FACE Prep

This document details the Slot Analysis as well as Answers to Questions that students recollected post their TCS NQT(Slot 2) on 25ᵗʰ October 2020

Disclaimer:
1. The questions showcased in this document have been recreated through memory, thanks to test-takers who recalled the questions post their test.
2. The question repetition between slots is very miniscule.
3. Please use this document as an indicative preparation tool, rather than an exact replica of questions that appeared or can appear in the TCS NQT.

Contents

TCS NQT Online Test Pattern

The pattern that was followed for the TCS NQT was as follows.

Section Order	Section	# Qs	Duration (minutes)
1	Numerical Ability	26	40
2	Verbal Ability	24	30
3	Reasoning Ability	30	50
4	Programming Logic	10	15
5	Coding	2	45

Syllabus

The following was the syllabus which was tested in the slot.

Numerical ability:
- Data Interpretation
- Statistics
- Time and Work
- Mensuration
- Number System
  - Divisibility rule
  - LCM & HCF
- Time, Speed and Distance
- Ratio and Proportions
- Linear Equations
- Simple Interest and Compound Interest
- Percentages
- Profit and Loss
- Mixtures and Alligations
- Simplification – Fractions and BODMAS
- Surds and Indices

Verbal Ability:
- Reading Comprehension
- Passage Completion - Missing words (Cloze passage)
- Passage Completion - Missing sentences
- Error spotting
  - Prepositions
- Sentence Completion
  - Phrasal verbs
  - Prepositions
  - Pronouns
- Knowledge of Formal/Informal language
- Sentence improvement
- Parajumbles

Reasoning Ability:
- Attention to detail
- Unboxing a cube
- Data Arrangements
- Cuts and unfolds
- Venn diagrams

- Blood relations
- Data Interpretation
- Visual reasoning
- Data sufficiency
- Syllogisms
- Statements and Assumptions
- Odd one out
- Rule based decision making
- Decision tables

Programming MCQ's:

- Operators
- Looping statements
- Control statements
- Arrays
- Strings
- Functions
- Object Oriented Programming (OOPS)
- Standard Template Libraries (STL)
- Object Modeling
- Compiler Design
- Threading
- Data Structures: Linked List, Stack, Queue, Trees and Graphs
- Recursion
- Pseudocoding
- Algorithms
- Basic Software Development Cycle
- Collections

Coding:

- Fundamentals of Programming - Conditional and looping statements, Arrays, Strings.

Slot Analysis

- The assessment platform used was TCS iON.
- **A few questions in Numerical Ability did not have the correct answer in the options.** In this case, please take the liberty to mark any option.
- As already revealed during the DRC and by FACE Prep, both intra-sectional and inter-sectional navigation were not possible.
- Every question was mandatory, and only upon completing a question would you be able to go to the next question.

- Revisiting of answers already submitted is not possible.
- There was no negative marking.
- All test-takers within the slot got the same questions.
- The test was **NOT Adaptive**, for a lot of other websites incorrectly communicated this to students. FACE Prep accurately pointed out that the test was not adaptive – just that the test had no intra-sectional and inter-sectional navigation.
- There was **100% repetition of topics, as accurately predicted by FACE Prep**.
- There was the presence of an on-screen calculator, which candidates could use.
- As clearly pointed out in the test instructions by TCS, if one had to do rough work, it must be visible clearly in the webcam that one is doing rough work and not performing any malpractice. This has also been **accurately pointed out by FACE Prep** earlier.
- There were two Fill in the Blanks type questions in the programming MCQs section.
- As opposed to what was predicted earlier, **an error log is generated in the compiler** in the event of Compilation error. It mentions what error and where the error is(line number)
- Most students have been complaining about the Coding Compiler not working properly on Python. What doesn't work is the tab key for indentation. Instead, please use the space bar. Several students have been able to use this tactic to compile successfully.

Questions with Answers:

Numerical Ability

Q1. The monthly expenses in a boarding house are partly fixed and partly a multiple of the number of boarders. It is Rs. 78660 and Rs 94884 when the numbers of borders are 62 and 75 respectively. What is the monthly expense (in Rs) when the number of borders is 80?

    A. 101534
    B. 101124
    C. 100804
    D. 100926

Answer: Option B

Q2. What is the sum (in Rs) which when divided among A, B, C, D in the proportion 2:3:5:8 provides Rs 8420 less to D than what it provides to him when the proportion is
$\frac{1}{2}:\frac{1}{3}:\frac{1}{5}:\frac{1}{8}$

    A. 25020
    B. 12510
    C. 37530
    D. 17540

Answer: Option A

Q3. A number is divided by 1001 (=7*11*13) and it was divided in succession by 7,11 and 13, to obtain the remainders 4,6 and 12 respectively. What would have been the remainder if the number was divided directly by 1001?

    A. 828
    B. 982
    C. 764
    D. 970

Answer: Option D

Q4. At an election between two candidates A and B, all the eligible candidates had voted, but 4% of votes were not valid. A, the winner got support from 52% of the voters and defeated B by 600 votes. What was the total number of votes?

    A. 7500
    B. 8000
    C. 6250
    D. 6000

Answer: Option A

Q5. 72 men are engaged for a task with a timeline given beforehand. It is found that in $38\frac{6}{13}$% of the given time 36% of the task is accomplished. How many additional men are to be engaged so that the timeline can be met?

    A. 12
    B. 8
    C. 6
    D. 9

Answer: Option B

Q6. The average speed of X always turns out to be 150% that of Y, who can travel 20 km in 3 hr 36 min. If X sets on a journey of 150 km and stops for half an hour each at two stages in between, what will be the total time (in hours) he had been on move?

    A. 15
    B. 17
    C. 13.5
    D. 16.5

All the answer options are wrong.

Correct Answer: 18

Q7. The radius of a solid sphere and a solid right circular cone are equal and the height of the cone is equal to the diameter of its base. They are melted and the combined matter is recast into a solid hemisphere. What is the ratio of the radius of the hemisphere to that of the circle?

   A. $\sqrt[3]{4}$
   B. $\sqrt[3]{3}$
   C. $\sqrt[3]{6}$
   D. $\sqrt[3]{2}$

Answer: Option D

Q8. A sum invested in a scheme where the interest gets compounded quarterly grows to Rs.140000 and Rs.157304 respectively in 15 and 21 months respectively. What is the interest per annum?

   A. 6
   B. 12
   C. 24
   D. 15

Answer: Option B

Q9. The average rainfall (in mm) in a city during the months, March to October, of a year calculated over a period of ten years is presented in a tabular form below.

Months	Mar	Apr	May	June	July	Aug	Sept	Oct
Rainfall	44	56	154	312	333	350	288	147

What is the ratio of the average rainfall for the months having three-figure data to that of the same for the rest?

   A. 66 : 25
   B. 264 : 25
   C. 132 : 25
   D. 99 : 50

Answer: Option C

Q10. A person gains Rs.357 on selling a tablet at 13% gain and a chair at 6% gain. If he sells the table at 15% gain and the chair 8% loss, he gains Rs.203. What is the actual cost of the chair?

    A. 2200
    B. 2100
    C. 2400
    D. 1400

Answer: Option D

Q11. What is the simplified value of:
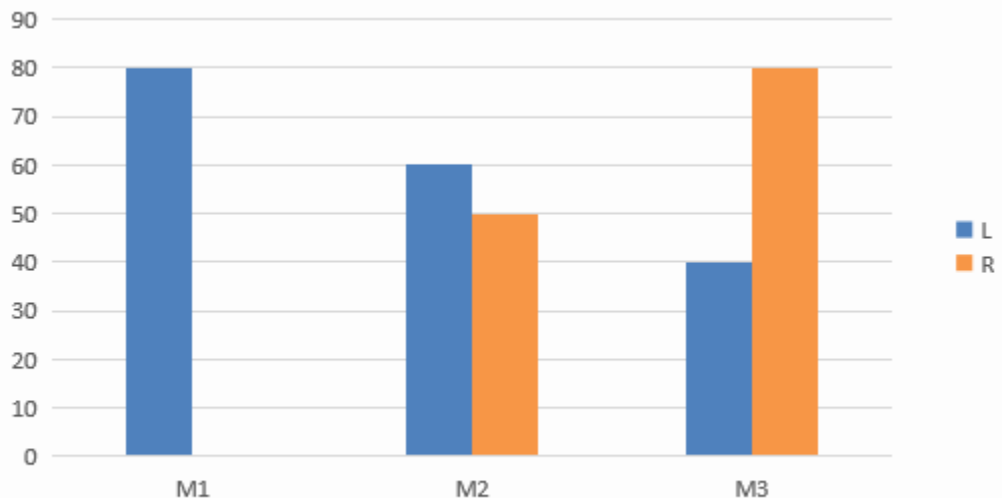
$$\frac{1}{18}\{7\frac{1}{3} - 2\frac{1}{12} \ X \ \frac{6}{25} \ / \ \frac{1}{4} \ of \ (2\frac{2}{5} - \frac{3}{10} \ / \ \frac{1}{3})\}?$$

    A. 2/9
    B. 1/6
    C. 2/3
    D. ⅓

Answer: Option D

Q12. A rural library created lending facilities for only 100 books and kept the lending desk open only on Mondays, which were the days on which it is also took stock of the books. The position of the number of the books lent (L) and returned(R) on the first three Mondays (M1,M2,M3) of

operation in the lending desk is presented through a bar graph below.

How many of these 100 books remained outside the library after stock checking on the third monday?

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

Answer: Option B

Q13. In a factory, the coefficients of variation of the wages of urban and rural workers are 52% and 66% respectively and their standard deviations are 2600 and 2640 respectively. If 60% of the workers are urban, what is the overall average wage (in Rs) of the workers?

    A. 4450
    B. 4350
    C. 4600
    D. 4200

Answer: Option C

Q14. If two numbers are respectively, 25% and 40% less than the third number, what is the ratio of these two numbers?

    A. 4:5
    B. 5:4
    C. 3:5

D. 3:4

Answer: Option B

Q15. X working alone takes 75 days more than Y to do a work, and working together they complete it in 20 days. If a certain sum has been earmarked as wages for his work, in what ratio should it get distributed among X and Y?

    A. 2 : 5
    B. 2 : 3
    C. 1 : 5
    D. 1 : 4

Answer: Option D

Q16. A room measuring 6m 65cm long and 4m 55cm broad is to be paved with the least number of squared tiles. Then the least number of squared tiles required to cover the floor is

    A. 247
    B. 210
    C. 257
    D. 187

Answer: Option A

Q17. If x $=\dfrac{\sqrt{12+\sqrt{140}}}{\sqrt{12-\sqrt{140}}}$, what is the value of $\left(x+\dfrac{1}{x}\right)^2 - \left(x-\dfrac{1}{x}\right)^2$?

    A. 4
    B. 1
    C. 6
    D. 2

Answer: Option A

Q18. The median of the frequency distribution table is _____

Class	50-54	55-59	60-64	65-69	70-74	75-79
Frequency	12	26	30	8	13	11

A. 61.5
B. 61
C. 62.5
D. 62

Answer: Option D

Q19. What is the simplified value of : $\dfrac{0.397}{1.2 \times 1.2 + 2 \times 0.66 + 1.1 \times 1.1}$?

A. 0.001
B. 1
C. 0.01
D. 0.1

Answer: Option D

Q20. Raju lends Rs. 3000 to Bharath and a certain sum to Charan at the same time at 6% per annum simple interest. If after 5 years, Raju altogether receives Rs. 1650 as the interest from Bharath and Charan, what is the sum lent to Charan?

A. Rs. 2500
B. Rs. 2750
C. Rs. 3250
D. Rs. 3300

Answer: Option A

Q21. P,Q,R are three cups having capacities of 120,180 and 200 cc respectively which are completely filled with tea of three different varieties. They are all mixed in a separate vessel of capacity more than that of P,Q,R taken together, and then the mixture is poured successively into P,Q,R Then how much (in cc) of Pand Q's tea will be there in R?
A. 44(P), 76(Q)
B. 56(P), 64(Q)
C. 48(P), 72(Q)
D. 52(P), 68(Q)

Answer: Option C

Q22. If the marks distribution of a number of candidates in an examination, out of 100, are in accordance with the table given below, what is the estimated number of candidates who scored between 58 and 72?

Marks(m)	$m \leq 55$	$55 < m \leq 60$	$60 \leq m \leq 65$	$65 \leq m \leq 70$	$70 \leq m \leq 75$
Number of Candidates	410	40	50	40	30

    A. 118
    B. 122
    C. 112
    D. 120

Answer: Option C

Verbal Ability

Q1. For the four sentence (S1 to S4) paragraph given below, sentences S1 & S4 are given. From the options P,Q and R, choose appropriate sentences for S2 & S3.

S-1: The 1940 version of the movie, Pinocchio, is no exception
S-2:
S-3:
S-4: Surprisingly, his character in the movie is not as prominent as it is in the book.

P: Jimmy cricket appears as the talking cricket in the book
Q:The movie is based on a story that appeared as a serial in a newspaper called The Adventures of Pinocchio written by Carlo Collod
R: It was written in 1881 and 1882

    A. RQ
    B. PQ
    C. QP
    D. PR

Answer: Option C

Q2. Fill in the blanks with the most appropriate pair of words from the options given below**.**

Information _____ defined as a collection of symbols which,_____ combined, communicates a message or intelligence.

    A. Can be / where
    B. Should / which
    C. Can be / when
    D. Should be / which

Answer: Option C

Q3. One part of the sentence below may contain an error. Identify the part, if there is no error, choose 'No error'

Since sunrise to sunset my grandmother would sit by her wheel spinning and reciting prayers

    A. Since sunrise to sunset
    B. my grandmother would sit by her wheel
    C. No error
    D. spinning and reciting prayers

Answer: Option A

Q4. One part of the sentence below may contain an error, Identify the error.

In the evening, Bhushan took his seat on the window of that empty house.

    A. On the window
    B. In the evening
    C. Of that empty house
    D. Bhushan took his seat

Answer: Option A

Q5. One part of the sentence below may contain an error, Identify the error.

Something about the way he spoke stuck a bell in Lauren's mind.

    A. In Lauren's mind
    B. Something about
    C. Way he spoke

  D. Stuck a bell

Answer: Option D

Q6 to Q9. Directions: Read the following passage:
The much-delayed Indian Premier League starts Saturday without its customary glitz and glamour, but the Twenty20 tournament is expected to be a welcome relief to cricket fans during the coronavirus pandemic. The short-form extravaganza normally starts in March but, along with other major international sporting events, was postponed as countries went into virus lockdowns. It was then moved to the United Arab Emirates as cases rose in India.

All the eight teams have been in strict, bio-secure 'bubbles' since landing in the UAE, with the competition set to kick off when defending champions Mumbai Indians take on Chennai Super Kings in Abu Dhabi on September 19. There will be no gala opening ceremony for the world's richest T20 league, and the games will be played behind closed doors at three venues including Dubai and Sharjah.

Yet President of the Board of Control for Cricket in India, Sourav Ganguly, expects a surge in viewership for the 13th edition with the matches scheduled for India's evening primetime TV slots.

"There is a positive in everything." commented Sourav Ganguly.

Q6. Based on your understanding of the passage answer the following questions by choosing the best option
The expression 'Bio-secure bubbles' refers to:
  A. Consists of Greek and Iranian characters from history books who die for their country or kingdoms, often in the pursuit of beautiful women.
  B. Safety PPE kit
  C. Social distancing methods
  D. It consists of a staged dance drama about fairy tales, where heroes and heroines dance and sing, performed in small villages.

Answer: Option C

'Bio-secure bubbles' actually refers to an environment which is cut off from the outside world. Everyone engaged in the tournament, including the players, support staff and match officials will be limited only to a few places.

Q7. Which of the following is NOT a relevant criteria for conduct of the 13th IPL series?
    A. The Mahabharata teaches readers about the finest aspects of warfare and martial struggle and how man's ambition can make or break him in the final race.
    B. Venue for IPL will be shifted to the Middle East.
    C. The epic works as a tale of good versus evil in the battle between Pandavas and Kauravas, and also highlights the internal struggle in all of us, which leads to spiritual wisdom.
    D. Matches will be telecast on prime-time slot.

All the answer options are wrong.

Correct Answer: Both Option A and Option C

Q8. Which of the following sentences is indicative of the mood of the general public?
    A. All epics extoll the necessity of valour, the beauty of women and the lure of money and property that is the bane of humankind.
    B. All epics teach us that the common man has to learn about the right and wrong of life only through the stories of the rich and famous.
    C. The games will be played behind closed doors at three venues including Dubai and Sharjah.
    D. The much-delayed Indian Premier League starts on Saturday without its customary glitz and glamour.

All the answer options are wrong.

Answer: All of the answer options are incorrect

The line which mentions the mood of the general public is *"The much-delayed Indian Premier League starts Saturday without its customary glitz and glamour, but the Twenty20 tournament is expected to be a welcome relief to cricket fans during the coronavirus pandemic."* Thus if we had 'relief' as one of our answer options, it would have been right.

Q9. Saurav Ganguly's comment 'There is something positive in everything', implies that he is _____.

A. Determined
B. Accident
C. Adversity
D. Optimistic

Answer: Option D

Q10. For the four sentence (S1 to S4) paragraph given below, sentences S1 & S4 are given.From the options P,Q and R, choose appropriate sentences for S2 & S3.

S-1: It is neither the size nor the length of the life which makes man human
S-2:
S-3:
S-4: Man is not like a tree

P: The man may physically attain the size of a giant, yet intellectually he may remain a dwarf
Q: The growth of mind and intellect is never in proportion to the growth of the human body
R: My friend's brother was a dwarf

A. RP
B. RQ
C. QP
D. PR

Answer: Option C

Q11. Choose the pair of options that are appropriate to complete the sentence
Martin Sir had a reputation as the (1) _____ of principals, but those who knew him well, said he was a (2)_____ man.

Blank 1: A. mad   B.tough   C.slovenly   D.strictest
Blank 2: A.crazy   B.family   C.effective   D.just

A. 1-B,2-B
B. 1-D,2-A
C. 1-D,2-D
D. 1-C,2-A

Answer: Option C

Q12. Two sentences have been removed from the text below. Read the text and then match the missing sentences to fill up Blank 1 and Blank 2. You will need to choose two options out of four - P, Q, R, S - provided:

Unlike undergraduate courses where some students do minimal reading and still succeed, graduate studies require a student to read large volumes of information. Reading at graduate school is the way in which students glean new ideas, theories, models, etc., that contribute to their theses and research papers.

___(1)___For example, a literature review requires a student to read with great breadth and depth within his/her research area.

___(2)___The number of documents to read, analyze and synthesize to compile a literature review can be mind boggling.

Options

P. Graduate students are asked to actively engage with the information they read.

Q. Graduate students do not want to read the books available in libraries.

R. Books are a man's best friend.

S. Then the ideas are synthesized into a unified whole.

    A. QS

    B. RS

    C. SP

    D. PS

Answer: Option D

Q13. You are going to read a text about fighting pollution.Some sentences are missing from the text.Choose from the list (A-C) the most appropriate sentence for each gap(1-2) in the text.There is one extra sentence that you do not need to use.

Aisha had been very successful managing her team in Edinburgh and was asked by the company to lead a remote team for an important two-year project. Keen to demonstrate her leadership abilities to the head office, Aisha got her team members together for a remote meeting. But right from that first meeting, she realised that this was going to be a different challenge.

(1)_____Lucia kept asking about really specific details, while Aisha was hoping to use the meeting to get to know the team members and identify priorities. Archie and Lucia kept accidentally talking at the same time, and when they didn't speak, there was an

uncomfortable silence. Valentina hardly said a word. (2)_____Without these visual clues, Aisha had no idea whether people were interested, lost, confused or bored.

A. No one had their cameras on, so there was none of the usual communication through body language or facial expressions
B. Compared to face to face meeting the remote team is not preferred by all the managers
C. For a start,Archie was late for the meeting by about 15 minutes because of 'technical problems'.

A. 1 - (A), 2- (C)
B. 1- (B), 2- (A)
C. 1- (A), 2- (B)
D. 1- (C), 2-(A)

Answer: 1- C, 2-A

Q14. Fill in the blanks with the most appropriate pair of words from the options given below.

As WHO and partners work together on the response - tracking the pandemic, _____ on critical interventions, distributing vital medical supplies to those in mind - they are still _____ to find a vaccine.

A. Advising / race
B. Advising / racing
C. Advise / racing
D. Advised / raced

Answer: Option B

Q15. Which of the following sentences does NOT use informal language?
A. The professor's lecture was way over my head.
B. Can you pick up ice on your way back?
C. Sorry, I could not come by last night.
D. Sorry, I could not attend your party last night.

Answer: Option A

Q16. Direction: Read the following passage and answer the questions below.
Despite the setback caused by the COVID-19 pandemic and schedules being affected, the Indian Space Research Organisation (ISRO) has continued to slowly pursue its two ambitious missions -- the Gaganyaan and Chandrayaan-3. Even as officials had said that the staffers were working from home through the lockdown, several have started heading to their workspaces through the lockdown 4.

Using the payload on Chandrayaan-2 orbiter, which has three optical heads (unlike the single optical head of Chandrayaan-1 orbiter), the space agency has a greater resolution and a stereo view of the moon. The image data will also help them decide and fine tune the point of touchdown of the lander. Since the Chandrayaan-2 orbiter is working to capacity, the upcoming mission will only have a lander and rover which will be taken to the moon by a propulsion module. The chances of success at Chandrayaan-3 are being increased with the space agency using the robust data acquired by Chandrayaan-2 orbiter. Director of Vikram Sarabhai Space Centre S Somanth recently iterated that the Human spaceflight programme was significant. Drawing a comparison with other countries like the USA, he said Human Space Travel is a capacity we need to create even under stress as the capability will be essential for the future.

Q16. What is the passage about?
  A. Significance of space programs for the future.
  B. Working under constraints
  C. Meeting the target deadlines
  D. Commitment of the scientists at ISRO

Answer: Option A

Reasoning Ability

Q1. Among six members of the family O,P,Q,R,S and T, how many are females?

Statements:
  I.   O is the wife of P and mother of T, R is grandmother of O and mother of P
  II.   T is the grandmother of S

  A. Statement II alone is sufficient
  B. Statement I alone is sufficient
  C. Both I and II together are not sufficient
  D. Both together I and II are sufficient

Answer: Option C

Q2. A statement is followed by two assumptions numbered I and II. Consider the statement and decide which of the following assumption(s) is/are implicit in the statement
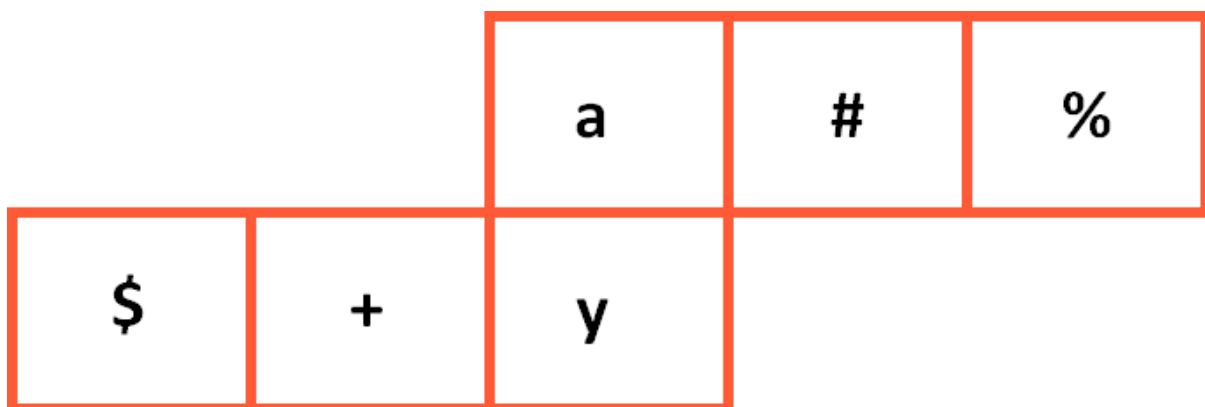
Statement
The educational framework now requires to go through a process of change so as to cater to the individuals according to their interests and talents.

Assumptions
 I.   The current educational system is geared to mainstream individuals without due regard to their unique personalities
 II.   Learners find less scope for their nurturing their individual interests and talents in the present system

A. Only I is implicit
B. Only II is implicit
C. Neither I nor II is implicit
D. Both I and II are implicit

Answer: Option D

Q3. A cube is made by folding the given sheet. In the cube so formed, which letter/ symbol will be on the opposite face to the face having the symbol '**%**'?

		a	#	%
$	+	y		

A. a
B. +
C. $

D. Y

Answer: Option A

Q4. Which is the wrong term in the given series?
vcu, teo, qhj, mle, hqc, bwa

A. hqc
B. bwa
C. teo
D. mle

Answer: Option D

Q5. Seven friends P, Q, R, S, T, U and V are sitting in a circular table facing the center.
   I.   P is between T and U
  II.   V is between Q and R
 III.   S is left of U and Right of Q

Who is exactly right of R?
   A. U
   B. P
   C. V
   D. Q

Answer: Option C

Q6. Four sentences are followed by four conclusions numbered I, II, III and IV. Assuming the statements to be true, if they do not conform to real world knowledge, decide which of the conclusion(s) logically follows/follow from the statements.

Statements:
   1. Some papers are pens
   2. Some pens are books
   3. Some books are flowers

Conclusions:
   I.   Some flowers are papers
  II.   Some books are papers
 III.   Some papers are books

IV.   No flower is paper

    A. Either I or IV follows
    B. Either II or III follows
    C. Either I or IV follows
    D. Either I or II follows

Answer: Option C

Q7. In a certain code, P @ R means P is the wife of R. P $ R means P is the husband of R. P # R means P is the son of R.

Which of the following equations shows that Z is the mother-in-law of W?

    A. W @ X $ Y # Z
    B. W # Z @ Y $ X
    C. W $ X # Y @ Z
    D. W @ X # Y $ Z

Answer: Option D

Q8. Among 5 objects P, Q, R, S and T:
I. R is twice as heavy as T
II. P and S together are as heavy as Q and R together
III. P and R together are as heavy as Q and T together
IV. P and Q together are one and half time as heavy as R and S together.

Which among the five is the heaviest of all?

    A. R
    B. S
    C. Q
    D. P

Answer: Option C

Q9. A statement is followed by two arguments numbered I and II. Decide which of the argument is/are strong (important and directly related to the question) and which is/are weak (not important or not related to the central message of the question)

Statement:
Should there be a ban on advertising a medicine?

Argument:
  I.   No it is the age of advertising, without advertising, awareness about a health product gets restricted.
  II. Yes, the money spent on advertising is very huge and it inflates the cost of medicine

    A. Only argument II is strong
    B. Both argument I and II are strong
    C. Only argument I is strong
    D. Both arguments I and II are not strong

Answer: Option B

Q10. There is a group of five friends P, Q, R, S and T. P is second in height but younger than R. Q is taller than S but younger in age. R and S are of the same age but R is shortest in the group. T is taller than Q and elder to R. P is not the youngest in group.

Who will be in the third position, if all the friends are arranged in ascending order of the heights?

    A. Q
    B. S
    C. R
    D. T

Answer: Option A

Q11. In a certain code, P + R means P is the son of R; P - R is the wife of R and P + R means P is the father of R.
If A+B-Q+S, then which of the following is true?
    A. A is the grandson of S.
    B. S is the uncle of A.

C. A is the brother of S.

D. A is the sister of S.

Answer: Option C

Q12. In each of the five pairs of letter-clusters, the letters in the second term is a rearranged/transformed form of the letters in the first term in a particular pattern.In which two pairs, has the transformation been done the same way?

P. MASON : AMNOS

Q. PARTY : APRYT

R. FAULT : AFTLU

S. LODGE : DOLEG

T. CARGO : ACOGS

A. Q and S

B. P and R

C. Q and R

D. P and S

Answer: Option B

Q13. Eight cricket teams A, B, C, D, E, F, G and H played one-day matches with one another. Every team played one match with every other team at the league stage. In each match, the winning team earned 2 points and the losing team did not earn any point. A won only 1 match; B lost only one match; C lost 3 matches and earned 2 points more than D. E earned 4 points more than G and G earned the same point as that of H. E and F together earned 16 points.

After the league match, the top two teams as per the league points table played the final match and the team scoring the second highest point at the league stage won.

Which team won in the final?

A. A

B. B

C. E

D. D

Answer: Option C

Q14. Read the following information carefully and answer the given question:

A public charitable organization desires to select a candidate for the post of programme Coordinator for a health project, based on the following criteria:

The Candidate must
 (i) hold B.E. degree with minimum 60% marks and above
(ii) have an experience of 5 years in the relevant field
(iii) be ready to execute a bond of three years of service

Incase of the applicant who satisfies all other criteria except -

1. At (i) above, but has B.E. degree with minimum 55% marks but has completed M.Tech with 50%, his/her case is to be referred to the secretary.
2. At (ii) above, but has 3 years full time experience as a programme manager, his/her case is to be referred to the project director
3. At (iii) above, but is ready to give Rs.30,000/- as secure money, his/her case is to be referred to the president of the trust

Based on the criteria and information provided decide the course of action.

Suresh has completed B.E. Degree with 62% marks and he has been working as project manager for the last 3 years in a Government funding health project. He is ready to execute a bond of three years of service. What decision would be taken for him?

A. Refer to project director
B. Refer to secretary of trust
C. Refer to president of trust
D. He would be selected

Answer: Option A

Q15. A statement is followed by three courses of action numbered I, II and III. Assuming everything in the statement to be true, decide which of the suggested courses of action (a decision to be taken for follow up/improvement in regard to the problem) logically follow(s) for pursuing

Statement:

Of late, it has come to the notice of the municipal authorities that a large section of people in certain sector are suffering from water-borne diseases
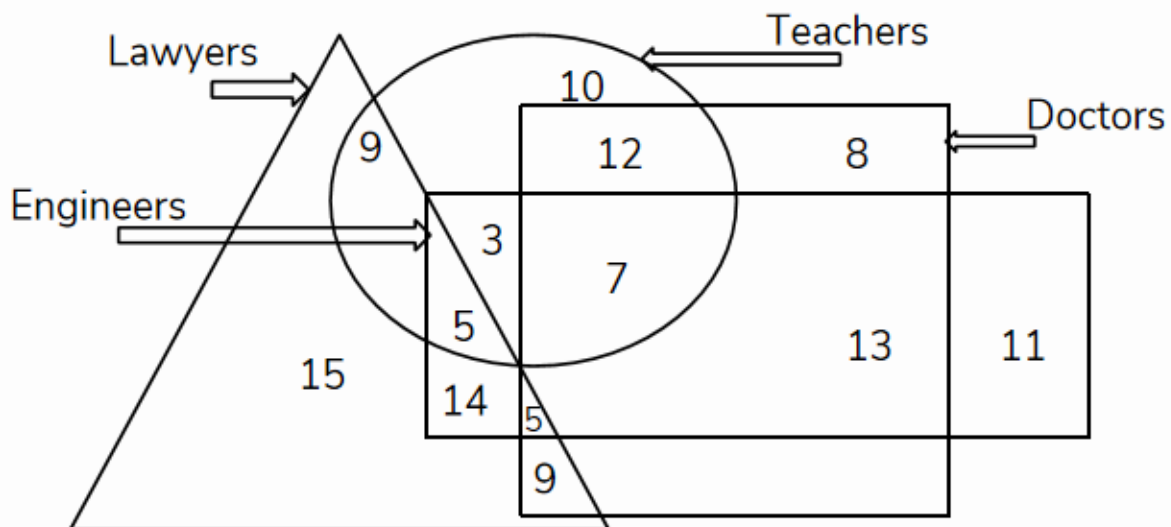
Course of Action:

1. All the hospitals and health care workers should be kept on high alert to address the emerging situation and proper medical attention to the affected
2. A body of specialists should soon be constituted to survey water supply network in the city to correct any systematic errors responsible for spreading the diseases
3. The municipal authority should issue an advisory warning to people not to drink piped water and depend on other water sources

A. All of 1,2 and 3 follow
B. Only 2 follows
C. Only 1 follows
D. Only 1 and 2 follow

Answer: Option D

Q16. In the following diagram, the rectangle stands for 'Engineers'; the circle stands for 'Teachers'; the triangle stands for 'Lawyers', and the square for 'Doctors". The numbers in different segments show the number of persons.
Answer the question on the basis of the information given in the diagram.

How many engineers are lawyers as well as doctors?
    A. 9

B. 14
C. 7
D. 5

Answer: Option D

Q17. Given below is a question followed by three statements I,II and III, each containing some information. Decide which of the statements is/are sufficient to answer the question.
Four subjects were taught i.e. Hindi, English, Math and Science in four consecutive periods of one hour each starting from 8.00 am. At what time was the science period scheduled?

Statements:
I.   Mathematics period started from 9.00 am which was preceded by hindi
II.   English was scheduled in the last
III.   Hindi period was scheduled sometime before science

A. Statement I alone is sufficient
B. Statements I and II together are sufficient
C. Statement III alone is sufficient
D. Statement II alone is sufficient

Answer: Option B

Programming Logic

Q1. What will be the output of the following program?

```java
1 public class Main
2 {
3     public static void main(String args[])
4     {
5         System.out.println("ab\raba\r");
6     }
7 }
```

Type your answer here:
Answer:
ab
aba

Q2. _____ function is used to show a key pressed by a user will appear on the screen.
   A. getche()
   B. getsf()
   C. gfets()
   D. getch()

Answer: Option A

Q3. When we implement stack by using linked list then:
   A. insertion of node is done from beginning and deletion from beginning
   B. insertion of node is done from end & deletion from end
   C. insertion of node is done from end & deletion from beginning
   D. insertion of node is done from beginning and deletion from end

Answer: Option A
Both A and B can be correct. If insertion and deletion happens at the same end it is stack and if it happens at different ends it is Queue. Here the best among A and B is Option A

Q4. The primary mission of an analyst or systems designer is to:
   A. calculate the Return on Investment
   B. development of Software Evaluation Tool
   C. create a Data Flow Diagram
   D. extract the physical requirements of the users and convert them to software

Answer: Option D

Q5. _____ is a process to identify the key aspects of an entity and hiding the rest.
   A. Encapsulation
   B. Inheritance
   C. Abstraction
   D. Polymorphism

Answer: Option C

Q6. Among the following loops which is a post tested loop?
   A. while
   B. do-while

    C. for
    D. If

Answer: Option B

Q7. Which one is not a type of topology?
    A. Star-topology
    B. Circuit-topology
    C. Ring-topology
    D. Bus-topology

Answer: Option B

Q8. Assume: Linked list as head -> 2 -> 4 -> 6 -> 8

```
1 struct emp
2 {
3     int emp-id;
4     structemp *next;
5 };
6 structemp *head,*temp;
7 temp = head;
8 while(temp->next!= NULL)
9 {
10     printf("%d", temp -> emp_id);
11     temp = temp -> next;
12 }
```

What will be the output of the given program?
    A. 2460
    B. 2468
    C. 246
    D. 246NULL

Answer: Option C

Q9. Predict the output.

```
1 class Main
2 {
3     private int SUM;
4     public static void main(String args[])
5     {
6         Main main = new Main();
7     }
8     public void Main(int a, int b)
9     {
10        a = 10;
11        b = 10;
12        SUM = a + b;
13        System.out.println(SUM);
14    }
15 }
```

A. No output
B. 20
C. 0
D. Compilation Error

Answer: Option A

Q10. What would be the Time Complexity of below Code? Type your answer:

```
1 #include<stdio.h>
2 void main()
3 {
4     int count = 11;
5     for(inr i = 1; i <= count; i++) {
6         printf("Time Complexity!!");
7     }
8 }
```

Answer:
O(count)

Coding:

Q1. There are a total number of Monkeys sitting on the branches of a huge Tree. As travelers offer Bananas and Peanuts, the Monkeys jump down the Tree. If every Monkey can eat k Bananas and j Peanuts. If Total m number of Bananas and p number of Peanuts offered by Travelers, calculate how many Monkeys remain on the Tree after some of them jumped down to eat.

At a time, one Monkey gets down and finishes eating and goes to the other side of the road. The Monkey who climbed down does not climb up again after eating until the other Monkeys finish eating. Monkeys can either eat k Bananas or j Peanuts. If for the last Monkey there are less than k Bananas left on the ground or less than j Peanuts left on the ground, only that Monkey can eat Bananas (<k) along with the Peanuts (<j).

Write the code to take inputs as n, m, p, k, j and return the number of Monkeys left on the Tree.

Where, n = Total number of Monkeys

k = Number of eatable Bananas by a single Monkey (Monkey that jumped down last may get less than k Bananas)

j = Number of eatable Peanuts by a single Monkey (Monkey that jumped down last may get less than Bananas)

m = Total number of Bananas

p = Total number of Peanuts

Remember that the Monkeys always eat Bananas and Peanuts, so there is no possibility of k and j having a value zero.

Example 1:

Input Values

20

2

3

12

12

Output Values

Number of Monkeys left on the Tree: 10

Note: Kindly follow the order of inputs as n, k, j, m, p as given in above example. And output must include the same format as in above example(Number of Monkeys left on the Tree:<Integer>)

For any wrong input display INVALID INPUT

Solution in C++:

```cpp
#include<iostream>
using namespace std;
int main()
{
    int n, k, j, m, p;
    cin >> n >> k >> j >> m >> p;
    int ans = 0;
    if(k < 0 || n < 0 || j < 0 || m < 0 || p < 0)
    {
        cout << "INVALID INPUT";
        return 0;
    }
    ans = ans + (m/k);
    ans = ans + (p/j);
    cout << n - ans;
    return 0;
}
```

Q2. Chain Marketing Sales Organization has a scheme for income generation through which its members generate income for themselves. The scheme is such that suppose A joins the scheme and makes Rand V to join this scheme then A is Parent Member of R and V who are child Members. When any member joins the scheme then the parent gets a total commission of 10% from each of its child members.

Child members receive commission of 5% respectively.

If a Parent member does not have any member joined under him, then he/she gets commission of 5%.

Take the Name of the Members Joining the Scheme as input.

Display how many members joined the scheme including parent members, Calculate the Total commission gained by each member in the scheme. The fixed amount for joining the scheme is Rs.5000 on which commission will be generated.

Scherne Amount=5000

Example 1: **When there are more than one child members**

Input: (Do not give Input Prompts. Accept values as follows.)

Amit	//Enter Parent Member Name as this
Y	//Enter Y if Parent Member have child members otherwise enter N
Rajesh, Virat	//Enter Name of child members of Amit in comma separated

Output: (Final output must be in format given below.)
TOTAL MEMBERS: 3
COMMISSION DETAILS
Amit: 1000 INR
Rajesh: 250 INR
Virat: 250INR

Example 2: **When there is only one child member in the hierarchy**
Input:
Amit
Y
Rajesh
Output:
TOTAL MEMBERS: 2
COMMISSION DETAILS
Amit: 500 INR
Rajesh: 250 INR

Solution in C++:

```cpp
1 #include<bits/stdc++.h>
2 #define ll long long
3 using namespace std;
4 int main()
5 {
6     string par;
7     cin >> par;
8     string x;
9     cin >> x;
10    if (x == "N") {
11        cout << "TOTAL MEMBERS:1\n";
12        cout << "COMMISSION DETAILS\n";
13        cout << par << ":250 INR\n";
14    } else {
15        string child;
16        cin >> child;
17        vector<string>v;
18        string temp = "";
19        for (int i = 0; i < child.length(); i++) {
20            if (child[i] == ',') {
21                v.push_back(temp);
22                temp = "";
23            }
24            else  if (child[i] != ' ')
25                temp += child[i];
26        }
27        v.push_back(temp);
28        cout << "TOTAL MEMBERS:" << v.size() + 1 << "\n";
29        cout << "COMMISSION DETAILS\n";
30        cout << par << ":" << v.size() * 500 << " INR\n";
31        for (auto a : v) {
32            cout << a << ":" << "250 INR\n";
33        }
34    }
35 }
```