TCS B.Sc Ignite & Smart Hiring - Sample Question Paper

No. of Questions: 51 **Total time: 120 minutes**

Instructions: Please read the below instructions carefully before you take the test.

- Following are 51 questions with 50 MCQ questions and 1 Programming hands-on question. For each MCQ question, choose appropriate answer from the options given. For Programing hands-on questions, candidates need to attempt question in any one of the given five languages. (C, C++, JAVA, Python, Perl)
- There is no negative marking.

All the Best!

SECTION I: VERBAL ABILITY

Q1 The first and the last sentences (S1 and S4) of a passage are given, whereas some sentences (S2 and S3) are missing. Identify the alternatives that will meaningfully fill in the blanks against S1 and S2, respectively.

S1. A train journey changed Gandhi's life, and eventually the course of history.
S2. _____
S3. _____
S4. "But I have a first-class ticket," Gandhi said. "That doesn't matter," replied the conductor. "No coloureds!"

Alternatives:
P. Mahatma Gandhi pushed the Brits out of India with some unorthodox methods that we often take for granted.
Q. The conductor insisted Gandhi to move to third class.
R. It was 1893, late at night in South Africa that a barrister named MK Gandhi was travelling first class when a white passenger entered the compartment, took one look at him and summoned the conductor.
S. Should he retreat to India or remain in South Africa and fight injustices like the one he had just experienced?

	a.	QR	b.	PS	c.	QR	d.	RQ

Q2	Sentences of a paragraph are given below. While the first and the last sentences (S1 and S4) are given, some sentences (S2 and S3) are missing. Identify the alternatives that will meaningfully fill in the gaps. S1. Galen of Pergamon was a Greek physician, surgeon, and philosopher in the Roman Empire. S2. _____ S3. _____ S4. And yet Galen never conducted anything resembling an experiment. **Alternatives:** P. His writings were the indisputable source of medical authority for more than a thousand years. Q. It will be a field marred with arrogance, hubris, and a sheer lack of scientific rigour. R. Doubt is not a fearful thing and, as we'll soon learn, it's in fact what propels science forward. S. Considered to be one of the most accomplished of all medical researchers, Galen influenced the development of various scientific disciplines, including anatomy, physiology, pathology, pharmacology, and neurology.							
	a.	RP	b.	QS	c.	SP	d.	PQ
Q3	Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph. A. Raja was a shoeshine boy. B. Raja was hard working and wanted to take care of his family. C. So, after school, he would sit near a cinema hall and polish shoes for a living. D. He lived with his mother and sister in a small jhuggi.							
	a.	ADBC	b.	CBDA	c.	ABDC	d.	BACD
Q4	Select the most appropriate option that can substitute the underlined segment in the given sentence. We live in a society that is <u>not bound or connected to a religion or a religious body</u>.							
	a.	orthodox	b.	rudimentary	c.	organic	d.	secular

Q5	Select the most appropriate option to substitute the underlined segment in the given sentence. Sujata may not be with us in this world anymore, her mark, however, remains <u>impossible to forget or remove</u>.							
	a.	invincible	b.	fallible	c.	gullible	d.	indelible
Q6	Select the most appropriate meaning of the underlined idiom. My brother loves Sundays because on that day he can be <u>a couch-potato</u>.							
	a.	A person who eats potatoes	b.	A lazy person	c.	A person who sleeps whole day	d.	Is allowed to use the sofa
Q7	Select the most appropriate meaning of the underlined idiom. She was <u>head and shoulders above</u> the others in her dance performance.							
	a.	much taller than	b.	far superior than	c.	quite odd from	d.	very jealous of
Q8	Select the most appropriate synonym of the given word. Comprise							
	a.	Include	b.	Reject	c.	Exclude	d.	Abandon
Q9	Select the most appropriate synonym of the given word. Knave							
	a.	Fraud	b.	Idealist	c.	Selfish	d.	Paragon

Q10	The following sentence has been split into four segments. Identify the segment that contains a grammatical error. The moon was a good two hours / higher than when I had last seen / the sky, and the night, though rainy, / was much light.							
	a.	The moon was a good two hours	b.	higher than when I had last seen	c.	the sky, and the night, though rainy,	d.	was much light
Q11	The following sentence has been split into four segments. Identify the segment that contains a grammatical error. One Sunday when the lady had chained / him up as usual and was about half-way / through the forest, she suddenly thought / she hears the cracking of a tree-branch.							
	a.	One Sunday when the lady had chained	b.	him up as usual and was about half-way	c.	through the forest, she suddenly thought	d.	she hears the cracking of a tree-branch
Q12	The following sentence has been split into four segments. Identify the segment that contains a grammatical error. It was said that if you / yawned beneath the tree, / the *pret* would jumped down / your throat and ruin your digestion.							
	a.	It was said that if you	b.	yawned beneath the tree,	c.	the *pret* would jumped down	d.	your throat and ruin your digestion

	READING COMPREHENSION
RC PSG	Read the given passage and answer the question that follows. Gregor Mendel was born in a poor farmer's family in Austria in 1822. He was very fond of studies but the very thought of examinations made him nervous. He did not have money to study at the University so he thought of becoming a 'monk' in a monastery. He thought from there he would be sent to study further. Which he was. But to become a science teacher, he had to take an exam. He got so nervous that he kept running away from the exam and kept failing! But he did not stop doing experiments. For seven years, he did experiments on 28,000 plants in the garden of the monastery. He worked hard, collected many observations and made a new discovery! Something which scientists at that time could not even understand! They understood it many years after his death, when other scientists did such experiments and read what Mendel had already written. What did Mendel find in those plants? He found that the pea plant has some **traits** which come in pairs. Like the seed is either rough or smooth. It is either yellow or green, and the **height** of the plant is either tall or short. Nothing in between. The next generation (the children) of the plant which has either rough or smooth seeds will also have seeds which are rough or smooth. There is no seed which is mixed—a bit smooth and a bit rough. He found the same with colour. Seeds which are either green or yellow give rise to new seeds which are either green or yellow. The next generation does not have seeds with a mixed new colour made from both green and yellow. Mendel showed that in the next generation of pea plants, there will be more plants having yellow seeds. He also showed that the next generation will have more plants with smooth seeds. What a discovery!
Q13	Which of the following is the most appropriate title for this passage?

	a.	The Colour of Peas	b.	An Amazing Discovery!	c.	A Rare Quality!	d.	Gardening in the Monastery

Q14	Select the most appropriate ANTONYM of the given word. Height

	a.	Length	b.	Stature	c.	Depth	d.	Figure

Q15	Select the most appropriate synonym of the given word. Traits							
	a.	Actions	b.	Qualities	c.	Components	d.	Routines
Q16	Why did Mendel join a monastery?							
	a.	Because he was interested in religion	b.	Because he was too nervous to pass examinations	c.	Because he wanted to continue his experiments there	d.	Because he didn't have money to study further
Q17	Select the statement which is NOT correct.							
	a.	Mendel conducted experiments for seven years on 28,000 plants.	b.	Mendel found that every pea has seeds which are either smooth or rough.	c.	Mendel found that the seeds of the next generation are in mixed new shades.	d.	Mendel found that the seeds of the next generation are rough or smooth.

	SECTION II: NUMERICAL ABILITY							
Q18	What is the simplified value of $\left[\left\{\left(11\frac{5}{7}-8\frac{3}{14}\right)\left(\frac{5}{8}-\frac{19}{56}\right)\right\}\text{of } 0.75\right]$?							
	a.	0.2	b.	0.25	c.	0.5	d.	0.75
Q19	Which symbol among the expanded form of the acronym 'BODMAS' should replace '#' in the given expression? $\left[\left(\frac{2^6}{3^3}-1\frac{19}{27}\right)\left\{\frac{3}{11}-\left(6\div\frac{22}{7}\right)\right\}\#0.\overline{09}\right]=-1$							
	a.	OF	b.	DIVISION	c.	SUBTRACTIO N	d.	ADDITION
Q20	The average age of a class of 20 students is 15 years. If the age of the teacher is included, which is 30 years, what is the new average age?							
	a.	18.6 years	b.	15.7 years	c.	21 years	d.	30 years
Q21	A company sells 100 widgets in a month. If 20% of the widgets are defective, how many defective widgets did the company sell?							
	a.	2	b.	4	c.	10	d.	20
Q22	Ramesh sold the stock of Company X for ₹7,200 and incurred a loss of 40%. At what price should he have sold the stock to have gained a profit of 25%?							
	a.	₹12,800	b.	₹16,400	c.	₹13,800	d.	₹15,000
Q23	A person purchased 15 pumpkins each for ₹20. Two pumpkins were rotten hence he disposed them, and the remaining was sold at ₹25. Find the rate of loss or profit.							
	a.	$\frac{25}{3}$% profit	b.	$\frac{25}{3}$% loss	c.	$\frac{25}{4}$% loss	d.	$\frac{25}{4}$% profit

Q24	If a company sells a bike with a marked price of ₹78,000 and gives a discount of 5% on ₹60,000 and 3% on the remaining amount, then the actual price charged by the company for a bike (in ₹) is:							
	a.	74,460	b.	75,520	c.	75,850	d.	75,952
Q25	If there are 63 litres of milk in a drum with a milk-to-water ratio of 7 : 9, what is the quantity of water in this mixture?							
	a.	63 litres	b.	79 litres	c.	81 litres	d.	98 litres
Q26	A recipe for a smoothie calls for 1 cup of strawberries for every 2 cups of milk. If you want to make a smoothie using 4 cups of strawberries, then how many cups of milk should you use?							
	a.	2	b.	4	c.	6	d.	8
Q27	A person invested ₹25,800 for $1\frac{2}{5}$ years at $13\frac{4}{7}$% rate of simple interest, then what is the total amount (in ₹) received by the person?							
	a.	30,722	b.	30,720	c.	30,072	d.	30,702
Q28	The ratio of the compound interest accrued for 2 years and the simple interest accrued for 1 year on the same amount at r% p.a. is 2.21. What is the value of r?							
	a.	21	b.	11	c.	20	d.	10
Q29	The ratio between the speeds of two trains is 3 : 5. If the second train runs 300 km in 4 hours, then the speed of the first train (in km/h) is:							
	a.	35	b.	45	c.	55	d.	65
Q30	4 women and 3 men can do a piece of work in 20 days while 2 women and 4 men can do the same piece of work in 30 days. How much time will be taken by 7 women and 9 men to do the same piece of work?							
	a.	21 days	b.	18 days	c.	15 days	d.	10 days

Q31 Below is given the frequency distribution of weights of a group of 81 students of a class in a school. Find the modal class.

Wt in Kgs	30-34	35-39	40-44	45-49	50-54	55-59	60-64
No of students	5	10	16	18	20	4	8

	a.	35-39	b.	40-44	c.	45-49	d.	50-54

Q32 Calculate range and its coefficient of A's monthly earnings for a year.

Month	1	2	3	4	5	6	7	8
Monthly earnings in 00''	110	125	135	156	158	165	170	180

	a.	7000, 0.2414	b.	7200, 0.2413	c.	7000, 0.2568	d.	7200, 0.2568

Q33 The mean of 150 items is 45 and their standard deviation is 3.5. Find its sum and sum of squares of all observations.

	a.	6250,305567.5	b.	6750, 304587.5	c.	6250, 305587.5	d.	6750, 305587.5

DI PSG 1 The below table gives the data of five banks and the number of persons taking personal loans over the years.

Year	Bank				
	A	B	C	D	E
1991	26000	30000	25500	28000	32000
1992	32000	31500	25000	25800	33000
1993	36000	28000	27000	35000	31000
1994	30000	25500	35200	25800	32200

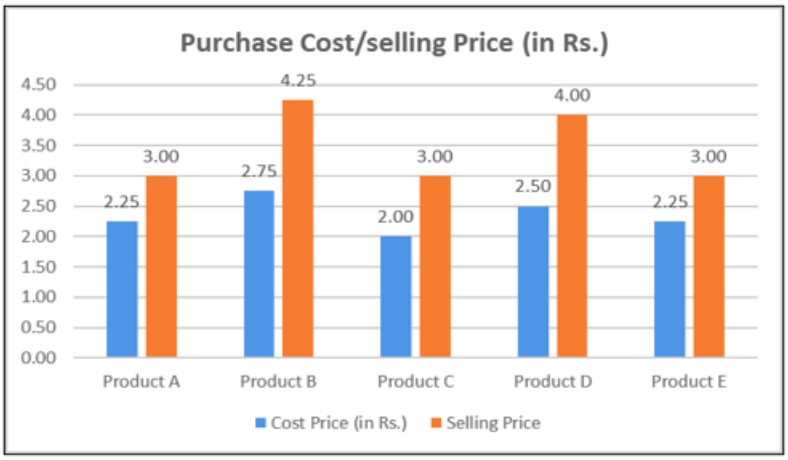
Q34 Which bank recorded the least number of people taking personal loans from 1991 to 1994?

	a.	Bank B	b.	Bank C	c.	Bank A	d.	Bank D

Q35	The percentage of the total number of people taking loans from Bank B when compared total number of people taking loans from all banks in all the above years is: (round to one decimal)							
	a.	20.8%	b.	19.3%	c.	18.9%	d.	19.9%

DI PSG 2

The graph summarises the purchase cost and selling price of different products.



The table provides information about the unit quantity purchased and the corresponding loss percentage for each product due to expiration, defects, deterioration, theft, etc.

Product	Unit Purchased	Loss%
Product A	500	5
Product B	400	3
Product C	350	2
Product D	450	2
Product E	600	4

All the remaining products have been completely sold.

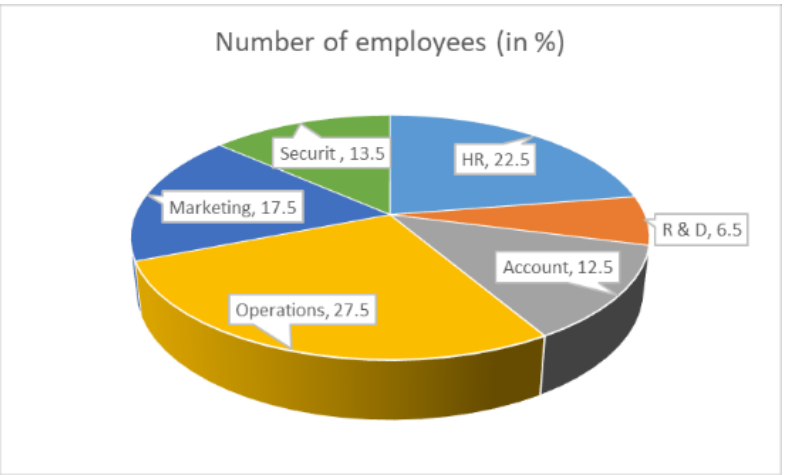
Q36	The average selling price (in ₹) is:							
	a.	1,509	b.	1,514	c.	1,519	d.	1,524
Q37	The average profit (in ₹) is:							
	a.	435	b.	439	c.	445	d.	449

DI

PSG

3

The provided pie diagram illustrates the percentage distribution of employees across different departments in a company, with a total of 30% female employees.



Q38 The male to female employee ratio in the HR department is 5 : 4. Given that the HR department has a total of 40 female employees, the number of employees in the marketing department is:

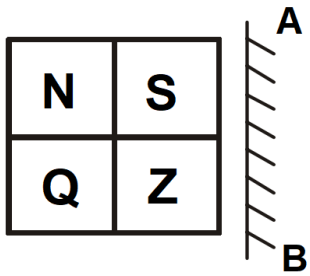
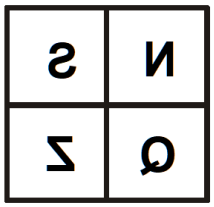
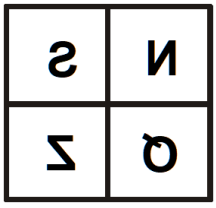
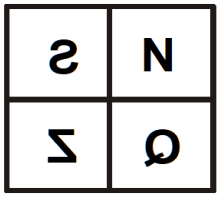
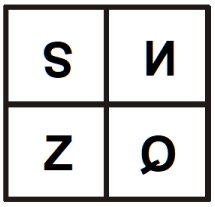
	a.	60	b.	66	c.	70	d.	72

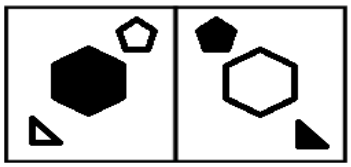
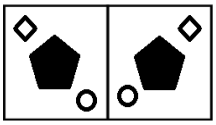
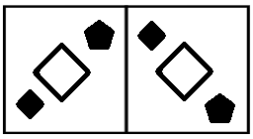
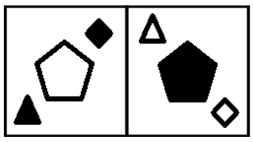
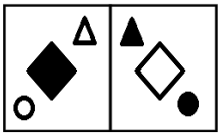
Q39 Each department must have at least 5 female employees. Considering the 5 : 4 male to female ratio in the HR department and the total of 40 female employees in HR, the maximum number of female employees possible in the marketing department is:

	a.	60	b.	65	c.	70	d.	75

	Section III : Reasoning Ability							
Q40	In a hospital, there are seven patients P, Q, R, S, T, U and V (including children and men). They are admitted in three rooms—7, 8 and 9. At least two patients are in each room, and at least one child is in each room. R, who is a child, is not admitted in the room of P and T. U (man) is admitted in the room in which only Q is admitted. P (child) is admitted in room 7 with his father and T. V is admitted in room 9. T is the father of R but not of P. How many children are there in the three rooms?							
	a.	4	b.	3	c.	3 or 4	d.	Data in adequate
Q41	Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements. **Statements:** 1. Some hill is land. 2. All land is plateau. 3. A few lands are peaks. **Conclusions:** I. Some peaks are hills. II. No peak is a hill.							
	a.	Only conclusion I follows.	b.	Only conclusion II follows.	c.	Either conclusion I or II follows.	d.	Neither conclusion I nor II follows.
Q42	Select the letter-cluster from among the given options that can replace the question mark (?) in the following series. CFM, GLR, KRW, OXB, ?							
	a.	SDG	b.	SDH	c.	TDG	d.	TEG

Q43	How many such pairs of letters are there in the word 'DELIBERATELY', which has as many letters between them as in the English alphabetical series? (Count both forward and backward directions.)							
	a.	2	b.	3	c.	4	d.	5
Q44	For getting a residential accommodation from a company, the employee must fulfil the following criteria: (i) have worked with the company for at least 10 years with at least 4 years in the HR department (ii) have at least 3 and at most 5 members in the family (iii) not be owner or co-owner (if the spouse is the owner) of a house (iv) in the case of an employee who satisfies all except (i) above and joined the company as a manager, should be referred to the Director Below are given details of one employee, based on the information provided above, choose the correct option. You are not to assume anything other than the information provided in question. Sohum stays in a rented house with the wife and 3 children. He was born on July 12 1969. He joined the company as a manager and has been working in the company for the last 9 years out of which 5 years in the HR department. He is not the owner/co-owner of a house.							
	a.	The employee is to be provided with accommodation.	b.	The employee is not to be provided with accommodation.	c.	The data is inadequate to take a decision.	d.	The case is to be referred to the Director.

Q45	Select the option that is related to the third term in the same way as the second term is related to the first term. T / C : 60 :: X / E : ?							
	a.	120	b.	102	c.	201	d.	80
Q46	In this question, a statement followed by two courses of action numbered I and II. You have to assume everything in the statement to be true and on the basis of the information given in the statement, decide which of the suggested courses of action logically follow(s) for pursuing. Statement: Rajan who is the technical team leader at XYZ company mostly insults their team member for even small mistakes. Course of Action: I. He should be fired from job immediately. II. All the team members should also reply to him in the same sense and tone as Rajan does.							
	a.	Only I follows	b.	Only II follows	c.	Neither I nor II follows	d.	Both I and II follow.
Q47	Select the correct mirror image of the given figure when the mirror is held/placed at AB.  							
	a. 		b. 		c. 		d. 	

Q48	Select the option in which the figure-pair share the same relationship as that shared by the given pair of figures. 							
	a.		b.		c.		d.	
Q49	Select the number from among the given options that can replace the question mark (?) in the following series. 78, 156, 468, 1872, ?							
	a.	9870	b.	9760	c.	9360	d.	9280
Q50	Select the option that is related to the third number in the same way as the second number is related to the first number. 140 : 25 :: 964 : ?							
	a.	361	b.	72	c.	255	d.	124

Section IV: PROGRAMMING	
C Language	
Q51.1	**Question STEM:** Two girls are playing with the balls. They are having green, yellow and red balls. The task is to find in how many ways they can place these balls in straight so that no two balls of the same type are next to each other. **Example:** **Example 1:** **Input:** Green (G) = 1, Yellow(Y) = 1, Red(R) = 0 There are only two arrangements GY and YG **Output:** Output: 2 **Explanation:** The program uses recursive function calls to list the ways in which the balls can be placed, and these function calls use the call to store the average values. **Constraints and Input/Output Format:** **Constraints:** For each ball placement, there are three possibilities (G, Y, or R) and there are n balls in total. Therefore, the total number of possible arrangements is 3^n. **Input Format:** G = 1, Y = 1, R = 1 There are only six arrangements GYR, YGR, YRG, RYG, GRY and RGY **Output Format:** Output: 6

	C++ Language
Q51.2	**Question STEM:** Two girls are playing with the balls. They are having green, yellow and red balls. The task is to find in how many ways they can place these balls in straight so that no two balls of the same type are next to each other. **Example:** **Example 1:** **Input:** Green (G) = 1, Yellow(Y) = 1, Red(R) = 0 There are only two arrangements GY and YG **Output:** Output: 2 **Explanation:** The program uses recursive function calls to list the ways in which the balls can be placed, and these function calls use the call to store the average values. **Constraints and Input/Output Format:** **Constraints:** For each ball placement, there are three possibilities (G, Y, or R) and there are n balls in total. Therefore, the total number of possible arrangements is 3^n. **Input Format:** G = 1, Y = 1, R = 1 There are only six arrangements GYR, YGR, YRG, RYG, GRY and RGY **Output Format:** Output: 6

	JAVA Language
Q51.3	**Question STEM:** Two girls are playing with the balls. They are having green, yellow and red balls. The task is to find in how many ways they can place these balls in straight so that no two balls of the same type are next to each other. **Example:** **Example 1:** **Input:** Green (G) = 1, Yellow(Y) = 1, Red(R) = 0 There are only two arrangements GY and YG **Output:** Output: 2 **Explanation:** The program uses recursive function calls to list the ways in which the balls can be placed, and these function calls use the call to store the average values. **Constraints and Input/Output Format:** **Constraints:** For each ball placement, there are three possibilities (G, Y, or R) and there are n balls in total. Therefore, the total number of possible arrangements is 3^n. **Input Format:** G = 1, Y = 1, R = 1 There are only six arrangements GYR, YGR, YRG, RYG, GRY and RGY **Output Format:** Output: 6

	PYTHON Language
Q51.4	**Question STEM:** Two girls are playing with the balls. They are having green, yellow and red balls. The task is to find in how many ways they can place these balls in straight so that no two balls of the same type are next to each other. **Example:** **Example 1:** **Input:** Green (G) = 1, Yellow(Y) = 1, Red(R) = 0 There are only two arrangements GY and YG **Output:** Output: 2 **Explanation:** The program uses recursive function calls to list the ways in which the balls can be placed, and these function calls use the call to store the average values. **Constraints and Input/Output Format:** **Constraints:** For each ball placement, there are three possibilities (G, Y, or R) and there are n balls in total. Therefore, the total number of possible arrangements is 3^n. **Input Format:** G = 1, Y = 1, R = 1 There are only six arrangements GYR, YGR, YRG, RYG, GRY and RGY **Output Format:** Output: 6

	PERL Language
Q51.5	**Question STEM:** Two girls are playing with the balls. They are having green, yellow and red balls. The task is to find in how many ways they can place these balls in straight so that no two balls of the same type are next to each other. **Example:** **Example 1:** **Input:** Green (G) = 1, Yellow(Y) = 1, Red(R) = 0 There are only two arrangements GY and YG **Output:** Output: 2 **Explanation:** The program uses recursive function calls to list the ways in which the balls can be placed, and these function calls use the call to store the average values. **Constraints and Input/Output Format:** **Constraints:** For each ball placement, there are three possibilities (G, Y, or R) and there are n balls in total. Therefore, the total number of possible arrangements is 3^n. **Input Format:** G = 1, Y = 1, R = 1 There are only six arrangements GYR, YGR, YRG, RYG, GRY and RGY **Output Format:** Output: 6