Thinkoraa
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SNAP 2023

Previous Year Question Paper

60 Questions · General English · Analytical & Logical Reasoning · Quantitative, Data Interpretation & Data Sufficiency

Prepared by Thinkoraa for practice. Answer key and step-by-step solutions are at the end of this booklet.

General English: Reading Comprehension, Verbal Reasoning, Verbal Ability

1 Given below are the statements with blanks. You are required to fill in the blanks with the appropriate option so that the sentence has correct tense.
We _____ to the beach when it started raining.

A went
B have gone
C were going
D had gone

Directions
In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.:

2 Salt of the earth

A There's a good aspect to every bad situation
B Reverse the situation
C To be practical and sensible.
D Being honest and good

3 Identify the prefix word in the given sentence:
The multilingual tour guide expertly navigated the group through the crowded streets of the city, providing fascinating historical anecdotes and insights in multiple languages.

A anecdotes
B multilingual
C insights
D navigated

4 Select the word which is opposite in meaning to the given word.
WHODUNIT

A conundrum
B enigma
C manifest
D innuendo

5 Identify the correct part of speech of the highlighted words in this paragraph
"In the bustling city, cars zoomed past, honking their horns impatiently. People hurriedly walked along the crowded sidewalks, clutching their umbrellas tightly as rain poured down. Laughter echoed from nearby cafes, filling the air with a cheerful ambience. Streetlights illuminated the darkening streets, creating a warm glow."

A Horns - Verb, Hurriedly - Adverb, Ambience- Adjective
B Horns - Adverb, Hurriedly - verb, Ambience- Adjective
C Horns - Verb, Hurriedly - Adverb, Ambience- noun
D Horns - Noun, Hurriedly - Adverb, Ambience- Noun

6 Which type of figurative language has been used in the sentence given below:
The alarm clock buzzed at the time I was going to the bathroom.

A Onomatopoeia
B Personification
C Hyperbole
D Alliteration

7 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 electricity bill was paid by Arjun.

A Arjun pays the electricity bill.
B Arjun had paid the electricity bill.
C Arjun paid the electricity bill.
D Arjun has paid the electricity bill.

8 In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one, which best express the same sentence in the Indirect/Direct speech.
They said that they had won the competition.

A They said, "We won the competition".
B They said, "We are winning the competition".
C They said, "We will win the competition".
D They said, "They had won the competition".

Directions
Choose the part of the sentence that contains a grammatical error. Choose option 5 if the sentence is grammatically correct as it is. Ignore errors in punctuation.

9 There are degrees of greatness, (1)/ and there is a universal tendency (2)/ to think of the animals that have became extinct (3)/ as much greater than those of the present day. (4)

A 1
B 2
C 3
D 4

10 Identify the word which is similar to the meaning of the word given in capital letters.
SEQUESTER

A isolate
B remain
C urge
D wish

11 In the following question, four words are given out of which one word is incorrectly spelt. Select the incorrectly spelt word.

A tyranny
B miniature
C visious
D hierarchy

12 Which of the following is the meaning of the word given below?
ipso facto

A As per the fact
B In fact
C by the fact itself
D in spite of the fact

13 Sachin played ____ matches per year towards the end of his career. That was because he had _____ time on his hands than before.

A less, lesser
B fewer, less
C fewer, fewer
D lesser, lesser

Directions
Fill in the blanks

14 The government's ___ to ban cow slaughter has not __ down well with certain sections of the society.

A decision, gone
B action, went
C order, get
D suggestion, acted

Directions
Fill in the blanks

15 The butterflies _____ the insects are what the birds are among the higher animals—the most attractive and beautiful members of the great group to which they _____.

A along, reside
B among, belong
C between, exist
D amid, form

Analytical & Logical Reasoning

16 Read the following passage and choose the option that cannot be said to be an implicit assumption: The pollution level in the city has skyrocketed in the past few months. The city corporation, in an attempt to curb the pollution, has made it mandatory for all vehicles to be fitted with catalytic converters. Also, it has proposed a policy by which only vehicles of a particular parity (odd or even numbered vehicles) can be driven on a particular day.

A Pollution from causes other than vehicles is negligible.

B Restricting the vehicles that can be driven will force people to opt for alternative modes of transport or to pool the resources.

C Vehicles are one of the major contributors to the pollution in the city.

D Catalytic converters help to reduce the harmful emissions of the vehicles.

17 Given below is a statement is followed by two assumptions. An assumption is something supposed or taken for granted. You have to consider the statement to be true even though it may seem untrue in the real life and decide which of the assumptions is implied in the statement.
Statement: Watching TV for long hours also causes obesity.
Assumption
1: There are many causes of obesity of which watching TV is one.
2: Watching TV for short hours doesn't cause obesity.

A Only assumption 1 is implicit

B Only assumption 2 is implicit

C Either assumption 1 or assumption 2 is implicit

D Neither assumption 1 nor assumption 2 is implicit

18 Given below are two statements (A) and (B). These statements may be either independent causes or may be effects of independent causes or a common cause. One of these statements may be 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.
(A) The glaciers at the poles of the earth are melting at a fast rate.
(B) In recent times there has been a substantial increase in the incidents of earth quakes and volcanic eruptions.

A If statement (A) is the cause and statement (B) is its effect.

B If statement (B) is the cause and statement (A) is its effect.

C If both the statements (A) and (B) are effects of independent causes.

D If both the statements (A) and (B) are independent causes.

19 In the following question, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. I. China's economy is experiencing remarkable growth
II. The standard of living in china has been growing since last few years

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

20 Should a terrorist who has killed a large number of people be executed?
Arguments:
I: Yes, since killing him will set a good precedent and prevent any future damage he is likely to cause had he been alive.
II: No, since killing a person is a violation of human rights.

A Only argument I is strong

B Only argument II is strong

C Either of the arguments is strong

D Neither of the arguments is strong

Directions

Based on the statement given, classify the arguments as strong or weak. Choose the appropriate option based on the strengths of the argument:

21 Should we ban weed (a plant used for drug production)?
Argument 1: Yes, as weed leads to health problems and mental instability, leading to increase in crime rates.
Argument 2: No, a good chunk of people from hilly terrains depend on weed cultivation for their economic sustenance.

A Only argument 1 is strong

B Only argument 2 is strong

C Either argument 1 or argument 2 is strong

D Both arguments 1 and 2 are strong

22 In the question below, a statement is given, followed by two courses of action numbered I and II. A course of action is a practicable and feasible step or administrative decision for follow-up, improvement or further action concerning the problem, policy, etc. Based on the information in the statement, you have to assume everything in the statement to be true and decide which of the suggested courses of action logically follow(s) to pursue.
Statement: The pollution levels in a city have reached hazardous levels, posing significant risks to the health and well-being of its residents.
Course of Action I: Implement strict emission control regulations and standards for industries and vehicles to reduce pollution levels.
Course of Action II: Promote and incentivize the use of public transportation and carpooling to decrease the number of vehicles on the road.

A Only I

B Only II

C Neither I nor II

D Both I and II

Directions

In each question below a statement is given followed by two courses of action numbered I and II. A course of action is a practicable and feasible step or administrative decision to be taken for follow- up, improvement or further action in regard to the problem, policy, etc. On the basis of the information given in the statement, you have to assume everything in the statement to be true, and decide which of the suggested courses of action logically follow(s) for pursuing.

23 Statement : Chotu was caught by school principal for cheating in exams fourth time this year despite giving warning by the principal.
Courses of action :
I. Since warnings were clearly given earlier, Chotu must be rusticated from school.
II. School authorities must specially start conducting open book exam for children like Chotu.

A if only I follows.
B if only II follows.
C if either I or II follows.
D if neither I nor II follows.

24 Statement:
Should unauthorized buildings in the city be demolished?
Conclusions:
I. Yes, this will give out a clear message to builders to stop building any such new structures.
II. No, there will be people residing in such buildings.

A Only argument I is strong
B Only argument II is strong
C Either I or II is strong
D Neither I nor II is strong

Directions

In a certain code language,
"happy life is forever" is coded as "ky st oi lm"
"match risky is betting" is coded as "le oi pn az"
"key to be happy" is coded as "lm dk kr fc"
"bottle life to match" is coded as "le rc st dk"
Answer following questions based on the given information:

25 "fc" is the code for which of the following?

A key
B Happy
C to
D Either key or be

26 In a certain code language, 'CRICKET' is written as 'DTLGPKA' and 'SUNNY' is written as 'TWQRE', then what is the code for 'BANNER'?

A DCQRJX'
B CBQQJX'
C CCQQJX'
D CCQRJX

27 A is son of the father of B. D is the mother of the granddaughter of C. E is the daughter of B and D is married to B. K is A's son. How is K related to E?

A Brother
B Cousin
C Uncle
D Nephew

28 A man goes to a party and meets Rakesh, who is the man's mother's only son's daughter's husband. How is the man related to Rakesh?

A cousin
B father-in-law
C brother
D son-in-law

29 A series is given with one missing term. Choose the correct alternative from the given optons that will complete the series.
24, 26.5, 21.5, 29, 19, ?

A 29.5
B 33
C 31.5
D 27.5

Directions
Each of the following questions has a series of numbers which follow a definite pattern except for one number. Identify the incorrect term of the series.

30 13, 14, 27, 81, 320, 1605

A 81
B 14
C 27
D 1605

Directions
In the given series below, certain trend is being followed in each term. Find the next term in the series which follows the same trend.

31 BYXCDW , CXWDEV , DWVEFU , ?

A EVUFGT
B EUVFTG
C EVGTUF
D EVTGFU

32 Which of the following options follow the same rule as the terms given below:
OEG, RHJ, WMO, ?

A VKD
B ZPR
C XMQ
D ULP

33 There of the four options are alike in a certain way. Choose the one which does not belong to that group.

A GMJ
B MQO
C KPM
D DHF

34 In this question three statements are given, followed by two conclusions. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements and select the appropriate option. Statement I: Some planets are stars.
Statement II: Some stars are satellites.
Statement III: All satellites are meteors.
Conclusion I: All stars are meteors.
Conclusion II: Some planets can be meteors.

A Conclusion I follows
B Conclusion II follows
C Both conclusion I and conclusion II follow
D Neither conclusion I nor conclusion II follow

35 Today is Saturday. After 243 days, it will be:

A Monday
B Tuesday
C Wednesday
D Thursday

36 P said, "Q likes cricket."
Q said, "I don't like cricket."
R said, "P is lying."
If only one person tells the truth, who are the liars?

A P and R
B Q and R
C P and Q
D None of these

37 What is the angle between the minute and hour hands of the clock at 8:40 PM?

A 10 degree
B 15 degree
C 20 degree
D 18 degree

38 If the angle between 2 hands of a clock is 35 degrees and the hour hand is between 3 and 4, what time does the clock show?

A 10 minutes past 3
B $22\frac{8}{11}$ minutes past 3
C $23\frac{7}{11}$ minutes past 3
D both a and b

Directions

Read the information given below carefully and answer the questions which follow.
P, Q, R, S, T, U, V and W are six friends who are seated in a row. All of them are facing north. V is second to the right of U. S is third to the left of Q. There are 3 people sitting between P and W and neither P nor W are seated at the end positions. W is to the right of P and there are 4 people between R and T with R being to the left of T. There are 3 people T and U.

39 Four of the following are similar in some way. Pick the odd one out.

A RU
B VT
C ST
D WQ

Directions

Study the following information carefully and answer the given questions.

A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input: pepsi 56 coke sprite 12 fanta 32 48 rasna 15

Step 1: coke pepsi sprite 12 fanta 32 48 rasna 15 56

Step 2: coke 12 pepsi fanta 32 48 rasna 15 sprite 56

Step 3: coke 12 fanta pepsi 32 rasna 15 48 sprite 56

Step 4: coke 12 fanta 15 pepsi 32 rasna 48 sprite 56

Step 4 is the final step of the process.

Another input is processed through the same machine.

Input: 68 fly 24 38 pig 91 star 56 eagle air

40 How many steps are required to get the desired output from the given input?

A 1

B 2

C 3

D 4

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Quantitative, Data Interpretation & Data Sufficiency

41 By selling a T-shirt at 25% discount, Ramu manages to earn a profit of 20%. How much above the cost price did he mark the T-shirt?

A 50%
B 60%
C 40%
D 30%

42 A local train having speed 36 Km/hr leaves Thane station and after 30 mins Chennai express leaves Thane station at speed of 72km/hr. What will be the time required by Chennai express to completely overtake the local train if both trains do not stop in between?

A 1550 sec
B 1600 sec
C 1800 sec
D 1650 sec

43 A boat takes 4 hours to travel from P to Q upstream. If the distance between P and Q is 20 km and the speed of the boat in still water is 3 times the speed of the stream, then how much time will the boat take to travel from Q to P downstream?

A 3 hours
B 2 hours
C 90 minutes
D 75 minutes

44 a,b,c d are 4 distinct even natural numbers less than 10. The highest power of 2 that will definitely divide the product of these 4 numbers is

A 32
B 64
C 128
D 256

45 It is given that $k^4 + \frac{1}{k^4} = 47$ (where k > 0), then find the value of $k^3 + \frac{1}{k^3}$.

A 18
B 27
C 9
D 12

46 A card is drawn from a pack of 100 cards numbered 1 to 100. Find the probability of drawing a number which is square?

A 2/5
B 3/15
C 7/10
D 1/10

47 5 red, 4 blue and 3 green balls are kept in bag. Two balls are drawn at random from the bag. What is the probability that none of the two balls drawn is red in color?

A $\frac{7}{12}$
B $\frac{3}{22}$
C $\frac{5}{12}$
D $\frac{7}{22}$

48 What is the sum of 2-digit numbers that are divisible by either 5 or 7?

A 1580
B 1568
C 1673
D 1668

49 According to a survey conducted in a neighbourhood, at least 70% of the people read the Hindu, at least 75% of the people read the Times of India and at least 80% of the people read the Deccan Chronicle. What is the minimum percentage of people in the neighbourhood, who read all three newspapers?

A 20%
B 25%
C 22%
D 26%

50 Five spheres, each of radius 3 cm, are melted to form a new cylinder of the same radius. What is the height of the cylinder formed?

A 30 cm
B 20 cm
C 75 cm
D 45 cm

51 If (3,2) is the centroid of a triangle of vertices A(x,1), B(4,6) and C(-1, y) then find the value of (x+y) ?

A 3
B -5
C 5
D -3

52 Find the radius of the circle that circumscribes an equilateral triangle of side 6 cm.

A $3\sqrt{2}$ cm
B $\sqrt{3}$ cm
C $\sqrt{2}$ cm
D $2\sqrt{3}$ cm

Directions

A Movie theatre, J cinemas, screens four movies - W, X, Y and Z. The following table gives the data about the number of viewers of each movie for five days of a particular week.

	W	X	Y	Z
Monday	120	94	136	46
Tuesday	98	87	144	84
Wednesday	110	123	120	88
Thursday	135	140	150	94
Friday	175	160	186	125

53 The total number of viewers on Friday is approximately what percent greater than the number of viewers on Monday?

A 56%
B 63%
C 54%
D 67%

Directions

Refer to the table and answer the following questions.

Data related to the students of 5 sections			
Sections	**Number of students in the section**	**Percentage of the students who passesd**	**Ratio of girls who passed to boys who passed**
A			2 : 3
B	80	40%	
C		50%	3 : 4
D	90		5 : 6
E	60	90%	

54 In section B, if 20 girls passed what is the ratio of the number of girls who passed to the number of boys who passed?

A 1 : 2 **B** 2 : 1

C 5 : 3 **D** 3 : 5

55 How many pairs of letters are there in the word 'ACADEMICS' which have as many letters between them (both forward and backward directions) as in English alphabetical series?

A 3 **B** 2

C 4 **D** 5

56 A father is thrice as old as his son now. Six years before he was five times the age of his son. What was the age of father at the time of birth of his son ?

A 36 years **B** 24 years

C 22 years **D** 30 years

57 Given that $\frac{1}{\log_{a+1}(91)} + \frac{1}{\log_{b+1}(91)} = 1$. If a, b are integers, find the value of a+b.

A 18 **B** 90

C 92 **D** Cannot be determined

58 A and B can complete a work in 40/3 days.B and C can complete the same work in 80/3 days.A and C can complete the work in 16 days.How many days can A,B and C together can complete the work ?

A 80/7 days **B** 12 days

C 80/9 days **D** 13 days

59 A solution A contains alcohol and water in the ratio 1 : 3 and a solution B contains alcohol and water in ratio 4 : 5. If both the solutions are mixed in equal quantities what is the ratio of alcohol and water in the final mixture?

A 33 : 67

B 25 : 47

C 44 : 69

D 8 : 9

60 The ratio of Appu and Babu's weights are in the ratio 5:6. If Appu's weight reduces by 10 kilos, the ratio becomes 2:3. What is Babu's weight?

A 30

B 40

C 50

D 60

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Answer Key

General English: Reading Comprehension, Verbal Reasoning, Verbal Ability

1 **C**	2 **D**	3 **B**	4 **C**	5 **D**	6 **A**	7 **C**	8 **A**	9 **C**	10 **A**
11 **C**	12 **C**	13 **B**	14 **A**	15 **B**					

Analytical & Logical Reasoning

16 **A**	17 **B**	18 **C**	19 **A**	20 **A**	21 **A**	22 **D**	23 **D**	24 **A**	25 **D**
26 **D**	27 **B**	28 **B**	29 **C**	30 **C**	31 **A**	32 **B**	33 **C**	34 **B**	35 **D**
36 **B**	37 **C**	38 **D**	39 **B**	40 **D**					

Quantitative, Data Interpretation & Data Sufficiency

41 **B**	42 **C**	43 **B**	44 **C**	45 **A**	46 **D**	47 **D**	48 **B**	49 **B**	50 **B**
51 **C**	52 **D**	53 **B**	54 **C**	55 **A**	56 **B**	57 **A**	58 **A**	59 **B**	60 **D**

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Solutions

General English: Reading Comprehension, Verbal Reasoning, Verbal Ability

1 **Answer: C**

The action of going was in progress when the rain started (a shorter action), so we use the past continuous: **were going**.

2 **Answer: D**

"Salt of the earth" describes a person who is honest, kind and dependable — **being honest and good**.

3 **Answer: B**

"Multilingual" is formed with the prefix *multi-* (many) + lingual. So the prefixed word is **multilingual**.

4 **Answer: C**

A whodunit is a mystery story — something hidden or puzzling. Conundrum and enigma are synonyms; innuendo is a hint. The opposite is **manifest** (obvious).

5 **Answer: D**

"Horns" names a thing (noun), "hurriedly" describes how they walked (adverb), and "ambience" names the atmosphere (noun).

6 **Answer: A**

"Buzzed" imitates the sound it describes, which is **onomatopoeia**.

7 **Answer: C**

"Was paid" is simple past passive, so the active form is simple past: **Arjun paid the electricity bill.**

8 **Answer: A**

In reported speech the past simple shifts back to past perfect ("had won"). Reversing it, the direct speech is **They said, "We won the competition".**

9 **Answer: C**

After "have", the verb takes the past participle: "have **become**", not "have became". The error is in part 3.

10 **Answer: A**

To sequester means to set apart or **isolate**.

11 **Answer: C**

The correct spelling is "vicious", so **visious** is incorrect.

12 **Answer: C**

Ipso facto is Latin for "**by the fact itself**".

13 **Answer: B**

"Matches" are countable, so **fewer**; "time" is uncountable, so **less**.

14 **Answer: A**

A government takes a **decision**, and "go down well" is the idiom for being accepted: "has not **gone** down well".

15 **Answer: B**

Butterflies are **among** insects what birds are among higher animals; the group to which they **belong**.

Analytical & Logical Reasoning

16 **Answer: A**

The measures target vehicles, so the author assumes vehicles are a major cause (C), that converters cut emissions (D) and that restrictions push people to alternatives (B). It does not assume that other causes are negligible — a policy can target one cause without ignoring others. So **A** is not an implicit assumption.

17 **Answer: B**

Assumption 1 is not an assumption — the word "also" in the statement already says it openly. By specifying "long hours", the statement takes for granted that the duration matters, i.e. short hours do not cause obesity. So **only assumption 2** is implicit.

18 **Answer: C**

Melting glaciers result from global warming, while earthquakes and eruptions result from tectonic activity. Both are **effects of independent causes**.

19 **Answer: A**

Rapid economic growth (I) raises incomes, which leads to a rising standard of living (II). **I is the cause and II is its effect.**

20 **Answer: A**

Argument I gives a practical, relevant reason (preventing future harm and deterring others). Argument II is a general statement that does not address the specific case of a mass killer. **Only I is strong.**

21 **Answer: A**

Argument 1 points to real harm to health and law and order. Argument 2 is weak because livelihoods can be shifted to other crops; it does not justify allowing a harmful drug. **Only argument 1 is strong.**

22 **Answer: D**

Both actions directly attack the main sources of pollution — industrial and vehicle emissions — and both are practical. **Both I and II follow.**

23 **Answer: D**

Rustication is too extreme as a first formal step, and open-book exams for one student is neither practical nor a remedy. **Neither follows.**

24 **Answer: A**

Argument I gives a valid deterrent reason. Argument II is weak — people living in illegal buildings can be relocated; it does not justify keeping unauthorised structures. **Only I is strong.**

25 **Answer: D**

Compare sentences: "is" = oi, "happy" = lm, "life" = st, "match" = le, "to" = dk. In "key to be happy" = lm dk kr fc, the words left are "key" and "be" with codes kr and fc. So fc is **either key or be**.

26 **Answer: D**

Each letter moves forward by 1, 2, 3, 4, ... in order: C+1=D, R+2=T, I+3=L, C+4=G, K+5=P, E+6=K, T+7=A.
BANNER: B+1=C, A+2=C, N+3=Q, N+4=R, E+5=J, R+6=X → **CCQRJX**.

27 **Answer: B**

A is the son of B's father, so A is B's brother. E is the daughter of B (and D). K is A's son. Children of two brothers are **cousins**.

28 **Answer: B**

The man's mother's only son is the man himself. Rakesh is the husband of the man's daughter, so the man is Rakesh's **father-in-law**.

29 **Answer: C**

Two alternating series: 24, 21.5, 19 (−2.5 each) and 26.5, 29, ? (+2.5 each). Missing term $= 29 + 2.5 =$ **31.5**.

30 **Answer: C**

Rule: ×1+1, ×2−2, ×3+3, ×4−4, ×5+5.
13×1+1 = 14; 14×2−2 = 26; 26×3+3 = 81; 81×4−4 = 320; 320×5+5 = 1605.
The third term should be 26, so **27** is wrong.

31 **Answer: A**

Letter by letter: +1, −1, −1, +1, +1, −1. B→C, Y→X, X→W, C→D, D→E, W→V. Applying this to DWVEFU gives **EVUFGT**.

32 **Answer: B**

In each term the 2nd letter is 10 places before the 1st, and the 3rd letter is 2 places after the 2nd: O−10=E, E+2=G; R−10=H, H+2=J; W−10=M, M+2=O.
Z−10=P, P+2=R → **ZPR**.

33 **Answer: C**

The 3rd letter is midway between the 1st and 2nd: G(7), M(13) → J(10); M(13), Q(17) → O(15); D(4), H(8) → F(6). For K(11), P(16) the middle would be 13.5, so **KPM** is the odd one.

34 **Answer: B**

"Some stars are satellites" and "all satellites are meteors" give "some stars are meteors", but not "all stars are meteors", so I fails. No definite link exists between planets and meteors, so "some planets can be meteors" is a possibility and **II follows**.

35 **Answer: D**

243 = 34×7 + 5, so 243 days later is 5 days after Saturday: **Thursday**.

36 **Answer: B**

If P is truthful, Q likes cricket, so Q is lying, and R ("P is lying") is lying too — exactly one truth-teller. (If Q or R were truthful, two people would be telling the truth.) So the liars are **Q and R**.

37 **Answer: C**

At 8:40, hour hand $= 8times30 + 40times0.5 = 260^\circ$; minute hand $= 40times6 = 240^\circ$. Angle $=$ **20°**.

38 **Answer: D**

Angle $= |30H - 5.5M|$ with $H = 3$: $|90 - 5.5M| = 35$.

$90 - 5.5M = 35 \Rightarrow M = 10$; $5.5M - 90 = 35 \Rightarrow M = \frac{125}{5.5} = 22\frac{8}{11}$.

Both times are valid: **both a and b**.

39 **Answer: B**

P and W have 3 people between them and are not at the ends, with W to the right: P=3, W=7 is the only fit with the other clues. Then R=1, T=6 (4 between), U=2 (3 between U and T), V=4, and S=5, Q=8 (S third to the left of Q).

Row: R U P V S T W Q. RU, ST and WQ sit next to each other; **VT** does not.

40 **Answer: D**

Each step moves the next smallest word to the front side and the next largest number to the back side, alternating word/number at the front and number/word at the back.

Step 1: air 68 fly 24 38 pig star 56 eagle 91

Step 2: air 24 68 fly 38 pig 56 eagle star 91

Step 3: air 24 eagle fly 38 pig 56 68 star 91

Step 4: air 24 eagle 38 fly 56 pig 68 star 91 — final. **4 steps**.

Quantitative, Data Interpretation & Data Sufficiency

41 **Answer: B**

$0.75 \times MP = 1.20 \times CP \Rightarrow MP = 1.6\,CP$. Marked **60%** above cost.

42 **Answer: C**

In 30 minutes the local train covers 18 km. Relative speed $= 72 - 36 = 36$ km/h $= 10$ m/s. Time to catch up $= 18000/10 =$ **1800 s**.

43 **Answer: B**

Let stream speed be s; boat speed 3s. Upstream speed $= 2s = 20/4 = 5$, so $s = 2.5$.
Downstream speed $= 4s = 10$ km/h, so time $= 20/10 =$ **2 hours**.

44 **Answer: C**

The only even natural numbers below 10 are 2, 4, 6, 8. Product $= 384 = 2^7 \times 3$. Highest power of $2 = 2^7 =$ **128**.

45 **Answer: A**

$\left(k^2 + \frac{1}{k^2}\right)^2 = 47 + 2 = 49 \Rightarrow k^2 + \frac{1}{k^2} = 7.$
$\left(k + \frac{1}{k}\right)^2 = 9 \Rightarrow k + \frac{1}{k} = 3.$
$k^3 + \frac{1}{k^3} = 3^3 - 3 \times 3 =$ **18**.

46 **Answer: D**

Perfect squares from 1 to 100: 1, 4, ..., 100 — 10 numbers. Probability $= 10/100 =$ **1/10**.

47 **Answer: D**

Non-red balls $= 7$ of 12. $P = \frac{\binom{7}{2}}{\binom{12}{2}} = \frac{21}{66} = \mathbf{\frac{7}{22}}$.

48 **Answer: B**

Multiples of 5 (10 to 95): 18 numbers, sum $= 945$. Multiples of 7 (14 to 98): 13 numbers, sum $= 728$. Multiples of 35 counted twice: 35 + 70 $= 105$.
Total $= 945 + 728 - 105 =$ **1568**.

49 **Answer: B**

Minimum overlap of all three $= 70 + 75 + 80 - 2times100 =$ **25%**.

50 **Answer: B**

Volume of 5 spheres $= 5 \times \frac{4}{3}\pi(3)^3 = 180\pi$. Cylinder: $\pi(3)^2 h = 180\pi \Rightarrow h =$ **20 cm**.

51 **Answer: C**

$\frac{x+4-1}{3} = 3 \Rightarrow x = 6$; $\frac{1+6+y}{3} = 2 \Rightarrow y = -1$. $x + y =$ **5**.

52 **Answer: D**

Circumradius of an equilateral triangle $= \frac{a}{\sqrt{3}} = \frac{6}{\sqrt{3}} = \mathbf{2\sqrt{3}}$ cm.

53 **Answer: B**

Monday total $= 120 + 94 + 136 + 46 = 396$. Friday total $= 175 + 160 + 186 + 125 = 646$.
Increase =rac{250}{396} imes100approx **63%**.

54 **Answer: C**

Section B: 40% of 80 = 32 passed. With 20 girls, boys = 12. Ratio $= 20 : 12 =$ **5 : 3**.

55 **Answer: A**

Compare each pair's gap in the word with its gap in the alphabet: A–D (3 and 3), A–E (4 and 4), D–E (1 and 1). No other pair matches. Total **3** pairs.

56 **Answer: B**

Let son = s, father = 3s. $3s - 6 = 5(s-6) Rightarrow s = 12$, father $= 36$. Father's age at son's birth $= 36 - 12 =$ **24 years**.

57 **Answer: A**

$\frac{1}{\log_{a+1} 91} = \log_{91}(a+1)$. So $\log_{91}\big((a+1)(b+1)\big) = 1 \Rightarrow (a+1)(b+1) = 91 = 7 \times 13$.
Log bases must be positive and not 1, so $a+1 = 7,\ b+1 = 13$ (or vice-versa): $a + b =$ **18**.

58 **Answer: A**

$A + B = \frac{3}{40}$, $B + C = \frac{3}{80}$, $A + C = \frac{1}{16}$. Adding: $2(A+B+C) = \frac{6+3+5}{80} = \frac{14}{80}$, so $A + B + C = \frac{7}{80}$.
Time $=$ **80/7 days**.

59 **Answer: B**

Take 1 litre of each. Alcohol $= \frac{1}{4} + \frac{4}{9} = \frac{25}{36}$; water $= \frac{3}{4} + \frac{5}{9} = \frac{47}{36}$. Ratio **25 : 47**.

60 **Answer: D**

$\frac{5x-10}{6x} = \frac{2}{3} \Rightarrow 15x - 30 = 12x \Rightarrow x = 10$. Babu $= 6x =$ **60 kg**.