Thinkoraa
Think big, Achieve bigger

SNAP 2024

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 The following sentence has been split into four segments. Identify the segment that contains an inappropriately used preposition.
The hiker stumbled upon a beautiful waterfall / at the end of the trail / and marvelled on its majestic beauty / for several minutes.

A The hiker stumbled upon a beautiful waterfall
B at the end of the trail
C and marvelled on its majestic beauty
D for several minutes

2 Select the grammatically incorrect sentences
A) The thing the Time Traveller held in his hand was a glittering metallic framework, scarcely larger than a small clock, and very delicately made.
B) There was ivory in it, and some transparent crystalline substance.
C) And now I must be explicit, for this that follows — unless his explanation is to be accepted — an absolutely unaccountable thing.
D) Taking one of the small octagonal tables that were scattered about the room, and setting it in front of the fire, with two legs on the hearthrug.
E) On this table he placed the mechanism.

A AC
B BD
C BE
D CD

3 Select the option that represents the given sentence in the passive voice:
The reforms could have affected a large number of marginal workers.

A A large number of marginal workers were affected by the reforms.
B A large number of marginal workers could have been affected by the reforms.
C A large number of marginal workers could have affected the reforms.
D A large number of marginal workers can be affected by the reforms.

Directions
The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

4 Pakistan has approached the United Nations after India __ to revoke the Indus water treaty.

A told
B call
C threatened
D talked

Directions
Choose the option that would fit both the given blanks.

5 The jury failed to grasp the full _____ of her testimony.
You have to pay duties on goods that you _____ into the country.

A extent
B meaning
C import
D bring

6 Identify the figure of speech in the below-given sentence.
I am feeling awfully good today.

A Oxymoron
B Synecdoche
C Anti-Climax
D Euphemism

7 Select the antonym of
Diffidence

A Timorousness
B Meekness
C Timidity
D Confidence

8 Select the option which best captures the meaning of the compound word given below:
Thoroughfare

A A festivity or exhibition
B A valuable deal
C A main road
D A fight

9 Identify the correct phrasal verb from the list given below in the given sentence:
The team continued to slack off on their responsibilities, causing the manager to _____ on them.

A cut into
B look up
C go off
D pick out

10 Select the word with the correct spelling.

A idiosyncrasy
B posession
C wierd
D jist

11 Identify the origin/source of the given word below:
Check

A German
B Persian
C Italian
D Polish

12 Which of the following statements are grammatically correct?
A) Looking around the class, only a few hands were raised in response
B) I was under the impression that the firm was being managed by the engineer from China
C) Being the first born, she has always had a lot of responsibility on her shoulders

A A only
B C only
C A and B only
D B and C only

13 Choose the sentence in which the word 'fall is incorrectly used.
FALL

A The team fell apart as soon as differences started cropping up
B The boy stumbled on the brick and fell down on the road
C After the disastrous event, Sam had a big fall out with his family
D His hair started falling off as soon as he turned fifty

14 The MBA (1) is hardly a prerequisite for success, but it (2) certainly helps (3), and it has been getting more important (4) in recent years. Most (5) MBA programs equip their graduates to understand how (6) to deal with many of the important questions that their organizations will need to tackle (7) over time, and (8) that they will face in their careers. The above italicized numbered words will be correctly represented by the following parts of speech:

A 1-Noun, 2-Pronoun, 3-Adverb, 4-Adjective, 5-Adjectiye, 8-Conjunction
B 1-Noun, 3-Adjective, 4-Adjective, 6-Adverb, 7-Adverb, 8-Article
C 1-Noun, 2-Pronoun, 4-Adjective, 7-Adverb, 8-Conjunction
D 2-Pronoun, 3-Verb, 4-Adjective, 7-Verb, 8-Conjunction

15 Four sentences are given below. These sentences, when rearranged in proper order, form a logical and meaningful paragraph. Rearrange the sentences and choose the correct order as the answer.
A. One of the most prominent and romantic characters in the history of the Oriental world is Cyrus the Great.
B. The territory over which Cyrus bore rule extended nearly three thousand miles from east to west, and fifteen hundred miles from north to south.
C. He was the founder and organizer of the greatest empire the world has seen.
D. Even with such a big empire, it is a matter of regret that so little is really known of the Persian hero, both in the matter of events and also of exact dates.

A ACBD
B CABD
C ABDC
D CBAD

Analytical & Logical Reasoning

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.

16 4, 18, 48, 100, 180, 295

A 18
B 295
C 180
D 48

Directions

What should come in place of question mark(?) in the following number series.

17 5, 8, 10, 16, 20, 32, ?

A 38
B 36
C 44
D 40

18 In each of the following question select the related numbers/words/letters from the given options. 78 : 225 : : 89 : ?

A 305
B 289
C 324
D 296

Directions

Directions for the following five questions: In each question below are given two or three statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts and then, decide which of the given conclusions logically follow(s) from the given statements, disregarding commonly known facts.

19 Statements:
1) Some letters are pins.
2) Some keys are eyes.
3) All letters are keys.
Conclusions:
1) Some pins are not letters.
2) All pins are letters.

A Only 1 follows
B Only 2 follows
C Either 1 or 2 follows
D Both 1 and 2 follows

Directions

Below are given three statements. Assume these statements are true irrespective of whether they are true in real life. Each question has two conclusions.
Statements:
Some pins are boards.
Some boards are white.
No pin is a box.

20 Conclusion I: Some boxes are not boards
Conclusion II: No pins are white

A If only conclusion I follows
B If only conclusion II follows
C If either conclusion I or II follows
D If neither conclusion I or II follows

21 Select the odd word/letters/number/number pair from the given alternatives.

A 1
B 243
C 256
D 32

Questions 22 – 24

An organization decides to distribute seven types of laptops on week days starting from Monday to Sunday. The seven laptops to be distributed are of Sony, Acer, Asus, Dell, HP, Lenovo and HCL but not necessarily in the same order. Dell laptops are to be given on Saturday. Lenovo laptops are given just after Asus laptops and Asus laptops are not given on Wednesday. HP laptops are given three days after the distribution of Asus laptops. Acer laptops are distributed just after Sony laptop. HCL laptops are distributed before Acer laptops. HP laptops are distributed after Dell laptops.

22 If HCL is related with Tuesday, Sony is related with Wednesday, similarly Lenovo is related with which day?

A Thursday
B Friday
C Saturday
D Sunday

23 On which day of the week Lenovo laptops are distributed?

A Tuesday
B Wednesday
C Friday
D Sunday

24 Which laptops are distributed just between the days when Lenovo and HP are distributed?

A Asus
B Dell
C Sony
D HCL

25 If 'DANGER' is written as 'RDEAGN' in a certain code, then how would 'PARALLEL' be written in that code?

A LAPAELLR
B LPALEALR
C LPEALRLA
D LPLEARAL

26 Rohit is the son of Rajesh's father's brother's. How is Rohit related to Rajesh?

A Cousin
B Son-in-law
C Nephew
D Grandfather

27 Pointing to a photograph, Mukesh said, 'This man's father is the father in law of my sister's husband's mother in law. How is the man in the photograph related to Mukesh?

A Father
B Grandfather
C Brother
D Uncle

28 At what time, between 4 and 5 o'clock, will the minute and hour hands be together?

A 24 and 5/7 minutes past 4 o'clock.
B 26 and 9/11 minutes past 4 o'clock.
C 21 and 9/11 minutes past 4 o'clock.
D 20 and 7/9 minutes past 4 o'clock.

29 If 1st July, 1977 was a Friday then 1st July 1970 was a

A Wednesday
B Thursday
C Sunday
D Tuesday

30 A watch gains 7 seconds in 4 minutes and is correctly set at 10:00 AM. What time will it show at 11:00 PM on the same day?

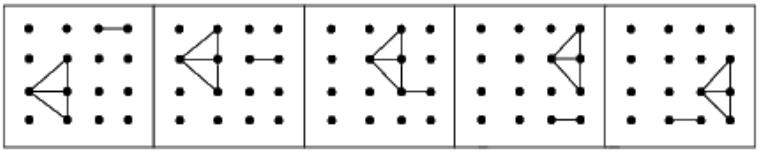
A 11:21:05 PM
B 11:22:45 PM
C 11:21:25 PM
D 11:21:55 PM

Directions

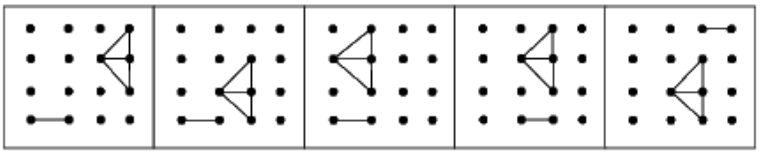
In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued.

31

Problem figures



Answer figures



(1) (2) (3) (4) (5)

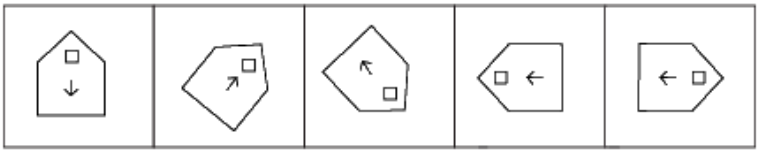
A (1)
B (2)
C (3)
D (4)

Directions

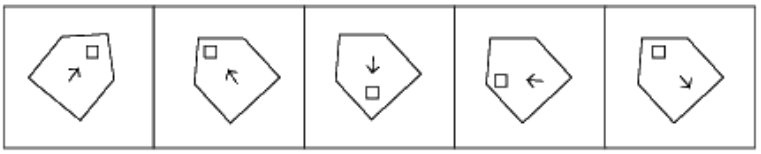
In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued.

32

Problem figures



Answer figures



(1) (2) (3) (4) (5)

A (1)
B (2)
C (3)
D (4)

33 If $ is an operator such that 2 $ 5 = 32, what is the value of $\frac{4\,\$\,3}{2\,\$\,5}$?

A 0
B 1
C 2
D 3

Directions

Directions for the following five questions: Study the following information carefully and answer the given questions:
In a certain code language
'Make your trip interesting' is written as 'de la pa ni'
'your trip be customized' is written as 'ha ni ta de'
'customized trip always good 'is written as ' ta fa ka ni'
And 'good make me happy' is written as 'ka ro pa na'

34 Which of the following represents 'good trip always interesting'?

A de ka ni la
B fa ni ka ro
C na fa de ha
D ni fa la ka

Directions

A statement is given followed by two assumptions numbered I and II. Consider the statement to be true even if it is at variance with commonly known facts. You have to decide which of the assumptions, if any, follow from the given statement.

35 Statement: After the Reserve Bank of India's adoption of a flexible inflation-targeting framework from August 2016, the rules of monetary policy have changed in India, with the central bank becoming even more focused on anchoring inflation and inflation expectations than ever before.
Assumptions:
I. There was a perceived need or rationale for the RBI to shift its monetary policy framework in 2016, suggesting that the previous rules may have been inadequate.
II. Monetary policy can be adjusted and adapted to changing economic conditions and goals, such as inflation targeting.

A Only I
B Only II
C Both I and II
D Either I or II

36 Effect: At least twenty school children were seriously injured while going for a school picnic during the weekend.
Which of the following can be a probable cause of the above effect?

A The teacher accompanying the school children fell ill during the journey.
B The bus in which the children were travelling met with an accident while taking turn on the main highway.
C The driver of the bus in which the children were travelling did not report after the break at the halting place on their journey.
D The school authority banned all school picnics for the next six months with immediate effect

Directions

In the given questions below, few statements are given and are followed by two courses of action numbered I and II. On the basis of the information given, you have to assume everything in the statement to be true, and then decide which of the suggested courses of action logically follow(s) for pursuing.

37 Statement : A large number of people from city X are admitted in hospitals and are diagnosed to be suffering from malaria.
Courses of action :
I. The municipal authority of the city X should take immediate steps to carry out extensive fumigation. II. City X should be vacated immediately.

A Only I
B Either I or II
C Neither I nor II
D Both I and II

Directions

In the question below, a statement is given followed by two arguments. Choose the most appropriate option.

38 Statement: Companies serious about more harmonious relationships with the contractual workforce should offer them a pathway to up-skill and be employed as permanent workers over time.
Argument:
I) Building a good relationship with the contractual workforce will help both the companies and the employees to progress.
II) The policy of offering contractual workers permanent status is likely to face opposition from existing permanent staff.

A I weakens the statement, whereas II strengthens it.

B Both I and II weaken the statement.

C I strengthens the statement, whereas II weakens it.

D Both I and II strengthen the statement.

39 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. The country has seen no major breakthrough in medical research in the past few years.
II. The government, two years back, had banned patents and royalties on medicines.

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.

Directions

The question given below consists of some statements. You need to decide which of the statements is/are the cause of the situation or effect of the situation and accordingly choose your answer from the alternative given below each question.

40 Statements :
I. A new covid variant named 'Omicron' is spreading rapidly in the country. Lots of new cases are being reported in a short period of time.
II. The central government is in a dilemma on whether to proceed with a lockdown or not.

A Statement I and Statement II are effects of some common cause

B Statement I is the cause and Statement II is its effect

C Statement I and Statement II are independent causes

D Statement II is the cause and Statement I is its effect

Quantitative, Data Interpretation & Data Sufficiency

41 If N = a×b where a, b are prime numbers, then what are the number of factors of N^3/b^2 ?

A 4 **B** 6

C 8 **D** 9

42 X is a single digit number such that the LCM of the two digit number X6 and 54 is 108. What is the value of X?

A 3 **B** 4

C 2 **D** 1

43 If one of the roots of $ax^2 + bx + c = 0$ is half of the other root, then which of the following conditions must be true?

A $b^2 - a^2 = 9ac$ **B** $4b^2 = 9ac$

C $b^2 = 18ac$ **D** $2b^2 = 9ac$

44 In a two-digit number, the difference between the digits is 4, and 10 times the number is equal to 14 times the sum of the number obtained by adding the digits of the original and the number formed by reversing the digits. Find the number.

A 84 **B** 26

C 62 **D** 51

45 A large cube of volume 64 cubic metre is broken down into small cubes of volume 8 cubic metre each. The percentage increase in the surface area is

A 50% **B** 100%

C 200% **D** 75%

46 A, B and C are employed to do a piece of work for Rs.700. A and B are supposed to finish $\frac{17}{28}$th of work together. Then, amount that is paid to C is?

A Rs.250 **B** Rs.275

C Rs.150 **D** Rs.200

47 A tank is fitted with 3 pipes A, B and C. A takes twice as much time to fill the tank as B takes to empty the tank. B takes twice as much time to empty the tank as C takes to fill the tank. If it is known that C takes 10 hours to fill the tank, in how much time three quarters of the tank will be filled provided that all the taps were opened simultaneously?

A 7.5 hours **B** 10 hours

C 5 hours **D** 15 hours

48 Sam and Ram run a 100 m race. Sam beats Ram by 20 m. Sam gives Ram a head start such that both Ram and Sam will be meeting each other at the 75 m mark. What will be the result of the race?

A Ram loses by 5m.
B Ram loses by 10 m.
C Ram loses by 15 m.
D The race ends in a dead heat.

49 If cosec(30°) + cot(60°) = y. What is the value of y?

A $\frac{2\sqrt{3}+1}{\sqrt{3}}$
B $\frac{\sqrt{3}+1}{\sqrt{3}}$
C $\frac{3\sqrt{2}+1}{\sqrt{2}}$
D $\frac{2\sqrt{2}+1}{\sqrt{2}}$

50 If $a^2 = b^3 = c^4$, $b^2 = d^5$, then find the value of $\log_a b \times \log_c d$.

A $\frac{8}{45}$
B $\frac{4}{15}$
C $\frac{8}{15}$
D $\frac{16}{45}$

51 Krishna's piggy bank contains coins in the denominations of Rs. 1, Rs. 2, Rs. 5 in the ratio of 3: 4: 5 respectively. If the total value of all the coins combined is Rs.1296, what is the number of Rs. 2 coins in the piggy bank?

A 108
B 432
C 216
D 144

52 A person travels one fourth of his distance with 20 km/hr,half of the distance with 40 km/hr and the rest of the distance with 10 km/hr.What is his average speed throughout the journey ?

A 20 km/hr
B 25 km/hr
C 30 km/hr
D 40 km/hr

53 An arithmetic progression is such that the 12th term is 42. What should the common difference be, such that the product of the first, second and 33rd terms is maximum?

A 3/2
B 2
C 0
D -2

54 In a carom tournament in school all the kids played against each other exactly once. The number of games involving a girl and a boy is 150 and the number of games involving two girls is 60 less than the number of games involving two boys, find the total strength of the school?

A 23
B 24
C 25
D 35

55 A bag contains 4 red balls, 5 green balls and 6 yellow balls. Two balls are drawn at random from this bag. What is the probability that exactly one of the balls is yellow in colour?

A $\frac{21}{54}$
B $\frac{18}{35}$
C $\frac{5}{9}$
D $\frac{2}{5}$

56 A reduction of 20% in the price of rice enables a customer to purchase 4kg more for Rs.120. Then find original price of rice per kg

A Rs.20
B Rs.7.50
C Rs.8.25
D Rs.12

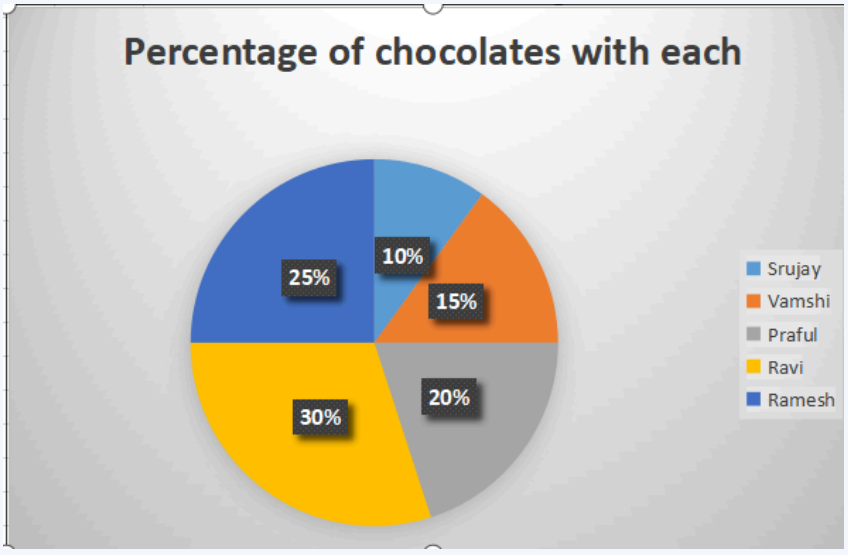
57 The time required for a sum of money to become 31 times of itself at 15% Simple Interest per annum is?

A 150 years
B 200 years
C 205 years
D 175 years

58 A trader mixes 20 kg of rice at Rs.15 per kg with 25 kg of rice at Rs.20 per kg and sells the mixture at Rs.24 per kg. Then find his profit/loss percent.

A 33.33% profit
B 35% loss
C 25% loss
D 35% profit

Questions 59 – 60



Answer the following using Pie chart and the total chocolates are 350.

59 What is the difference between the person receiving highest and lowest number of chocolates ?

A 105
B 80
C 90
D 70

60 What is the average number of chocolates received by Ravi,Praful and Srujay ?

A 80
B 70
C 50
D 60

Answer Key

General English: Reading Comprehension, Verbal Reasoning, Verbal Ability

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

Analytical & Logical Reasoning

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

Quantitative, Data Interpretation & Data Sufficiency

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

Solutions

General English: Reading Comprehension, Verbal Reasoning, Verbal Ability

1 **Answer: C**

We marvel **at** something, not "marvel on". The error is in part C.

2 **Answer: D**

C lacks a verb — it should read "for this that follows *is* ... an absolutely unaccountable thing". D is a fragment: two participle phrases with no main verb. A, B and E are complete sentences. Answer: **C and D**.

3 **Answer: B**

The modal perfect "could have affected" becomes "could have been affected" in the passive: **A large number of marginal workers could have been affected by the reforms.**

4 **Answer: C**

"After India ___ to revoke" needs a verb that takes "to + verb" and suits the tone: India **threatened** to revoke the treaty.

5 **Answer: C**

"Import" as a noun means significance (the full import of her testimony); as a verb it means to bring goods into a country. Only **import** fits both.

6 **Answer: A**

"Awfully good" puts two contradictory words together — an **oxymoron**.

7 **Answer: D**

Diffidence means shyness or lack of self-belief; its opposite is **confidence**.

8 **Answer: C**

A thoroughfare is a **main road** or public street.

9 **Answer: C**

"Go off on someone" means to scold them angrily — what a manager does when the team keeps slacking: **go off**.

10 **Answer: A**

Correct: **idiosyncrasy**. The others should be possession, weird, gist.

11 **Answer: B**

"Check" comes from the Persian *shāh* (king), through the game of chess — **Persian**.

12 **Answer: D**

A is a dangling modifier — the hands were not "looking around the class". B and C are correct. Answer: **B and C only**.

13 **Answer: D**

Hair "falls **out**", not "falls off". So D uses "fall" incorrectly.

14 **Answer: D**

it — pronoun (2); helps — verb (3); important — adjective (4); tackle — verb (7); and — conjunction (8). Only option **D** labels every word correctly.

15 **Answer: A**

A introduces Cyrus. C ("He was the founder...") follows, B describes the size of his empire, and D ("Even with such a big empire...") concludes. Order: **ACBD**.

Analytical & Logical Reasoning

16 **Answer: B**

Terms follow $n(n+1)^2$: 1×4 = 4, 2×9 = 18, 3×16 = 48, 4×25 = 100, 5×36 = 180, 6×49 = 294. So **295** is wrong.

17 **Answer: D**

Two interleaved series, each doubling: 5, 10, 20, **40** and 8, 16, 32.

18 **Answer: B**

78 → (7+8)² = 225. So 89 → (8+9)² = **289**.

19 **Answer: C**

Some pins are letters. So either all pins are letters or some are not — one of the two must be true. They form a complementary pair: **either 1 or 2 follows**.

20 **Answer: D**

No relation is given between boxes and boards, or between pins and white things. Neither conclusion is certain: **neither follows**.

21 **Answer: C**

1 = 1^5, 32 = 2^5, 243 = 3^5 are fifth powers; 256 = 2^8 is not. Odd one: **256**.

22 **Answer: C**

Arrangement: Dell on Saturday, HP after Dell → Sunday. HP is 3 days after Asus → Asus on Thursday, Lenovo on Friday. Mon–Wed: HCL, Sony, Acer (HCL before Acer, Sony just before Acer).
Each laptop maps to the next day: HCL (Mon) → Tuesday, Sony (Tue) → Wednesday, so Lenovo (Fri) → **Saturday**.

23 **Answer: C**

From the arrangement (Mon HCL, Tue Sony, Wed Acer, Thu Asus, Fri Lenovo, Sat Dell, Sun HP), Lenovo is on **Friday**.

24 **Answer: B**

Lenovo is on Friday and HP on Sunday; between them is Saturday: **Dell**.

25 **Answer: C**

DANGER → RDEAGN takes letters in the order last, first, second-last, second, ... (6,1,5,2,4,3).
PARALLEL (8 letters): 8,1,7,2,6,3,5,4 → L P E A L R L A = **LPEALRLA**.

26 **Answer: A**

Rajesh's father's brother is Rajesh's uncle; the uncle's son is Rajesh's **cousin**.

27 **Answer: A**

My sister's husband's mother-in-law is my mother. Her father-in-law is my (paternal) grandfather. The man's father is my grandfather, so the man is my **father**.

28 **Answer: C**

At 4:00 the hands are 120° apart. The minute hand gains 5.5° per minute: $\frac{120}{5.5} = 21\frac{9}{11}$ minutes. They coincide at **21 9/11 minutes past 4**.

29 **Answer: A**

From 1 July 1970 to 1 July 1977 there are 7 years including 2 leap days (1972, 1976): 7 + 2 = 9 odd days = 2 odd days. Going back 2 days from Friday gives **Wednesday**.

30 **Answer: B**

From 10 AM to 11 PM is 780 minutes. Gain =780 imesrac74=1365 s $= 22$ min 45 s. The watch shows **11:22:45 PM**.

31 **Answer: B**

Track the two elements separately: the triangle-shaped group of lines and the single line segment each move one step along a fixed path in every figure. Continuing both movements one more step gives answer figure **(2)**.

32 **Answer: B**

The pentagon turns 45° in the same direction each time, and the small square and the arrow move with it while keeping their relative positions. Continuing the rotation one more step gives answer figure **(2)**.

33 **Answer: C**

$2\,\$\,5 = 32 = 2^5$, so $a\,\$\,b = a^b$. Then $4\,\$\,3 = 64$ and $\frac{64}{32} = \mathbf{2}$.

34 **Answer: D**

Common words fix the codes: trip = ni, your = de, customized = ta, good = ka, make = pa, interesting = la, always = fa.
"good trip always interesting" = ka ni fa la, i.e. option **D** (ni fa la ka).

35 **Answer: C**

Changing a framework implies the old one was seen as inadequate (I), and it also implies policy can be adapted to new goals (II). **Both I and II** are implicit.

36 **Answer: B**

Serious injuries to many children point to a physical event; a bus accident on the highway (**B**) is the only option that could directly cause it.

37 **Answer: A**

Fumigation directly tackles mosquito breeding and so the malaria outbreak (I). Vacating a whole city is impractical (II). **Only I** follows.

38 **Answer: C**

I supports offering a pathway to permanent jobs (better relations help both sides). II points to a practical obstacle — opposition from permanent staff — which weakens it. **I strengthens, II weakens.**

39 **Answer: B**

Banning patents and royalties (II) removes the financial incentive for research, which can lead to no breakthroughs (I). **II is the cause, I is the effect.**

40 **Answer: B**

The rapid spread of a new variant (I) is what puts the government in a dilemma about a lockdown (II). **I is the cause, II is the effect.**

Quantitative, Data Interpretation & Data Sufficiency

41 **Answer: C**

$N^3/b^2 = a^3b^3/b^2 = a^3b$. Number of factors $= (3+1)(1+1) =$ **8**.

42 **Answer: A**

X6 must divide 108 and be a two-digit number ending in 6: 36 works, since LCM(36, 54) = 108. So X = **3**.

43 **Answer: D**

Let the roots be α and 2α. Sum $3\alpha = -\frac{b}{a}$, product $2\alpha^2 = \frac{c}{a}$.

$\alpha = -\frac{b}{3a} \Rightarrow 2 \cdot \frac{b^2}{9a^2} = \frac{c}{a} \Rightarrow \mathbf{2b^2 = 9ac}$.

44 **Answer: A**

Check 84: digits differ by 4. Sum of digits 12 + reversed number 48 = 60; 14 × 60 = 840 = 10 × 84 ✓. Answer: **84**.

45 **Answer: B**

Big cube: side 4 m, surface area 96 m². Small cubes: side 2 m, 8 of them, each 24 m², total 192 m². Increase = **100%**.

46 **Answer: B**

C does $1 - \frac{17}{28} = \frac{11}{28}$ of the work, so C gets $700 \times \frac{11}{28} =$ **Rs. 275**.

47 **Answer: B**

C fills in 10 h, B empties in 20 h, A fills in 40 h.

Net rate $= \frac{1}{10} + \frac{1}{40} - \frac{1}{20} = \frac{3}{40}$ per hour. Time for $\frac{3}{4}$ tank $= \frac{3}{4} \div \frac{3}{40} =$ **10 hours**.

48 **Answer: A**

Speed ratio Sam : Ram = 100 : 80 = 5 : 4. To meet at 75 m, Ram runs 60 m while Sam runs 75 m, so Ram gets a 15 m head start.

When Sam finishes 100 m, Ram has run 80 m and is at 95 m. **Ram loses by 5 m.**

49 **Answer: A**

$\operatorname{cosec} 30^\circ = 2$, $\cot 60^\circ = \frac{1}{\sqrt{3}}$. $y = 2 + \frac{1}{\sqrt{3}} = \frac{\mathbf{2\sqrt{3}+1}}{\sqrt{\mathbf{3}}}$.

50 **Answer: D**

Write everything in terms of b: $a = b^{3/2}$, $c = b^{3/4}$, $d = b^{2/5}$.

$\log_a b = \frac{2}{3}$, $\log_c d = \frac{2/5}{3/4} = \frac{8}{15}$. Product $= \frac{\mathbf{16}}{\mathbf{45}}$.

51 **Answer: D**

One "set" of 3 : 4 : 5 coins is worth 3 + 8 + 25 = Rs. 36. Number of sets $= 1296/36 = 36$. Rs. 2 coins $= 4 imes 36 =$ **144**.

52 **Answer: A**

Take distance 4 km. Time =rac1{20}+rac2{40}+rac1{10}=0.2 h. Average speed $= 4/0.2 =$ **20 km/hr**.

53 **Answer: C**

With $a_{12} = 42$: $a_1 = 42 - 11d$, $a_2 = 42 - 10d$, $a_{33} = 42 + 21d$.

The log-derivative of the product at $d = 0$ is $\frac{-11 - 10 + 21}{42} = 0$, so $d = 0$ is the turning point.

Checking the options: $d = 0$ gives $42^3 = 74088$, larger than for $\frac{3}{2}$, 2 or −2. Answer: **0**.

54 **Answer: C**

Let boys = B, girls = G. $BG = 150$ and $\binom{B}{2} - \binom{G}{2} = 60$.

$B = 15,\ G = 10$ works: $105 - 45 = 60$. Total $=$ **25**.

55 **Answer: B**

$P = \frac{6 \times 9}{\binom{15}{2}} = \frac{54}{105} = \mathbf{\frac{18}{35}}$.

56 **Answer: B**

20% of Rs.120 = Rs.24 now buys 4 kg extra, so the reduced price is Rs.6/kg. Original price $= 6/0.8 =$ **Rs. 7.50**.

57 **Answer: B**

Interest needed = 30 × principal. 30P=rac{P imes15 imes t}{100}Rightarrow t= **200 years**.

58 **Answer: D**

Cost $= 20 imes 15 + 25 imes 20 = 800$. Selling price $= 45 imes 24 = 1080$. Profit =rac{280}{800}= **35% profit**.

59 **Answer: D**

Highest: Ravi 30% of 350 = 105. Lowest: Srujay 10% = 35. Difference = **70**.

60 **Answer: B**

Ravi 105, Praful 70, Srujay 35. Average $= 210/3 =$ **70**.