (a) 'Discours' which is a noun requires an adjective before it. The words 'spirituality' and 'spiritually' being noun and adverb respectively get ruled out. 'Spirituos' is derived from the word 'spirit' as in alcohol; so, it being irrelevant gets ruled out. 'Spiritual' is derived from the word 'spirit' as in relating to or affecting the human spirit or soul correctly fits the blank.
4. (c) The adjective 'luxuriant' which means '(of vegetation) rich and profuse in growth; lush' correctly fits the blank thereby, making the sentence meaningful.
5. (c) The idiom **keep his fingers on the pulse** which means 'to be constantly aware of the most recent developments' is the correct answer.
6. (c) Idiom have an axe to grind means : to have private reasons for being involved in something or for arguing for a particular cause.
7. (a) The word **Trite** (Adjective) means: dull and boring because it has been expressed so many times before; not original; banal; very ordinary and containing nothing that is interesting or important.
Hence, the words trite and commonplace are synonymous.
8. (a) In Voice change, one can transform the sentence from Active to Passive or vice versa, but can't change the sense, i.e., is, one can't remove the information conveyed through the sentence or add any additional information. The transformation must be done keeping the information intact.
9. (c) Dysfunction is the correctly spelt word. The correct spelling of other words are: Destitution, Divination and Diversion.
10. (d) The producer must inform the consumer of his product and if he wants the consumer not only know about the producer but to buy it, the producer must give enough information so that the consumer will understand how the product differs the competition.
11. (a) Circumstantial
12. (a) When the sentence is converted from direct speech to indirect speech, the pronoun 'I' is converted to 'he' and the simple past tense gets itself converted into past perfect tense.
13. (b) **It is time/It is high time** is followed by the clause in simple past that shows present time. Hence, **to decide on your next** should be used.
14. (c) 'Generates' and 'produces' are same in meaning; however, here, 'produces' should be used as it is the most appropriate word in the context of the sentence.
15. (c) Suggested that only large scale agitations have been effective in bringing out desired change in the past.

16. (a)

Let the investment of **C** = ₹ 100

Then **B**'s investment = ₹ 90 and **A**'s investment = ₹ 99

Sum of investment = ₹ (100 + 90 + 99) = ₹ 289

Hence, **C**'s actual investment:

= ₹	(	$\frac{14450 \times 100}{289}$	)	= ₹ 5000
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17. (d)

Single discount equivalent to successive discounts of **20%** and **15%**:

= 20 + 15 -	$\frac{20 \times 15}{100}$	= 35 - 3 = 32%
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Now, single discount equivalent to successive discounts of **32%** and **10%**:

= 32 + 10 -	$\frac{32 \times 10}{100}$	= 42 - 3.2 = 38.8%
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18. (b)

Clearly, unit's digit in the given product = **unit's digit in $7^{153} \times 1^{72}$** .

Now, 7^4 gives unit digit **1**.

∴ $7^{153} = 7^{4 \times 38 + 1}$ gives unit digit $(1 \times 7) = 7$.

Also, 1^{72} gives unit digit **1**.

Hence, unit's digit in the product = $(7 \times 1) = 7$.

19. (b)

$\frac{7^{84}}{342}$	=	$\frac{(7^3)^{28}}{342}$	=	$\frac{(343)^{28}}{342}$
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By remainder theorem,

$(343)^{28}$	will have the same	1^{28}	i.e., the remainder
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$\frac{\quad}{342}$	remainder as	$\frac{\quad}{342}$	is 1.
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Alternative Method:

$\frac{(342)^{28}}{342}$	=	$\frac{(342 + 1)^{28}}{342}$
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=	$\frac{(342)^{28} + {}^{28}C_1(342)^{27} + \dots + {}^{28}C_{27}(342) + 1}{342}$
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Clearly, 1 is the remainder.

20. (b)

X's one day's work = $\frac{1}{25}$ th part of whole work.

Y's one day's work = $\frac{1}{30}$ th part of whole work.

Their one day's work = $\frac{1}{25} + \frac{1}{30} = \frac{11}{150}$ th part of whole work.

Now, work is done in 5 days = $\frac{11}{150} \times 5 = \frac{11}{30}$ th of whole work.

$\therefore$ Remaining work = $1 - \frac{11}{30} = \frac{19}{30}$ th of whole work.

Now, $\frac{1}{30}$ th work is done by Y in one day.

$\therefore \frac{19}{30}$ th work is done by Y in:

$\frac{1}{1/30}$	$\times$	$\frac{19}{30}$	= 19 days
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21. (c)

$$M_1 \times D_1 = M_2 \times D_2$$

$$m \times r = (m + n) \times D_2$$

$D_2 =$	$\frac{mr}{(m + n)}$
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22. (c)

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

$$\Rightarrow 4x^2 + 8x + 4 = 25x \Rightarrow 4x^2 - 17x + 4 = 0$$

23. ©

Since, EAB is a straight line

$$\therefore \angle DAE + \angle DAB = 180^\circ$$

$$\Rightarrow 73^\circ + \angle DAB = 180^\circ$$

$$\text{i.e., } \angle DAB = 180^\circ - 73^\circ = 107^\circ$$

Since, the sum of the angles of quadrilateral $ABCD$ is 360°

$$\therefore 107^\circ + 105^\circ + x + 80^\circ = 360^\circ$$

$$\Rightarrow 292^\circ + x = 360^\circ$$

$$\text{and } x = 360^\circ - 292^\circ = 68^\circ$$

24. (a)

$$\angle A = 180^\circ - (70^\circ + 50^\circ) = 60^\circ.$$

BD	=	AB	means AD is the bisector of $\angle A$.
DC		AC	

$$\therefore \angle BAD = \frac{1}{2} \times 60^\circ = 30^\circ$$

25. (b)

Since each ball can be put into any one of the three boxes. So, the total number of ways in which 12 balls can be put into three boxes is 3^{12} .

Out of 12 balls, 3 balls can be chosen in ${}^{12}C_3$ ways. Now, remaining 9 balls can be put in the remaining 2 boxes in 2^9 ways. So, the total number of ways in which 3 balls are put in the first box and the remaining in other two boxes is ${}^{12}C_3 \times 2^9$.

Hence, required probability =	${}^{12}C_3 \cdot 2^9$
	3^{12}

26. (d)

MACHINE has 4 consonants and 3 vowels.

The vowels can be placed in position no. 1, 3, 5, 7

$\Rightarrow$ Total number of ways possible = ${}^4P_3 = 24$.

For each of these 24 ways the 4 consonants can occupy the other 4 places in 4P_4 ways

$\Rightarrow$ Total = $24 \times 24 = 576$

27. (a)

Volume of cube = Volume of cuboid

$$a^3 = lbh$$

$$\Rightarrow a^3 = 36 \times 75 \times 80 = 216000$$

$$\Rightarrow a = 60 \text{ cm}$$

28. (d)

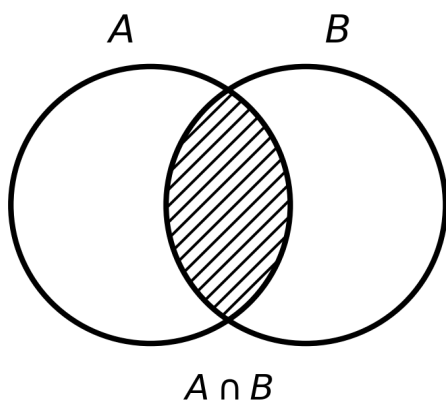


Diagram description: Venn diagram with two overlapping sets A and B , where the shared middle region represents $A \cap B$.

$$A \cap (A \cup B)$$

$$= (A \cap A) \cup (A \cap B)$$

$$= A \cup (A \cap B)$$

$$= A \text{ (By diagram)}$$

$$\text{Thus, } A \cap (A \cup B) = A$$

29. (d)

36.2 – 26.6 = 9.6;	9.6	$\times 100 = 36.09$ i.e., approx. 36%
	26.6	

30. (b)

11	+	103	+	1005	+
(10 + 1)	+	(100 + 3)	+	(1000 + 5)	+

$$= (10 + 100 + 1000 + 10000 + \dots) + (1 + 3 + 5 + 7 + \dots)$$

$$= (10 + 10^2 + 10^3 + 10^4 + \dots + 10^n) \text{ [GP]} + (1 + 3 + 5 + 7 + \dots + 2n - 1) \text{ [AP or sum of first } n \text{ odd numbers]}$$

$$S_n = a \cdot (r^n - 1) / (r - 1) + n^2$$

$$= 10 \cdot (10^n - 1) / (10 - 1) + n^2$$

$$= 10/9 (10^n - 1) + n^2$$

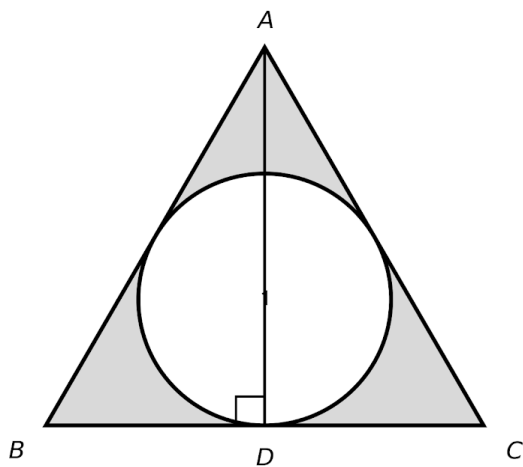
31. (c)

$$\text{Relative speed} = 90 + 60 = 150 \text{ km/hr.}$$

$$\text{Total distance to be covered} = 300 + 200 = 500 \text{ m}$$

32. (a)

Question 32 Diagram



$$\text{Height} = AD = (\sqrt{3} / 2) \times \text{side} = (\sqrt{3} / 2) \times 6 = 3\sqrt{3} \text{ cm}$$

$$\therefore \text{Inradius} = \frac{1}{3} \times \text{height} = \frac{1}{3} \times 3\sqrt{3} = \sqrt{3} \text{ cm.}$$

$$A(\text{shaded region}) = A(\Delta ABC) - A(\text{incircle})$$

$$= (\sqrt{3} / 4) \times (\text{side})^2 - \pi r^2$$

$$= (\sqrt{3} / 4) \times 6 \times 6 - 3.14 \times (\sqrt{3})^2$$

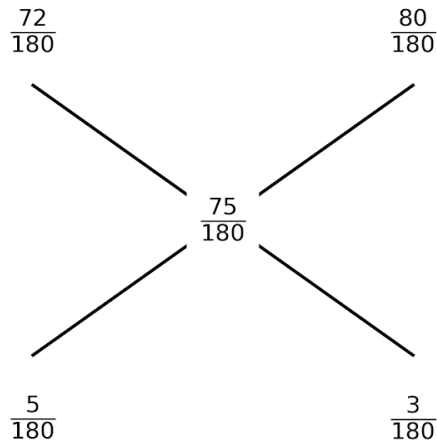
$$= 15.57 - 9.42 = 6.15 \text{ cm}^2$$

33. (b)

$$W_1 : A_1 = 2 : 3 \Rightarrow W_1 / (W_1 + A_1) = 2/5 = 72/180$$

$$W_2 : A_2 = 4 : 5 \Rightarrow W_2 / (W_2 + A_2) = 4/9 = 80/180$$

$$W_N : A_N = 5 : 7 \Rightarrow W_N / (W_N + A_N) = 5/12 = 75/180$$



By Alligation Rule:

$$(80/180 - 75/180) : (75/180 - 72/180) = 5/180 : 3/180 = 5 : 3$$

Therefore, the ratio is 5 : 3

34. (a)

$$r = (2\sqrt{2}) / (2\sqrt{3}) = (4 / \sqrt{3}) / (2\sqrt{2}) = \sqrt{2} / \sqrt{3} = \sqrt{(2/3)}$$

$$\begin{aligned} \therefore S_{\infty} &= a / (1 - r) ; |r| < 1 \\ &= 2\sqrt{3} / (1 - \sqrt{(2/3)}) \\ &= (2\sqrt{3} \times \sqrt{3}) / (\sqrt{3} - \sqrt{2}) \\ &= 6 / (\sqrt{3} - \sqrt{2}) \\ &= 6(\sqrt{3} + \sqrt{2}) \end{aligned}$$

35. (a)

$$\begin{aligned} 6 * 15 * 3 &= \sqrt{[(6 + 2)(15 + 3) / (3 + 1)]} \\ &= \sqrt{[(8 \times 18) / 4]} \\ &= \sqrt{36} = 6 \end{aligned}$$

36. (a)

As,

$$\text{TIRE D} = 20 + 9 + 18 + 5 + 4 = 56$$

$$\text{BRAIN} = 2 + 18 + 1 + 9 + 14 = 44$$

Similarly,

$$\text{LAZY} = 12 + 1 + 26 + 25 = 64$$

37. (d)

As,

C O U N T R Y

↓+3 ↓-3 ↓+3 ↓-3 ↓+3 ↓-3 ↓+3

F L X K W O B

After reversing: BOWKXLF

Similarly,

D E S P A I R

↓+3 ↓-3 ↓+3 ↓-3 ↓+3 ↓-3 ↓+3

G B V M D F U

After reversing: UFD MVB G

Sol. (38-39):

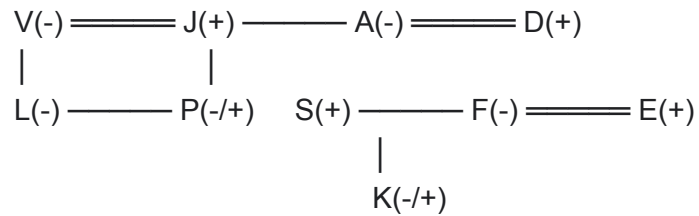
↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑
---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
K O J N I P H M

38. (c) 16 persons sit in the row

39. (b) J is 5th left of Z.

40. (b)

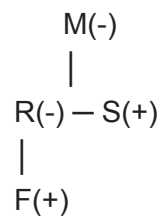
Family Tree Diagram:



[Note: = represents marriage, — represents siblings, | represents generation/children]

Hence, S and P are first cousins.

41. (d)



Hence, S × M is correct option.

42. (c)

Minute hand will show:

$$= [(5 \times 2) + 12] \times \frac{12}{11}$$

$$\text{Minute hand will show} = 22 \times \frac{12}{11}$$

$$\text{Minute hand will show} = 24 \text{ minutes}$$

The time shown on the clock will be 24 minutes past 2.

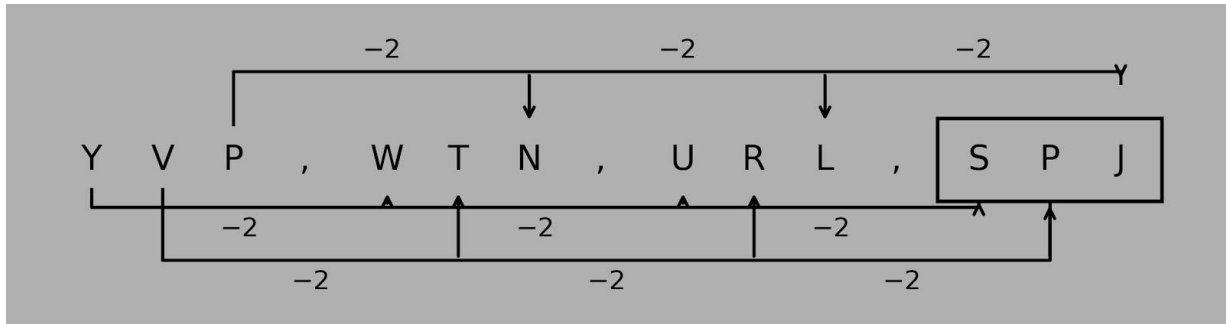
43. (d)

If the time is between 1 to 11 o'clock, then to find the mirror image, time is subtracted by 11 : 60.

Given clock is showing 2:35.

$$\therefore \text{Correct time is } 11:60 - 2:35 = 9:25$$

44. (a)



Pattern:

Y $\xrightarrow{-2}$ W $\xrightarrow{-2}$ U $\xrightarrow{-2}$ [S]

V $\xrightarrow{-2}$ T $\xrightarrow{-2}$ R $\xrightarrow{-2}$ [P]

P $\xrightarrow{-2}$ N $\xrightarrow{-2}$ L $\xrightarrow{-2}$ [J]

Series: YVP , WTN , URL , [SPJ]

45. (c)

Series Breakdown:

1	3	8	19	42	[89]
\	/	\	/	\	/
+2	+5	+11	+23	+47	
\	/	\	/	\	/
+3	+6	+12	+24		
\	/	\	/	\	/
×2	×2	×2			

46. (d)

In this series, the letters remain the same: DEF.

The subscript numbers follow this series:

111, 112, 122, 222, 223, 233, 333, ...

47. (b)

Code Table:

$+ \Rightarrow > \mid \phi \Rightarrow \leq \mid - \Rightarrow \geq$
 $\times \Rightarrow = \mid \models \Rightarrow < \mid L \Rightarrow \neq$

Expressions check:

$A \mid B \times C \Rightarrow A < B = C$

$B + C \mid A \Rightarrow B > C < A$ Option (a)

$C - B + A \Rightarrow C \geq B > A$ Option (b) [Correct]

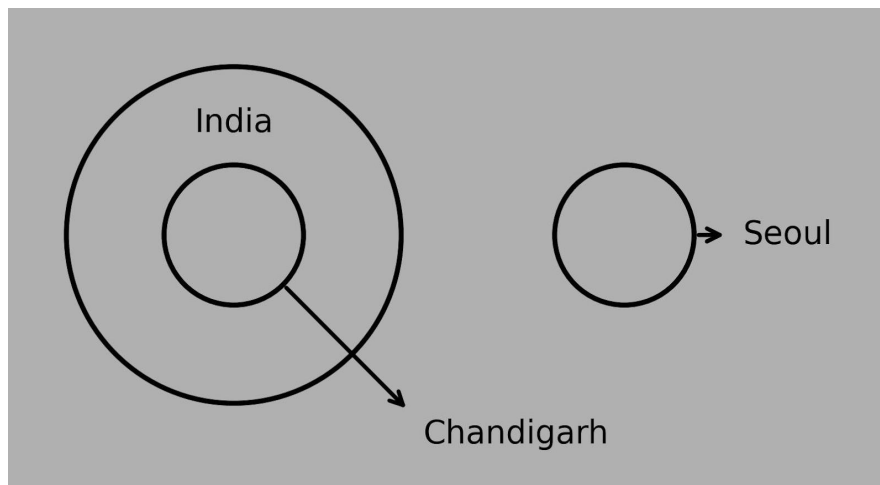
$B \mid A \mid C \Rightarrow B < A < C$ Option (c)

$A \phi B \mid C \Rightarrow A \leq B < C$ Option (d)

48. (b)

Option (b) represents the relationship between Chandigarh, India, Seoul.

As, Chandigarh is the part of India but Seoul is separate (part of South Korea/abroad).



49. (c)

After a cautioned gap of one month people have started visiting crowded places most substantiates the facts.

50. (d)

'7 7 7 9' is the step 3 of the input.

Input: 20 13 14 21 19 16 9 22
[-4] [+4] [-3] [+3] [-2] [+2] [-1] [+1]
Step 1: P Q K X Q R H W
(16) (17) (11) (24) (17) (18) (8) (23)
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
Step 2: 10 23 15 16 7 22 16 17

Step 3: 7 7 7 9 <== Difference

\ / \ /
Step 4: 0 2 <== Difference

\ /
Step 5: 2

Logic / Rules:

• Step 3 -

1st place: $|10 - 17| = 7$ (Difference between 1st and last number of Step 2)

2nd place: $|23 - 16| = 7$ (Difference between 2nd and 2nd last number of Step 2)

3rd place: $|15 - 22| = 7$ (Difference between 3rd and 3rd last number of Step 2)

4th place: $|16 - 7| = 9$ (Difference between 4th and 4th last number of Step 2)

• Step 4 - Difference of (1st & 2nd digit) and (3rd & 4th digit):

$|7 - 7| = 0$ and $|7 - 9| = 2$

• Step 5 - Addition of both digits ($0 + 2 = 2$). If value exceeds 9, add digits to make a single digit.

51. (c)

The assumption is probably false.

The passage talks about yarn manufacturing. As cotton prices falls, the yarn manufacturers get higher price for their production. The assumption is not implicit here because this will benefit the yarn manufacturers, not the farmers unless the latter act as the farmer also.

The yarn higher price is not so much beneficial for farmers. Hence, the assumption is probably false.

52. (d)

$$338 - 215 = 123$$

$$134 - 11 = 123$$

$$292 - 169 = 123$$

$$308 - 178 = 130 \text{ <-- (Odd one out)}$$

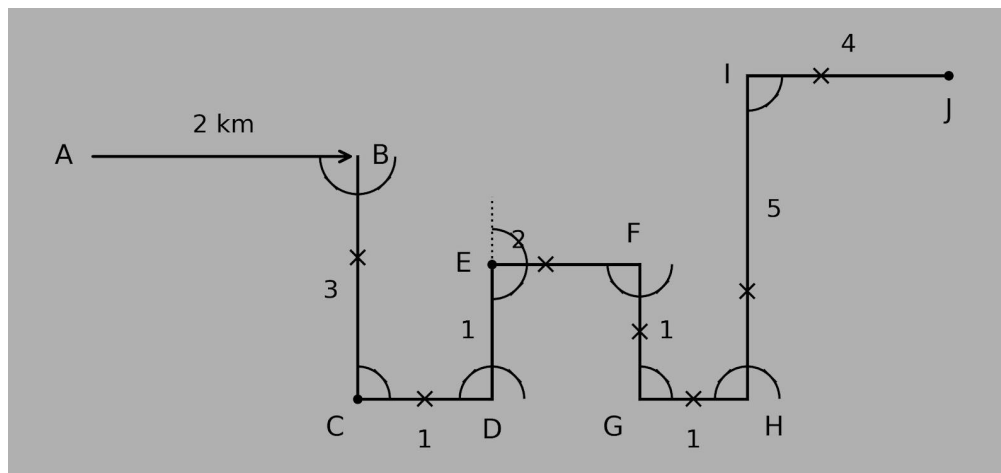
53. (b)

Course of action I follows because with a graded approach to the use of antibiotics, under which some medicines are reserved for the most resistant microbes, the WHO list can stop their misuse as broad-spectrum treatments. Course of action II also follows because a close inspection is also needed of the national supervisory programmes to help people to get rid out of it.

54. (c)

Option (i) is not an appropriate course of action as it is not known from the statement whether the protests are violent or peaceful. Option (ii) is a preventive measure not a corrective action. As it is mentioned in the statement that the given state has faced several drought-like situations over the recent years, so option (iii) is an appropriate course of action.

55. (b)



Follow the diagram,

- In every turning point, compass has been used to construct a perpendicular. For that 5 arcs are used in one point.

$$\text{Hence, } 5 \times 8 \text{ (turning points)} = 40 \text{ arcs}$$

$$\text{Earning} = 40 \times 20 = 800$$

- To draw lines, ruler is used:
Total straight lines = 9
Total earning = $800 + 9 = 809$

Hence, option (b) is correct.

56. (b)

The petroleum companies will increase the prices of petrol and diesel by about 10 percent.

57. (a)

Given Series:

XXIV , XXII , XXV , XXIII , XXVI , XXIV , XXVII , XXV

Dual Series Pattern:

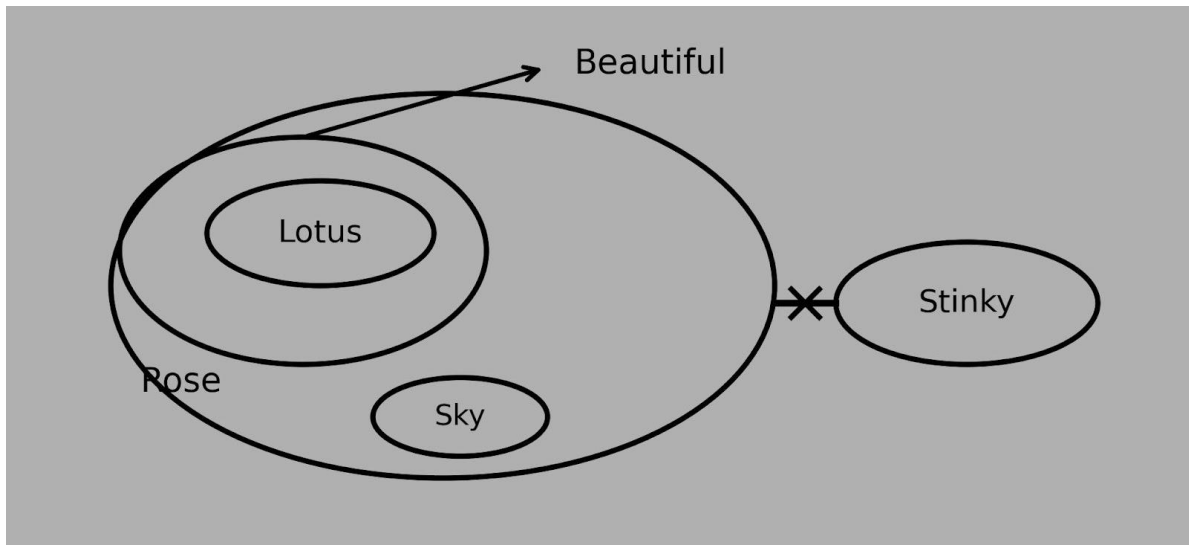
- Series 1 (1st, 3rd, 5th, 7th terms):
 $24 \xrightarrow{+1} 25 \xrightarrow{+1} 26 \xrightarrow{+1} 27$ (XXIV, XXV, XXVI, XXVII)
- Series 2 (2nd, 4th, 6th, 8th terms):
 $22 \xrightarrow{+1} 23 \xrightarrow{+1} 24 \xrightarrow{+1} 25$ (XXII, XXIII, XXIV, XXV)

58. (a)

Opposite Faces:

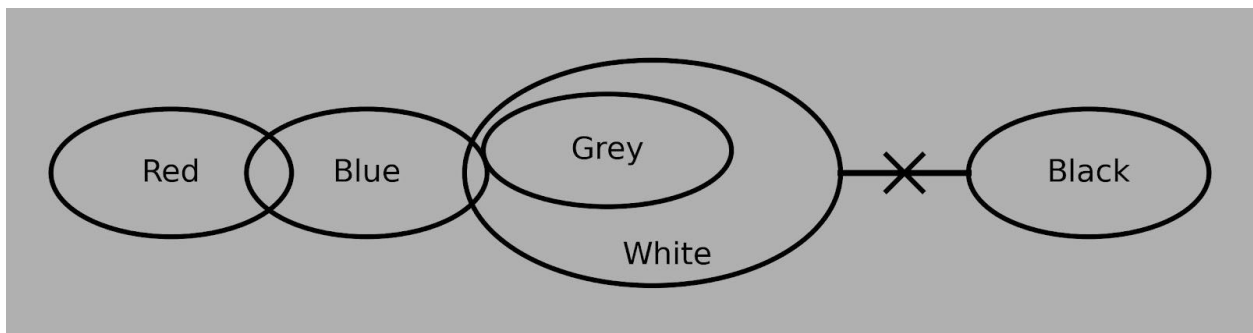
- P's opposite = O
- M's opposite = L
- Hence, K's opposite = N

59. (a)



(Lotus is inside Rose, both are inside Beautiful. Sky is inside Beautiful. Beautiful/Lotus/Rose is disjoint with Stinky.)

60. (d)



(Red overlaps with Blue; White is fully inside Grey; Grey/White is disjoint with Black.)