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**SYLLABUS
COVERED**

IIMs (CAT)



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PREFACE

“Never stop fighting until you arrive at your destined place that is, the unique you. Have an aim in life, continuously acquire knowledge, work hard and have perseverance to realize the great life.”

Dr. A.P.J. Abdul Kalam

Common Admission Test (CAT) is the gateway to all the prestigious management colleges in India, including the coveted **IIMs (Indian Institutes of Management)**. It is a distinctive exam in the context that it assesses a candidate's logical ability, endurance and presence of mind; thus, it cannot be qualified by just rote learning. So, as long as the aspirants are ready to work hard and sharpen their minds, they can clear CAT with flying colours. To ensure that the aspirants' names appear in the merit lists of top colleges, it is necessary to pick the right study material and conduct their preparation strategically.

Oswaal CAT Chapter wise & Topic wise consists of Previous 25 Years' Solved Papers (1991–2008 and 2017–2023), prepared by Oswaal Editorial Board, after thorough research and analysis of the Exam Pattern & Syllabus that has been followed year on year. We are giving the actual years of questions wherein 2009–2016 papers are not shared by the IIMs. This book has just the right ingredients to help the aspirants crack CAT 2024.

Like every year, this year also the exam is expected to be conducted on the last Sunday of November 2024.

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This book aims to make the aspiring candidates exam-ready, boost their confidence and help them achieve the desired results. With the motto of 'Learning Made Simple', Oswaal Books is constantly striving to make learning simple & feasible for students across the country.

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- ✦ Scan code on Page 16 for Solutions





CAT SUCCESS STORY

Ekansha Agarwal- IIM Ahmedabad



A brief background:

I am a Chemical Engineering graduate from IIT Ropar and CAT '20 was my first attempt, in my final year of graduation. I scored 99.98%ile (98.24/99.92/99.97) and received calls from IIM A, C, L, K, I and converted IIM A, C, L and I. I have joined IIM A this year.

How had I started?

So, I started my CAT preparation around January end last year. I had to take a break of about a month in between, around May, as my end-semester exams were going on. If I look back at my preparation and the time I spent on that, I would say that I could have started a bit late, maybe from March or April, and it wouldn't have led to me being less prepared. Having said that, the prep duration depends on multiple factors and cannot be generalized for every candidate. My preparation was mostly focused on mocks. I started by attempting some of Previous Years' CAT Papers as mocks to gauge my level in each of the sections. I realized that QA is something that comes naturally to me and it is my strongest section. DILR would require practice to have a command on that. While VARC was the most dreadful section for me and I knew that this would require some more effort.

How had I prepared for DILR & VARC?

So, I started with DILR prep and solved the book by Arun Sharma for Logical Reasoning. That gave me a firm ground to build my speed. In the end, CAT is an exam with high importance on how one could solve questions more quickly compared to others. After solving the majority of that book, I moved towards DILR sections and mocks to prepare myself to solve with a timer and under pressure. For VARC, I tried reading daily articles and followed it for quite some time, however, I did not find it useful. Again, this is not a blanket statement and there are a lot of people who have benefitted from daily reads. So, one should decide this on a personal level and not follow someone else blindly.

CAT MOCKS

I attempted mocks from all the major institutes and gave over 100 mocks in total. I would suggest a serious aspirant should attempt mocks from at least two institutes, and the number of mocks could vary, but around 35+ mocks in total might suffice. Another thing regarding mocks, people generally start with mocks quite later, as they try to first complete the syllabus. I would suggest not waiting for syllabus completion and get on with mocks from around May (or earlier, again a personal choice).

Stay Perseverant

Things would not always be rosy but one has to be consistent and focused on achieving the goal, that would be a motivation and driving force to keep bettering oneself. Also, don't get intimidated by others who are scoring high, try improving yourself and not get worried by others' performances.



OSWAAL EXPERT TIPS TO CRACK EXAM IN THE FIRST ATTEMPT



Conducted by the Indian Institutes of Management in government or private colleges, CAT is recognized as India's most challenging national-level examination. Cracking the CAT Exam in the first attempt, given the difficulty level, can be an uphill task but is quite attainable if done diligently and smartly. Here are some important tips that will help to crack the exam in the very first attempt:

1. Think Right



Calming yourself and thinking vivaciously is the first and the best course of action required. Think and believe that the exam goal is achievable if worked upon smartly.

2. Respect the syllabus and arrange the materials accordingly



While preparing for the CAT exam, nothing can be labeled as less important. Questions can come from the most unexpected topics too. Laying down your whole syllabus in front of you will help you to decide on the study material you require.

3. Get the right tools and study material



Gathering it and preparing from the appropriate study material is something you cannot be ignorant towards. You can refer to Oswaal Books CAT Chapter-wise & Topic-wise Solved Papers to enhance your preparation. The books are on the lines of the current syllabus and can be trusted upon before the examination.

4. Schedule total time for each subject



Creating a schedule that gives due time to all the subjects is a must. Giving proper time to all the issues daily will help you cover the syllabus on time, giving you enough time for revision.

5. Understand the concepts



No one can crack the CAT exam just by mugging up all the concepts and topics. The syllabus of the exam is in-depth so you need to understand every concept.

6. Practice a lot of Sample Papers



Sample Papers will not only help you understand the examination pattern, but they will also help you figure out the questions that come every year, which might give you an edge over other students. You can refer to Oswaal CAT Mock Test Papers. They include all the typologies of Questions asked in the Examination, Previous Years Papers with solutions, etc., as well as Mind Maps. Referring to various sample papers might also help you in comprehending the areas which require more work.

7. Analysing your performance



While you are solving papers, make sure you keep track of time, i.e., how much time does it take to solve one section or one question? Make a report of the sections and types of questions that take the minimum and maximum time.

8. Revise whenever you get time



Make sure you revise as much as possible. The revision will help you in keeping the concepts fresh in your mind.



CAT SCORE VS PERCENTILE

Keeping in view the previous records of IIMs, the outcome delivered incorporates **CAT scores** or stamps just as **CAT percentile** made sure about by up-and-comers. CAT scorecard will have two primary scores; CAT scaled score and the CAT percentile related to these CAT scores. Following the pattern, many top **B-Schools** have begun utilizing their approach for choosing up-and-comers. Because of more significant interest, **CAT is being led in three meetings**. Consequently, the three test sessions will likewise register the CAT percentile. This is done to make legitimized results and equality among test takers of CAT. One of the most well-known fundamental inquiries that test-takers pose is "what is the contrast between CAT score and CAT percentile?" or the uncertainty about CAT crude score versus percentile. To answer this we bring you the **CAT score** versus percentile patterns and information of the previous years.

WHAT IS A CAT SCORE?

CAT is a PC-based test led yearly by IIMs on a rotational season for giving admissions to the MBA and other administrative projects at the IIMs and other B-schools. The imprints that an up-and-comer acquires based on the CAT test design checking plan are called CAT scores. To summarize, CAT Score is the whole of the impressions received by the applicant/s in each of the three segments, in particular Verbal Ability and Reading Comprehension, Data Interpretation and Logical Reasoning, and Quantitative Ability. To ascertain the CAT score, competitors can follow the below referenced cycle -

WHAT IS A CAT SCORE?

- Three marks for each correct answer are awarded.
- For each wrong or incorrect answer, one mark will be deducted.
- Complete score (section-wise) is determined by adding the imprints according to questions replied by the up-and-comers.

CANDIDATE	QUESTIONS ANSWERED	CORRECT ANSWERS	WRONG ANSWERS	MARKS FOR CORRECT ANSWERS	MARKS FOR WRONG ANSWERS	CAT SCORE
ABC	100	75	25	$75 \times 3 = 225$	$25 \times 1 = 25$	200
XYZ	85	70	15	$70 \times 3 = 210$	$15 \times 1 = 15$	195

HOW IS THE PERCENTILE FOR CAT CALCULATED?

The **percentile of CAT** will be determined based on the scaled score of each part from which inquiries will be posted just as the by and large scaled score. **CAT outcome cum CAT scorecard** will demonstrate sections just as the generally speaking scaled score and the CAT percentile of applicants.

Step 1: The initial step will incorporate figuring the number of competitors (N) who will probably show up for the IIM Entrance Exam in the three sessions, for example, in the morning, noon and evening meeting.

Step 2: Allot Rank (r) based on the scaled score acquired in each section VARC, QA or DILR or overall segment to all the up-and-comers who showed up in CAT. On the off chance that at least two applicants score similar imprints in the QA segment, at that point, allocate indistinguishable positions to the up-and-comers.

Step 3: Calculate the percentile score (P) of an up-and-comer with rank (r) in the VARC, QA or DILR segment as: $P = (1 - r/N) \times 100$, where P = percentile, N = number of values in a data set (sorted from smallest to largest), r = Rank based on section-wise or over all

Step 4: Now, adjust the determined percentile score (P) of a competitor up to two decimal focuses, as it were. For instance, all percentile scores more prominent than or equivalent to 88.885 are adjusted to 89.



SYLLABUS

CAT prospectus is endorsed by IIM and it incorporates all the significant subjects of **Verbal Ability and Reading Comprehension (VARC)**, Data Interpretation and Logical Reasoning (DILR) and Quantitative Aptitude (QA).

Verbal Ability and Reading Comprehension

VARC segment is the principal part of the CAT question paper and is to be understood first. The segment is isolated into two sub-parts, VA and RC. In CAT, the section time limit for VARC will be 40 minutes. The following topics cover in this section.

- Para Jumbles
- Reading Comprehension
- PJ–Odd one out
- Summary Type Questions

Verbal Ability (VA): Key Points

- The kind of inquiries are largely non-MCQs, which implies the applicants need to type in the appropriate response (TITA)
- There is no negative stamping in VA since the inquiries are non-MCQ type
- There is no negative stamping in VA since the kinds of inquiries range from para-jumbles, outside of any relevant connection to the subject at hand sentence in a para, blunder remedy in a para, jargon utilization and sentence consumption to analogies and basic thinking.

Reading Comprehension (RC): Key Points

- The sort of inquiries are all MCQs, subsequently there is negative marking of -1.
- RC segment of CAT has a blend of RC entries, on a normal 4-3 long sections and 2-3 short entries.
- As per the pattern of the most recent three years, in length sections are of 900 words and short entries are of 600 words.
- Subjects of these RCs range from Science, History, Governmental Issues, Climate, Society to writing, folklore and dynamic points

Data Interpretation and Logical Reasoning

DILR is the second part of CAT question paper and is to be tackled after the VARC segment. This segment is additionally isolated into two sub-areas DI and LR. The sectional time limit for DILR is 40 minutes. The following topics are covered in this section.

Logical Reasoning:

- Mathematics Reasoning Based
- SAT Theory
- Game and Tournaments
- Group Arrangement (Persons, items, professions etc)
- Sitting and Standing Arrangement
- Puzzles
- Order and Ranking Based
- Analytical Reasoning
- Logical Based (Conditional Analysis)

Data Interpretation:

- Line & Bar Charts
- Pie Charts
- Data Tabulation
- Case lets
- Logic based Data Interpretation

Logical Reasoning (LR): Key Points

- LR contains both MCQ and non-MCQ type questions.
- Number of MCQs and non-MCQs may fluctuate.
- There is negative stamping for MCQs.

Data Interpretation (DI): Key Points

- DI contains both MCQ and non-MCQ type questions
- Number of MCQs and non-MCQs may shift.
- There is negative marking of -1 for MCQs.



SYLLABUS

Quantitative Aptitude (QA)

Quantitative Aptitude is the last segment of CAT question paper and the questions are tricky and conceptual based. The section time limit for QA is 40 minutes. The following topics are covered in this section.

Number System:

- Divisibility Test
- Property & Simplification
- Factorial and its Application
- HCF and LCM
- Remainder
- Number System Conversion
- Miscellaneous

Arithmetic:

- Percentage and Function
- Profit, Loss and Discount
- Ratio & Proportion
- Average
- Simple Interest and Compound Interest
- Mixture and Solution
- Time, Speed and Distance
- Time and Work
- Pipes and Cisterns
- Clock and Calendar
- Miscellaneous

Geometry and Mensuration:

- Line
- Triangle
- Quadrilaterals
- Polygons
- Circle
- Mensuration
- Co-ordinate Geometry
- Equations of Parallel and Perpendicular Lines

Algebra:

- Equations and Polynomials
- Inequalities and Absolute Value
- Functions and Graphs
- Logarithm and Exponents
- Progressions & Series

Modern Maths:

- Permutations & Combinations
- Probability
- Set Theory

Quantitative Aptitude (QA): Key Points

- QA contains both MCQ and non-MCQ type questions
- Number of MCQs and non-MCQs fluctuate each year.
- There is negative marking of -1 for MCQs.



EXAM PATTERN

CAT 2021-2023 Exam pattern

Section Name	Total Questions			Total No. of MCQs			Total No. of Non-MCQs		
	2021	2022	2023	2021	2022	2023	2021	2022	2023
Verbal Ability and Reading Comprehension (VARC)	24	24	24	21	21	20	3	3	4
Data Interpretation and Logical Reasoning (DILR)	20	20	20	16	14	12	4	6	8
Quantitative Ability (QA)	22	22	22	15	14	14	7	8	8
Total	66	66	66	52	49	46	14	17	20

CAT 2020 Exam pattern

Section Name	Total Questions	Total No. of MCQs	Total No. of Non-MCQs
Verbal Ability and Reading Comprehension (VARC)	26	21	5
Data Interpretation and Logical Reasoning (DILR)	24	18	6
Quantitative Ability (QA)	26	20	6
Total	76	59	17

CAT 2019 Exam pattern

Section Name	Total Questions	Total No. of MCQs	Total No. of Non-MCQs
Verbal Ability and Reading Comprehension (VARC)	34	27	7
Data Interpretation and Logical Reasoning (DILR)	32	24	8
Quantitative Ability (QA)	34	23	11
Total	100	74	26



TREND ANALYSIS

Verbal Ability and Reading Comprehension

Topic	Number of Question(s) in									
	2017 Shift-1	2017 Shift-2	2018 Shift-1	2018 Shift-2	2019 Shift-1	2019 Shift-2	2020 Shifts-1-3	2021 Shifts-1-3	2022 Shift-1-3	2023 Shift-1-3
Reading Comprehension	24	24	24	24	24	24	18 (5+5+4+4)	16 (4+4+4+4)	16	16
Para-jumble	4	4	4	4	4	4	3	3	3	2
Summary (MCQ Based)	3	3	3	3	3	3	3	3	3	2
Para-jumble (Odd sentence out)	3	3	3	3	3	3	2	2	0	2
Fill the Sentence in the Paragraph									2	2
Total	34	34	34	34	34	34	26	24	24	24

Data Interpretation and Logical Reasoning

	2017 Shift-1	2017 Shift-2	2018 Shift-1	2018 Shift-2	2019 Shift-1	2019 Shift-2	2020 Shift-1	2020 Shift-2	2020 Shift-3	2021 Shifts-1-3	2022 Shifts-1-3	2023 Shifts-1-3
Topic and No. of Question(s)	Frequency distribution of the scores - 4	Dorm-repair Costs - 4	Pie Chart-Annual/half yearly/Quarter Sales - 4	Currency Exchange and rate changes - 4	Crime Rate across States - 4	6 Languages, 5 people - 4	Drivers and Ratings - 4	Voters - 6	HI-LO - 6	Bar graph - 4	Arrangement - 5	Analytical Reasoning - 5
	Matrix - 4	High security research lab - 4	ATM-Denominations of 100, 200 and 500 - 4	Smart phones and market share - 4	Rating of Vendors (Radar Graph) - 4	3 Doctors (Arrangements) - 4	Students and Exams - 6	Revenue & Cost - 4	People & Area - 6	Table data - 4	Analytical Reasoning - 5	Analytical Reasoning - 5
	Routes - 4	Elective Courses in a College - 4	Set Theory-1600 rockets were launched - 4	Box Diagram of 3 companies/products - 4	Tournament-Shooting Bullseye - 4	Venn Diagram on Voting on 2 Proposals - 4	Set on Patients - 4	Parking Caselet - 4	Venn Diagram - 4	Arrangement - 6	Mathematical Reasoning - 5	Mathematics Reasoning - 5
	Flight operation - 4	Flight Sighting Arrangements - 30 Rows - 4	Matrix-Adjacent cells - 4	Interview Arrivals (Arrangement) - 4	Dancers and Choreographers - 4	Profit Loss Statement (Spider Graph)- 4	Institutes Vendors - 6	Grid-Based Filling - 6	Vials & People - 4	Assignments - 6	Logical Set - 5	Logical Set-5
	Projects - 4	Pizza Parties - 4	10 friends-scores in DI/WE/GK - 4	Coding (Alphabet/digits) - 4	Summation of Two 6-Digit Numbers - 4	Rainfall Average (Scattered Diagrams) - 4	Set on Musicians - 4	Arrangement - 4	Orders - 4			
	Burgers/Fries - 4	Assets-Bank/House/Flat/Gold - 4	4 Females, 4 Males-Minor and major - 4	Set theory (3 games, Ludo, Kho-kho, Gilli Danda) - 4	100 Boxes of Gifts - 4	3x3 Matrix-Pouches & Coins - 4						
	Children survey - 4	Chess Board - 4	3 Committees-research/teaching/economist - 4	Institute Accreditation - 4	12 Junctions - 4	6 Profs, 6 sections, Mid-term & End-terms - 4						
	PCM Set Theory - 4	Tea Rates of 6 locations - 4	1 - 20 petrol pumps - 4	Tickets to a show, old, young and middle aged people - 4	Arrangement of Books on Shelves - 4	Tournaments - 6 Rounds - 4						
Total	32	32	32	32	32	32	24	24	24	20	20	20



TREND ANALYSIS

Quantitative Ability

Topic	Number of Question(s) in																	
	2017 Shift-1	2017 Shift-2	2018 Shift-1	2018 Shift-2	2019 Shift-1	2019 Shift-2	2020 Shift-1	2020 Shift-2	2020 Shift-3	2021 Shift-1	2021 Shift-2	2021 Shift-3	2022 Shift-1	2022 Shift-2	2022 Shift-3	2023 Shift-1	2023 Shift-2	2023 Shift-3
Number System	4	4	2	2	2	3	5	3	3	2	2	0	2	3	1	3	1	2
Algebra	11	10	8	9	13	11	8	7	5	5	5	6	8	9	8	7	9	8
Arithmetic	11	11	14	13	14	14	10	10	10	11	11	11	7	7	9	9	9	9
Geometry & Mensuration	6	7	7	7	4	6	3	4	5	3	3	4	2	2	3	3	3	3
Co-ordinate Geometry			0	0	0	0	0	0	3	0	0	0	1	0	0	-	-	-
Modern Maths	2	2	3	3	1	0	0	2	0	1	1	1	2	1	1	-	-	-
Total	34	34	34	34	34	34	26	26	26	22	22	22	22	22	22	22	22	22

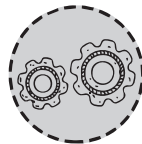


MIND MAPS

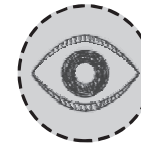
Learning MADE SIMPLE



Presenting words and concepts as Pictures!!



anytime, as frequency as you like till it becomes a habit!



- To Unlock the imagination and come up with ideas
- To Remember facts and figures easily
- To Make Clearer and better notes
- To Concentrate and save time
- To Plan with ease and ace exams

What?

When?

Why?

MIND MAP

AN INTERACTIVE MAGICAL TOOL

Result

How?



Learning made simple
'a winning combination'



With a blank sheet of Paper
Coloured Pens and
your creative imagination!

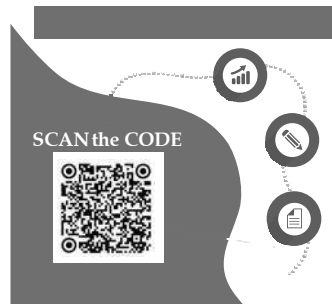
What are Associations?

It's a technique connecting the core concept at the Centre to related concepts or ideas. Associations spreading out straight from the core concept are the First Level of Association. Then we have a Second Level of Association emitting from the first level and the chronology continues. The thickest line is the First Level of Association and the lines keep getting thinner as we move to the subsequent levels of association. This is exactly how the brain functions, therefore these Mind Maps. Associations are one powerful memory aid connecting seemingly unrelated concepts, hence strengthening memory.

CAT 2023 Shift-2 Solutions

Access Online

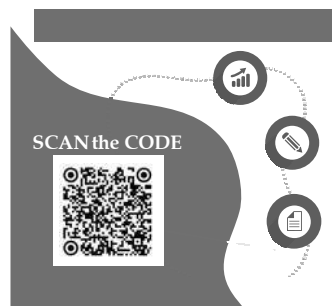
Evaluate Solutions!



CAT 2023 Shift-3 Solutions

Access Online

Evaluate Solutions!



CAT 2023**Shift-1****QUESTION
PAPER****Time:** 120 Mins**Maximum Marks:** 198**Important Instructions**

- (i) Total Number of Questions: 66
- (ii) Number of Questions in Verbal Ability and Reading Comprehension (VARC): 24
- (iii) Number of Questions in Data Interpretation and Logical Reasoning (DILR): 20
- (iv) Number of Questions in Quantitative Ability (QA): 22
- (v) 40 minutes are allotted to attempt each section.
- (vi) 4 answer options for each MCQ type question.
- (vii) Answers are typed in the given space on the computer screen for Non-MCQ.
- (viii) For each correct answer: + 3 marks
- (ix) Negative marking (Applicable for wrong answers in MCQs): - 1 mark

Verbal Ability and Reading Comprehension (VARC)**Passage 1**

Directions (Q. 1 to 4): Read the following passage carefully and answer the questions that follow.

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

For early postcolonial literature, the world of the novel was often the nation. Postcolonial novels were usually [concerned with] national questions. Sometimes the whole story of the novel was taken as an allegory of the nation, whether India or Tanzania. This was important for supporting anti-colonial nationalism, but could also be limiting – land-focused and inward-looking.

My new book “Writing Ocean Worlds” explores another kind of world of the novel: not the village or nation, but the Indian Ocean world. The book describes a set of novels in which the Indian Ocean is at the centre of the story. It focuses on the novelists Amitav Ghosh, Abdulrazak Gurnah, Lindsey Collen and Joseph Conrad [who have] centred the Indian Ocean world in the majority of their novels. . . . Their work reveals a world that is outward-looking – full of movement, border-crossing and South-South interconnection. They are all very different – from colonially inclined (Conrad) to radically anti-capitalist (Collen), but together draw on and shape a wider sense of Indian Ocean space through themes, images, metaphors and language. This has the effect of remapping the world in the reader’s mind, as centred in the interconnected global south. . . .

The Indian Ocean world is a term used to describe the very long-lasting connections among the coasts of East Africa, the Arab coasts, and South and East Asia. These connections were made possible by the geography of the Indian Ocean. For much of history, travel by sea was much easier than by land, which meant that port cities very far apart were often more easily connected to each other than to much closer inland cities. Historical and archaeological evidence suggests that what we now call globalisation first appeared in the Indian Ocean. This is the interconnected oceanic world referenced and produced by the novels in my book. . . .

For their part Ghosh, Gurnah, Collen and even Conrad reference a different set of histories and geographies than the ones most commonly found in fiction in English. Those [commonly found ones] are mostly centred in Europe or the US, assume a background of Christianity and whiteness, and mention places like Paris and New York. The novels in [my] book highlight instead a largely Islamic space, feature characters of colour and centralise the ports of Malindi, Mombasa, Aden, Java and Bombay. . . . It is a densely imagined, richly sensory image of a southern cosmopolitan culture which provides for an enlarged sense of place in the world.

This remapping is particularly powerful for the representation of Africa. In the fiction, sailors and travellers are not all European. . . . African, as well as Indian and Arab characters, are traders, nakhodas (dhow ship captains), runaways, villains, missionaries and activists. This does not mean that Indian Ocean Africa is romanticised. Migration is often a matter of force; travel is portrayed as abandonment rather than adventure, freedoms are kept from women and slavery is rife. What does it mean is that the African part of the Indian Ocean world plays an active role in its long, rich history and therefore in that of the wider world.

- Q. 1.** All of the following claims contribute to the “remapping” discussed by the passage, EXCEPT:
1. Indian Ocean novels have gone beyond the specifics of national concerns to explore rich regional pasts.
 2. Cosmopolitanism originated in the West and travelled to the East through globalisation.
 3. The global South, as opposed to the global North, was the first centre of globalisation.
 4. The world of early international trade and commerce was not the sole domain of white Europeans.
- Q. 2.** On the basis of the nature of the relationship between the items in each pair below, choose the odd pair out:
1. Postcolonial novels : Border-crossing
 2. Indian Ocean novels : Outward-looking
 3. Indian Ocean world : Slavery
 4. Postcolonial novels : Anti-colonial nationalism
- Q. 3.** All of the following statements, if true, would weaken the passage’s claim about the relationship between mainstream English-language fiction and Indian Ocean novels EXCEPT:
1. Very few mainstream English-language novels have historically been set in American and European metropolitan centres.
 2. The depiction of Africa in most Indian Ocean novels is driven by an Orientalist imagination of its cultural crudeness.
 3. The depiction of Africa in most Indian Ocean novels is driven by a postcolonial nostalgia for an idyllic past.
 4. Most mainstream English-language novels have historically privileged the Christian, white, male experience of travel and adventure.
- Q. 4.** Which one of the following statements is not true about migration in the Indian Ocean world?
1. Migration in the Indian Ocean world was an ambivalent experience.
 2. Geographical location rather than geographical proximity determined the choice of destination for migrants.
 3. The Indian Ocean world’s migration networks connected the global north with the global south.
 4. The Indian Ocean world’s migration networks were shaped by religious and commercial histories of the region.

Passage 2

Directions (Q. 5 to 8): Read the following passage carefully and answer the questions that follow.

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

[Fifty] years after its publication in English [in 1972], and just a year since [Marshall] Sahlins himself died—we may ask: why did [his essay] “Original Affluent Society” have such an impact, and how has it fared since? . . . Sahlins’s principal argument was simple but counterintuitive: Before being driven into marginal environments by colonial powers, hunter-gatherers, or foragers, were not engaged in a desperate struggle for meager survival. Quite the contrary, they satisfied their needs with far less work than people in agricultural and industrial societies, leaving them more time to use as they wished. Hunters, he quipped, keep bankers’ hours. Refusing to maximise, many were “more concerned with games of chance than with chances of game.” . . . The so-called Neolithic Revolution, rather than improving life, imposed a harsher work regime and set in motion the long history of growing inequality . . .

Moreover, foragers had other options. The contemporary Hadza of Tanzania, who had long been surrounded by farmers, knew they had alternatives and rejected them. To Sahlins, this showed that foragers are not simply examples of human diversity or victimhood but something more profound: they demonstrated that societies make real choices. Culture, a way of living oriented around a distinctive set of values, manifests a fundamental principle of collective self-determination. . . .

But the point [of the essay] is not so much the empirical validity of the data—the real interest for most readers, after all, is not in foragers either today or in the Paleolithic—but rather its conceptual challenge to contemporary economic life and bourgeois individualism. The empirical served as a philosophical and political project, a thought experiment and stimulus to the imagination of possibilities.

With its title's nod toward *The Affluent Society* (1958), economist John Kenneth Galbraith's famously skeptical portrait of America's postwar prosperity and inequality, and dripping with New Left contempt for consumerism, "*The Original Affluent Society*" brought this critical perspective to bear on the contemporary world. It did so through the classic anthropological move of showing that radical alternatives to the readers' lives really exist. If the capitalist world seeks wealth through ever greater material production to meet infinitely expansive desires, foraging societies follow "The Zen road to affluence": not by getting more, but by wanting less. If it seems that foragers have been left behind by "progress," this is due only to the ethnocentric self-congratulation of the West. Rather than accumulate material goods, these societies are guided by other values: leisure, mobility, and above all, freedom. . . .

Viewed in today's context, of course, not every aspect of the essay has aged well. While acknowledging the violence of colonialism, racism, and dispossession, it does not thematise them as heavily as we might today. Rebuking evolutionary anthropologists for treating present-day foragers as "left behind" by progress, it too can succumb to the temptation to use them as proxies for the Paleolithic. Yet these characteristics should not distract us from appreciating Sahlins's effort to show that if we want to conjure new possibilities, we need to learn about actually inhabitable worlds.

Q. 5. The author of the passage mentions Galbraith's "*The Affluent Society*" to:

1. show how Galbraith's theories refute Sahlins's thesis on the contentment of pre-huntergatherer communities.
2. document the influence of Galbraith's cynical views on modern consumerism on Sahlins's analysis of pre-historic societies.
3. contrast the materialist nature of contemporary growth paths with the pacifist content ways of living among the foragers.
4. show how Sahlins's views complemented Galbraith's criticism of the consumerism and inequality of contemporary society.

Q. 6. The author mentions Tanzania's Hadza community to illustrate:

1. that hunter-gatherer communities' subsistence-level techniques equipped them to survive well into contemporary times.
2. how pre-agrarian societies did not hamper the emergence of more advanced agrarian practices in contiguous communities.
3. that forager communities' lifestyles derived not from ignorance about alternatives, but from their own choice.
4. how two vastly different ways of living and working were able to coexist in proximity for centuries.

Q. 7. The author of the passage criticises Sahlins's essay for its:

1. critique of anthropologists who disparage the choices of foragers in today's society.
2. cursory treatment for effects of racism and colonialism on societies.
3. failure to supplement its thesis with robust empirical data.
4. outdated values regarding present-day foragers versus ancient foraging communities.

Q. 8. We can infer that Sahlins's main goal in writing his essay was to:

1. counter Galbraith's pessimistic view of the inevitability of a capitalist trajectory for economic growth.
2. holds a mirror to an acquisitive society, with examples of other communities that have chosen successfully to be non-materialistic.
3. put forth the view that, despite egalitarian origins, economic progress brings greater inequality and social hierarchies.
4. highlight the fact that while we started off as a fairly contented egalitarian people, we have progressively degenerated into materialism.

Passage 3

Directions (Q. 9 to 12): Read the following passage carefully and answer the questions that follow.

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

RESIDENTS of Lozere, a hilly department in southern France, recite complaints familiar to many rural corners of Europe. In remote hamlets and villages, with names such as Le Bacon and Le Bacon Vieux, mayors grumble about a lack of local schools, jobs, or phone and internet connections. Farmers of grazing

animals add another concern: the return of wolves. Eradicated from France last century, the predators are gradually creeping back to more forests and hillsides. "The wolf must be taken in hand," said an aspiring parliamentarian, Francis Palombi, when pressed by voters in an election campaign early this summer. Tourists enjoy visiting a wolf park in Lozere, but farmers fret over their livestock and their livelihoods. . . .

As early as the ninth century, the royal office of the Luparii—wolf-catchers—was created in France to tackle the predators. Those official hunters (and others) completed their job in the 1930s, when the last wolf disappeared from the mainland. Active hunting and improved technology such as rifles in the 19th century, plus the use of poison such as strychnine later on, caused the population collapse. But in the early 1990s the animals reappeared. They crossed the Alps from Italy, upsetting sheep farmers on the French side of the border. Wolves have since spread to areas such as Lozere, delighting environmentalists, who see the predators' presence as a sign of wider ecological health. Farmers, who say the wolves cause the deaths of thousands of sheep and other grazing animals, are less cheerful. They grumble that green activists and politically correct urban types have allowed the return of an old enemy.

Various factors explain the changes of the past few decades. Rural depopulation is part of the story. In Lozere, for example, farming and a once-flourishing mining industry supported a population of over 140,000 residents in the mid-19th century. Today the department has fewer than 80,000 people, many in its towns. As humans withdraw, forests are expanding. In France, between 1990 and 2015, forest cover increased by an average of 102,000 hectares each year, as more fields were given over to trees. Now, nearly one-third of mainland France is covered by woodland of some sort. The decline of hunting as a sport also means more forests fall quiet. In the mid-to-late 20th century over 2 m hunters regularly spent winter weekends tramping in woodland, seeking boars, birds and other prey. Today the Federation Nationale des Chasseurs, the national body, claims 1.1m people hold hunting licences, though the number of active hunters is probably lower. The mostly protected status of the wolf in Europe—hunting them is now forbidden, other than when occasional culls are sanctioned by the state—plus the efforts of NGOs to track and count the animals, also contribute to the recovery of wolf populations.

As the lupine population of Europe spreads westwards, with occasional reports of wolves seen closer to urban areas, expect to hear more clashes between farmers and those who celebrate the predators' return. Farmers' losses are real, but are not the only economic story. Tourist venues, such as parks where wolves are kept and the animals' spread is discussed, also generate income and jobs in rural areas.

Q. 9. Which one of the following has NOT contributed to the growing wolf population in Lozere?

1. An increase in woodlands and forest cover in Lozere.
2. The granting of a protected status to wolves in Europe.
3. A decline in the rural population of Lozere.
4. The shutting down of the royal office of the Luparii.

Q. 10. The author presents a possible economic solution to an existing issue facing Lozere that takes into account the divergent and competing interests of:

1. farmers and environmentalists.
2. tourists and environmentalists.
3. environmentalists and politicians.
4. politicians and farmers.

Q. 11. The inhabitants of Lozere have to grapple with all of the following problems, EXCEPT:

1. lack of educational facilities.
2. poor rural communication infrastructure.
3. livestock losses.
4. decline in the number of hunting licences.

Q. 12. Which one of the following statements, if true, would weaken the author's claims?

1. Unemployment concerns the residents of Lozere.
2. The old mining sites of Lozere are now being used as grazing pastures for sheep.
3. Having migrated out in the last century, wolves are now returning to Lozere.
4. Wolf attacks on tourists in Lozere are on the rise.

Passage 4

Directions (Q. 13 to 16): Read the following passage carefully and answer the questions that follow.

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

Many human phenomena and characteristics – such as behaviors, beliefs, economies, genes, incomes, life expectancies, and other things – are influenced both by geographic factors and by non-geographic factors. Geographic factors means physical and biological factors tied to geographic location, including climate, the distributions of wild plant and animal species, soils, and topography. Non-geographic factors include those

factors subsumed under the term culture, other factors subsumed under the term history, and decisions by individual people. . . .

[T]he differences between the current economies of North and South Korea . . . cannot be attributed to the modest environmental differences between [them] . . . They are instead due entirely to the different [government] policies . . . At the opposite extreme, the Inuit and other traditional peoples living at North of the Arctic Circle developed warm fur clothes but no agriculture, while equatorial lowland peoples around the world never developed warm fur clothes but often did develop agriculture. The explanation is straightforwardly geographic, rather than a cultural or historical quirk unrelated to geography. . . . Aboriginal Australia remained the sole continent occupied only by hunter/gatherers and with no indigenous farming or herding . . . [Here the] explanation is biogeographic: the Australian continent has no domesticable native animal species and few domesticable native plant species. Instead, the crops and domestic animals that now make Australia a food and wool exporter are all nonnative (mainly Eurasian) species such as sheep, wheat, and grapes, brought to Australia by overseas colonists.

Today, no scholar would be silly enough to deny that culture, history, and individual choices play a big role in many human phenomena. Scholars don't react to cultural, historical, and individual-agent explanations by denouncing "cultural determinism," "historical determinism," or "individual determinism," and then thinking no further. But many scholars do react to any explanation invoking some geographic role, by denouncing "geographic determinism" . . .

Several reasons may underlie this widespread but nonsensical view. One reason is that some geographic explanations advanced a century ago were racist, thereby causing all geographic explanations to become tainted by racist associations in the minds of many scholars other than geographers. But many genetic, historical, psychological, and anthropological explanations advanced a century ago were also racist, yet the validity of newer non-racist genetic etc., explanations is widely accepted today. Another reason for reflex rejection of geographic explanations is that historians have a tradition, in their discipline, of stressing the role of contingency (a favorite word among historians) based on individual decisions and chance. Often that view is warranted . . . But often, too, that view is unwarranted. The development of warm fur clothes among the Inuit living North of the Arctic Circle was not because one influential Inuit leader persuaded other Inuit in 1783 to adopt warm fur clothes, for no good environmental reason.

A third reason is that geographic explanations usually depend on detailed technical facts of geography and other fields of scholarship . . . Most historians and economists don't acquire that detailed knowledge as part of the professional training.

Q. 13. The author criticises scholars who are not geographers for all of the following reasons EXCEPT:

1. their labelling of geographic explanations as deterministic.
2. their rejection of the role of biogeographic factors in social and cultural phenomena.
3. their outdated interpretations of past cultural and historical phenomena.
4. the importance they place on the role of individual decisions when studying human phenomena.

Q. 14. The examples of the Inuit and Aboriginal Australians are offered in the passage to show:

1. that despite geographical isolation, traditional societies were self-sufficient and adaptive.
2. how environmental factors leads to comparatively divergent paths in livelihoods and development.
3. how physical circumstances can dictate human behaviour and cultures.

4. human resourcefulness across cultures in adapting to their surroundings.

Q. 15. All of the following can be inferred from the passage EXCEPT:

1. while most human phenomena result from culture and individual choice, some have bio-geographic origins.
2. agricultural practices changed drastically in the Australian continent after it was colonised.
3. several academic studies of human phenomena in the past involved racist interpretations.
4. individual dictat and contingency were not the causal factors for the use of fur clothing in some very cold climates.

Q. 16. All of the following are advanced by the author as reasons why non-geographers disregard geographic influences on human phenomena EXCEPT their:

1. disciplinary training which typically does not include technical knowledge of geography.

2. dismissal of explanations that involve geographical causes for human behaviour.
3. lingering impressions of past geographic analyses that were politically offensive.
4. belief in the central role of humans, unrelated to physical surroundings, in influencing phenomena.

Q. 17. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide where (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: The discovery helps to explain archeological similarities between the Paleolithic peoples of China, Japan, and the Americas.

Paragraph: The researchers also uncovered an unexpected genetic link between Native Americans and Japanese people. ____ (1) ____ . During the deglaciation period, another group branched out from Northern coastal China and travelled to Japan. ____ (2) ____ . "We were surprised to find that this ancestral source also contributed to the Japanese gene pool, especially the indigenous Ainus," says Li. ____ (3) ____ . They shared similarities in how they crafted stemmed projectile points for arrowheads and spears. ____ (4) ____ . "This suggests that the Pleistocene connection among America, China, and Japan was not confined to culture but also to genetics," says senior author Qing-Peng Kong, an evolutionary geneticist at the Chinese Academy of Sciences.

- | | |
|-------------|-------------|
| 1. Option 2 | 2. Option 4 |
| 3. Option 3 | 4. Option 1 |

Q. 18. There is a sentence that is missing in the paragraph below. Look at the paragraph and decide where (option 1, 2, 3, or 4) the following sentence would best fit.

Sentence: This philosophical cut at one's core beliefs, values, and way of life is difficult enough.

Paragraph: The experience of reading philosophy is often disquieting. When reading philosophy, the values around which one has heretofore organised one's life may come to look provincial, flatly wrong, or even evil. ____ (1) ____ . When beliefs previously held as truths are rendered implausible, new beliefs, values, and ways of living may be required. ____ (2) ____ . What's worse, philosophers admonish each other to remain unsutured until such time as a defensible new

answer is revealed or constructed. Sometimes philosophical writing is even strictly critical in that, it does not even attempt to provide an alternative after tearing down a cultural or conceptual citadel. ____ (3) ____ . The reader of philosophy must be prepared for the possibility of this experience. While reading philosophy can help one clarify one's values, and even make one self-conscious for the first time of the fact that there are good reasons for believing what one believes, it can also generate unremediated doubt that is difficult to live with. ____ (4) ____ .

- | | |
|-------------|-------------|
| 1. Option 4 | 2. Option 2 |
| 3. Option 1 | 4. Option 3 |

Q. 19. Five jumbled up sentences (labelled 1, 2, 3, 4 and 5), related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd sentence and key in the number of that sentence as your answer.

1. Having an appreciation for the workings of another person's mind is considered a prerequisite for natural language acquisition, strategic social interaction, reflexive thought, and moral judgment.
2. It is a 'theory of mind' though some scholars prefer to call it 'mentalising' or 'mindreading', which is important for the development of one's cognitive abilities.
3. Though we must speculate about its evolutionary origin, we do have indications that the capacity evolved sometime in the last few million years.
4. This capacity develops from early beginnings in the first year of life to the adult's fast and often effortless understanding of others' thoughts, feelings, and intentions.
5. One of the most fascinating human capacities is the ability to perceive and interpret other people's behaviour in terms of their mental states.

Q. 20. Five jumbled up sentences (labelled 1, 2, 3, 4 and 5), related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd sentence and key in the number of that sentence as your answer.

1. In English, there is no systematic rule for the naming of numbers; after ten, we have "eleven" and "twelve" and then the teens: "thirteen", "fourteen", "fifteen" and so on.

2. Even more confusingly, some English words invert the numbers they refer to: the word “fourteen” puts the four first, even though it appears last.
3. It can take children a while to learn all these words, and understand that “fourteen” is different from “forty”.
4. For multiples of 10, English speakers switch to a different pattern: “twenty”, “thirty”, “forty” and so on.
5. If you did not know the word for “eleven”, you would be unable to just guess it – you might come up with something like “one-teen”.

Q. 21. The four sentences (labelled 1, 2, 3 and 4) given below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer.

1. What precisely are the “unusual elements” that make a particular case so attractive to a certain kind of audience?
2. It might be a particularly savage or unfathomable level of depravity, very often it has something to do with the precise amount of mystery involved.
3. Unsolved, and perhaps unsolvable cases offer something that “ordinary” murder does not.
4. Why are some crimes destined for perpetual re-examination and others locked into permanent obscurity?

Q. 22. The four sentences (labelled 1, 2, 3 and 4) given below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer.

1. Algorithms hosted on the internet are accessed by many, so biases in AI models have resulted in much larger impact, adversely affecting far larger groups of people.
2. Though “algorithmic bias” is the popular term, the foundation of such bias is not in algorithms, but in the data; algorithms are not biased, data is, as algorithms merely reflect persistent patterns that are present in the training data.
3. Despite their widespread impact, it is relatively easier to fix AI biases than humangenerated biases, as it is simpler

to identify the former than to try to make people unlearn behaviors learnt over generations.

4. The impact of biased decisions made by humans is localised and geographically confined, but with the advent of AI, the impact of such decisions is spread over a much wider scale.

Q. 23. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Colonialism is not a modern phenomenon. World history is full of examples of one society gradually expanding by incorporating adjacent territory and settling its people on newly conquered territory. In the sixteenth century, colonialism changed decisively because of technological developments in navigation that began to connect more remote parts of the world. The modern European colonial project emerged when it became possible to move large numbers of people across the ocean and to maintain political control in spite of geographical dispersion. The term colonialism is used to describe the process of European settlement, violent dispossession and political domination over the rest of the world, including the Americas, Australia, and parts of Africa and Asia.

1. As a result of developments in navigation technology, European colonialism, led to the displacement of indigenous populations and global political changes in the 16th century.
2. Colonialism, conceptualized in the 16th century, allowed colonizers to expand their territories, establish settlements, and exercise political power.
3. Technological advancements in navigation in the 16th century, transformed colonialism, enabling Europeans to establish settlements and exert political dominance over distant regions.
4. Colonialism surged in the 16th century due to advancements in navigation, enabling British settlements abroad and global dominance.

Q. 24. The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Manipulating information was a feature of history long before modern journalism established rules of integrity. A record dates back to ancient Rome, when Antony met Cleopatra and his political enemy Octavian

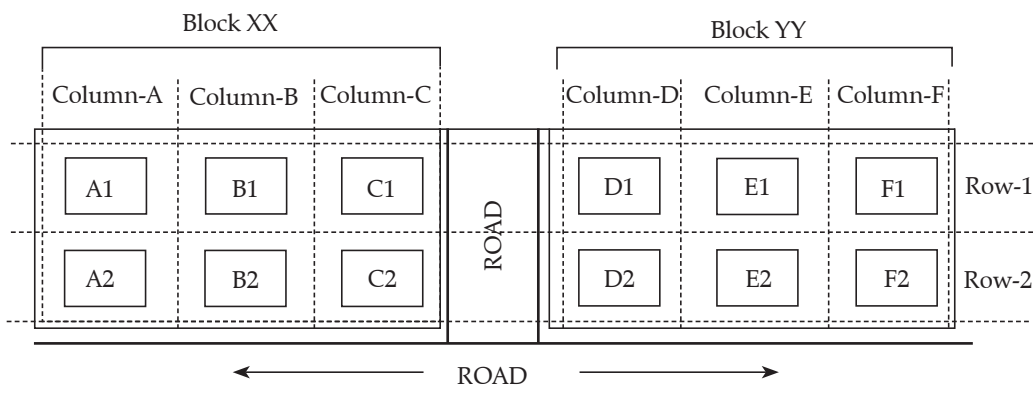
launched a smear campaign against him with “short, sharp slogans written upon coins.” The perpetrator became the first Roman Emperor and “fake news had allowed Octavian to hack the republican system once and for all”. But the 21st century has seen the weaponisation of information on an unprecedented scale. Powerful new technology makes the fabrication of content simple, and social networks amplify falsehoods peddled by States, populist politicians, and dishonest corporate entities. The platforms have become fertile ground for computational propaganda, ‘trolling’ and ‘troll armies’.

1. Disinformation, which is mediated by technology today, is not new and has existed since ancient times.
2. People need to become critical of what they read, since historically, weaponization of information has led to corruption.
3. Use of misinformation for attaining power, a practice that is as old as the Octavian era, is currently fueled by technology.
4. Octavian used fake news to manipulate people and attain power and influence, just as people do today.

Data Interpretation and Logical Reasoning (DILR)

Directions (Q. 1 to 5): Read the instructions given and answer the questions that follow:

The schematic diagram below shows 12 rectangular houses in a housing complex. House numbers are mentioned in the rectangles representing the houses. The houses are located in six columns – Column-A through Column-F, and two rows – Row-1 and Row-2. The houses are divided into two blocks - Block XX and Block YY. The diagram also shows two roads, one passing in front of the houses in Row-2 and another between the two blocks.



Some of the houses are occupied. The remaining ones are vacant and are the only ones available for sale. The road adjacency value of a house is the number of its sides adjacent to a road. For example, the road adjacency values of C2, F2, and B1 are 2, 1, and 0, respectively. The neighbour count of a house is the number of sides of that house adjacent to occupied houses in the same block. For example, E1 and C1 can have the maximum possible neighbour counts of 3 and 2, respectively.

The base price of a vacant house is ₹ 10 lakhs if the house does not have a parking space, and ₹ 12 lakhs if it does. The quoted price (in lakhs of ₹) of a vacant house is calculated as (base price) + 5 × (road adjacency value) + 3 × (neighbour count).

The following information is also known.

1. The maximum quoted price of a house in Block XX is ₹ 24 lakhs. The minimum quoted price of a house in block YY is ₹ 15 lakhs, and one such house is in Column-E.
2. Row-1 has two occupied houses, one in each block.
3. Both houses in Column-E are vacant. Each of Column-D and Column-F has at least one occupied house.
4. There is only one house with parking space in Block YY.

Q. 1. How many houses are vacant in Block XX?

Q. 2. Which of the following houses is definitely occupied?

1. A1 2. B1 3. D2 4. F2

Q. 3. Which of the following options best describes the number of vacant houses in Row-2?

1. Exactly 3 2. Either 3 or 4
3. Either 2 or 3 4. Exactly 2

- Q. 4.** What is the maximum possible quoted price (in lakhs of ₹) for a vacant house in Column-E? **Q. 5.** Which house in Block YY has parking space?
1. F1 2. E1 3. E2 4. F2

Directions (Q. 6 to 10): Answer the questions on the basis of the information given below.

Faculty members in a management school can belong to one of four departments – Finance and Accounting (F&A), Marketing and Strategy (M&S), Operations and Quants (O&Q) and Behaviour and Human Resources (B&H). The numbers of faculty members in F&A, M&S, O&Q and B&H departments are 9, 7, 5 and 3 respectively.

Prof. Pakrasi, Prof. Qureshi, Prof. Ramaswamy and Prof. Samuel are four members of the school's faculty who were candidates for the post of the Dean of the school. Only one of the candidates was from O&Q.

Every faculty member, including the four candidates, voted for the post. In each department, all the faculty members who were not candidates voted for the same candidate. The rules for the election are listed below.

1. There cannot be more than two candidates from a single department.
2. A candidate cannot vote for himself/herself.
3. Faculty members cannot vote for a candidate from their own department.

After the election, it was observed that Prof. Pakrasi received 3 votes, Prof. Qureshi received 14 votes, Prof. Ramaswamy received 6 votes and Prof. Samuel received 1 vote. Prof. Pakrasi voted for Prof. Ramaswamy, Prof. Qureshi for Prof. Samuel, Prof. Ramaswamy for Prof. Qureshi and Prof. Samuel for Prof. Pakrasi.

- Q. 6.** Which two candidates can belong to the same department?
1. Prof. Pakrasi and Prof. Samuel
 2. Prof. Pakrasi and Prof. Qureshi
 3. Prof. Qureshi and Prof. Ramaswamy
 4. Prof. Ramaswamy and Prof. Samuel
- Q. 7.** Which of the following can be the number of votes that Prof. Qureshi received from a single department?
1. 7 2. 8 3. 6 4. 9
- Q. 8.** If Prof. Samuel belongs to B&H, which of the following statements is/are true?
- Statement A: Prof. Pakrasi belongs to M&S.
Statement B: Prof. Ramaswamy belongs to O&Q.
1. Neither statement A nor statement B
 2. Both statements A and B
 3. Only statement B
 4. Only statement A
- Q. 9.** What best can be concluded about the candidate from O&Q?
1. It was either Prof. Pakrasi or Prof. Qureshi.
 2. It was Prof. Ramaswamy.
 3. It was either Prof. Ramaswamy or Prof. Samuel.
 4. It was Prof. Samuel.
- Q. 10.** Which of the following statements is/are true?
- Statement A: Non-candidates from M&S voted for Prof. Qureshi.
Statement B: Non-candidates from F&A voted for Prof. Qureshi.
1. Only statement B
 2. Only statement A
 3. Both statements A and B
 4. Neither statement A nor statement B

Directions (Q. 11 to 15): Answer the questions based on the following information.

Five restaurants, coded R1, R2, R3, R4 and R5 gave integer ratings to five gig workers – Ullas, Vasu, Waman, Xavier and Yusuf, on a scale of 1 to 5.

The means of the ratings given by R1, R2, R3, R4 and R5 were 3.4, 2.2, 3.8, 2.8 and 3.4 respectively.

The summary statistics of these ratings for the five workers is given below.

	Ullas	Vasu	Waman	Xavier	Yusuf
Mean rating	2.2	3.8	3.4	3.6	2.6
Median rating	2	4	4	4	3
Modal rating	2	4	5	5	1 and 4
Range of rating*	3	3	5	4	4

* Range of ratings is defined as the difference between the maximum and minimum ratings awarded to a worker.

The following is partial information about ratings of 1 and 5 awarded by the restaurants to the workers.

- (a) R1 awarded a rating of 5 to Waman, as did R2 to Xavier, R3 to Waman and Xavier, and R5 to Vasu.
(b) R1 awarded a rating of 1 to Ullas, as did R2 to Waman and Yusuf, and R3 to Yusuf.

- Q. 11. How many individual ratings cannot be determined from the above information?
- Q. 12. To how many workers did R2 give a rating of 4?
- Q. 13. What rating did R1 give to Xavier?
- Q. 14. What is the median of the ratings given by R3 to the five workers?
- Q. 15. Which among the following restaurants gave its median rating to exactly one of the workers?
1. R2 2. R3 3. R4 4. R5

Directions (Q. 16 to 20): Answer the questions based on the following information.

A visa processing office (VPO) accepts visa applications in four categories – US, UK, Schengen, and Others. The applications are scheduled for processing in twenty 15-minute slots starting at 9:00 am and ending at 2:00 pm. Ten applications are scheduled in each slot.

There are ten counters in the office, four dedicated to US applications, and two each for UK applications, Schengen applications and Others applications. Applicants are called in for processing sequentially on a first-come-first-served basis whenever a counter gets freed for their category. The processing time for an application is the same within each category. But it may vary across the categories. Each US and UK application requires 10 minutes of processing time. Depending on the number of applications in a category and time required to process an application for that category, it is possible that an applicant for a slot may be processed later.

On a particular day, Ira, Vijay and Nandini were scheduled for Schengen visa processing in that order. They had a 9:15 am slot but entered the VPO at 9:20 am. When they entered the office, exactly six out of the ten counters were either processing applications, or had finished processing one and ready to start processing the next.

Mahira and Osman were scheduled in the 9:30 am slot on that day for visa processing in the Others category. The following additional information is known about that day.

- All slots were full.
 - The number of US applications was the same in all the slots. The same was true for the other three categories.
 - 50% of the applications were US applications.
 - All applicants except Ira, Vijay and Nandini arrived on time.
 - Vijay was called to a counter at 9:25 am.
- Q. 16. How many UK applications were scheduled on that day?
- Q. 17. What is the maximum possible value of the total time (in minutes, nearest to its integer value) required to process all applications in the Others category on that day?
- Q. 18. Which of the following is the closest to the time when Nandini's application process got over?
1. 9:37 am 2. 9:45 am 3. 9:50 am 4. 9:35 am
- Q. 19. Which of the following statements is false?
- The application process of Mahira was completed before Nandini's.
 - The application process of Osman was completed before Vijay's.
 - The application process of Mahira started after Nandini's.
 - The application process of Osman was completed before 9:45 am.
- Q. 20. When did the application processing for all US applicants get over on that day?
1. 2:00 pm 2. 3:40 pm 3. 2:05 pm 4. 2:25 pm

Quantitative Aptitude (QA)

- Q. 1. If x and y are real numbers such that $x^2 + (x - 2y - 1)^2 = -4y(x + y)$, then the value $x - 2y$ is
1. 1 2. 2 3. -1 4. 0
- Q. 2. Let n be the least positive integer such that 168 is a factor of 1134^n . If m is the least positive integer such that 1134^n is a factor of 168^m , then $m + n$ equals
1. 24 2. 12 3. 9 4. 15
- Q. 3. If $\sqrt{5x+9} + \sqrt{5x-9} = 3(2+\sqrt{2})$, then $\sqrt{10x+9}$
1. $3\sqrt{31}$ 2. $2\sqrt{7}$ 3. $3\sqrt{7}$ 4. $4\sqrt{5}$
- Q. 4. If x and y are positive real numbers such that $\log_x(x^2 + 12) = 4$ and $3 \log_y x = 1$, then $x + y$ equals
1. 10 2. 68 3. 20 4. 11

- Q. 5.** The number of integer solutions of equation $2|x|(x^2 + 1) = 5x^2$ is
- Q. 6.** The equation $x^3 + (2r + 1)x^2 + (4r - 1)x + 2 = 0$ has -2 as one of the roots. If the other two roots are real, then the minimum possible non-negative integer value of r is
- Q. 7.** Let α and β be the two distinct roots of the equation $2x^2 - 6x + k = 0$, such that $(\alpha + \beta)$ and $\alpha\beta$ are the distinct roots of the equation $x^2 + px + p = 0$. Then the value of $8(k - p)$ is
- Q. 8.** In an examination, the average marks of 4 girls and 6 boys is 24. Each of the girls has the same marks while each of the boys has the same marks. If the marks of any girl is at most double the marks of any boy, but not less than the marks of any boy, then the number of possible distinct integer values of the total marks of 2 girls and 6 boys is
1. 21 2. 19 3. 20 4. 22
- Q. 9.** The salaries of three friends Sita, Gita and Mita are initially in the ratio $5 : 6 : 7$, respectively. In the first year, they get salary hikes of 20%, 25% and 20%, respectively. In the second year, Sita and Mita get salary hikes of 40% and 25%, respectively, and the salary of Gita becomes equal to the mean salary of the three friends. The salary hike of Gita in the second year is
1. 26% 2. 30% 3. 28% 4. 25%
- Q. 10.** The minor angle between the hour hand and minute hand of a clock was observed at 8:48 am. The minimum duration, in minutes, after 8:48 am when this angle increase by 50% is
1. $\frac{24}{11}$ 2. $\frac{36}{11}$ 3. 4 4. 2
- Q. 11.** Brishti went on an 8-hour trip in a car. Before the trip, the car had travelled a total of x km till then, where x is a whole number and is palindromic, i.e., x remains unchanged when its digits are reversed. At the end of the trip, the car had travelled a total of 26862 km till then, this number again being palindromic. If Brishti never drove at more than 110 km/h, then the greatest possible average speed at which she drove during the trip, in km/h, was
1. 90 2. 80 3. 100 4. 110
- Q. 12.** Gita sells two objects A and B at the same price such that she makes a profit of 20% on object A and a loss of 10% on object B. If she increases the selling price such that objects A and B are still sold at an equal price and a profit of 10% is made on object B, then the profit made on object A will be nearest to
1. 42% 2. 49% 3. 45% 4. 47%
- Q. 13.** A mixture P is formed by removing a certain amount of coffee from a coffee jar and replacing the same amount with cocoa powder. The same amount is again removed from mixture P and replaced with same amount of cocoa powder to form a new mixture Q. If the ratio of coffee and cocoa in the mixture Q is $16 : 9$, then the ratio of cocoa in mixture P to that in mixture Q is
1. $4 : 9$ 2. $1 : 3$ 3. $5 : 9$ 4. $1 : 2$
- Q. 14.** Anil invests ₹ 22000 for 6 years in a certain scheme with 4% interest per annum, compounded half-yearly. Sunil invests in the same scheme for 5 years, and then reinvests the entire amount received at the end of 5 years for one year at 10% simple interest. If the amounts received by both at the end of 6 years are same, then the initial investment made by Sunil, in rupees, is
- Q. 15.** The amount of job that Amal, Sunil and Kamal can individually do in a day, are in harmonic progression. Kamal takes twice as much time as Amal to do the same amount of job. If Amal and Sunil work for 4 days and 9 days, respectively, Kamal needs to work for 16 days to finish the remaining job. Then the number of days Sunil will take to finish the job working alone, is
- Q. 16.** Arvind travels from town A to town B, and Surbhi from town B to town A, both starting at the same time along the same route. After meeting each other, Arvind takes 6 hours to reach town B while Surbhi takes 24 hours to reach town A. If Arvind travelled at a speed of 54 km/h, then the distance, in km, between town A and town B is
- Q. 17.** A quadrilateral ABCD is inscribed in a circle such that $AB : CD = 2 : 1$ and $BC : AD = 5 : 4$. If AC and BD intersect at the point E, then $AE : CE$ equals
1. $2 : 1$ 2. $1 : 2$ 3. $8 : 5$ 4. $5 : 8$
- Q. 18.** Let C be the circle $x^2 + y^2 + 4x - 6y - 3 = 0$ and L be the locus of the point of intersection of a pair of tangents to C with the angle between the two tangents equal to 60° . Then, the point at which L touches the line $x = 6$ is
1. (6, 6) 2. (6, 4) 3. (6, 8) 4. (6, 3)

Q. 19. In a right-angled triangle $\triangle ABC$, the altitude AB is 5 cm, and the base BC is 12 cm. P and Q are two points on BC such that the areas of $\triangle ABP$, $\triangle ABQ$ and $\triangle ABC$ are in arithmetic progression. If the area of $\triangle ABC$ is 1.5 times the area of $\triangle ABP$, the length of PQ , in cm, is

Q. 20. For some positive and distinct real numbers x , y and z , if $\frac{1}{\sqrt{y} + \sqrt{z}}$ is the arithmetic mean of $\frac{1}{\sqrt{x} + \sqrt{z}}$ and $\frac{1}{\sqrt{x} + \sqrt{y}}$, then the relationship which will always hold true, is

1. x, y and z are in arithmetic progression
2. \sqrt{x}, \sqrt{y} and \sqrt{z} are in arithmetic progression

3. y, x and z are in arithmetic progression

4. \sqrt{x}, \sqrt{z} and \sqrt{y} are in arithmetic progression

Q. 21. The number of all natural numbers up to 1000 with non-repeating digits is

1. 738 2. 648 3. 504 4. 585

Q. 22. A lab experiment measures the number of organisms at 8 am every day. Starting with 2 organisms on the first day, the number of organisms on any day is equal to 3 more than twice the number on the previous day. If the number of organisms on the n^{th} day exceeds one million, then the lowest possible value of n is

Answer Key

Verbal Ability and Reading Comprehension (VARC)

1. (2)	2. (1)	3. (4)	4. (3)	5. (4)	6. (3)	7. (2)	8. (2)	9. (4)	10. (1)
11. (4)	12. (4)	13. (3)	14. (3)	15. (1)	16. (2)	17. (3)	18. (2)	19. 2	20. 3
21. 4123	22. 4123	23. (3)	24. (3)						

Data Interpretation and Logical Reasoning (DILR)

1. 3	2. (2)	3. (3)	4. 21	5. (2)	6. (2)	7. (4)	8. (2)	9. (3)	10. (1)
11. 0	12. 0	13. 3	14. 4	15. (3)	16. 0	17. 200	18. (2)	19. (3)	20. (3)

Quantitative Aptitude (QA)

1. (1)	2. (4)	3. (3)	4. (1)	5. 3	6. 2	7. 6	8. (1)	9. (1)	10. (1)
11. (3)	12. (4)	13. (3)	14. 20808	15. 27	16. 972	17. (3)	18. (4)	19. 2	20. (3)
21. (1)	22. 19								

Answers and Explanations

Verbal Ability and Reading Comprehension (VARC)

1. Option (2) is correct.

The passage suggests the opposite. It emphasises that the novels by Ghosh, Gurnah, Collen, and Conrad reference a different set of histories and geographies compared to the commonly found ones centered in Europe or the US. These novels contribute to a remapping that challenges the Western-centric perspective.

Option 1 aligns with the passage. The novels discussed in the passage move beyond the limitations of national concerns and explore the Indian Ocean world, providing a rich regional perspective.

The passage mentions that historical and archaeological evidence suggests that what we now call globalisation first appeared in the Indian Ocean. This supports option (3), that the global south, represented by the Indian Ocean world, was the first center of globalisation.

As per the author, 'commonly found ones' are mostly centred in Europe or the US, assume a background of Christianity and whiteness'. Whereas, his novels highlight a largely Islamic space, feature characters of colour, and centralise ports such as Malindi, Mombasa, Aden, Java, and Bombay. This challenges the idea that early international trade and commerce were solely dominated by white Europeans.

In summary, statements 1, 3, and 4 contribute to the "remapping" discussed in the passage, while statement 2 does not align with the passage's perspective on the origin of cosmopolitanism.

2. Option (1) is correct.

Postcolonial novels: Border-crossing

This pair is the odd one out. The passage doesn't explicitly mention postcolonial novels being associated with border-crossing. Instead, it mentions that postcolonial novels were concerned with national questions and sometimes served as allegories for a specific nation. In fact, they were land-focused and

inward-looking, instead of border-crossing. The focus is more on the nation rather than border-crossing.

Option 2 is a consistent pair. The passage emphasises that Indian Ocean novels, as discussed in the book "Writing Ocean Worlds," present an outward-looking perspective. The novels focus on movement, border-crossing, and interconnection.

Option 3 is also a consistent pair. The passage mentions that slavery is a part of the portrayal in the novels set in the Indian Ocean world. While not the central theme, the mention of slavery is in line with the broader historical and thematic context.

Option 4 is also a consistent pair. The passage notes that early postcolonial novels were often concerned with national questions and supported anti-colonial nationalism.

3. Option (4) is correct.

The passage discusses how the novels in "Writing Ocean Worlds" by authors like Ghosh, Gurnah, Collen, and Conrad offer a different perspective compared to mainstream English-language novels. It mentions that mainstream novels often center on Europe or the US, assume a background of Christianity and whiteness, and mention places like Paris and New York. Statement 4 aligns with the passage's claim by stating that mainstream English-language novels historically privileged the Christian, white, male experience of travel and adventure. This supports rather than weakens the passage's argument.

4. Option (3) is correct.

The passage emphasises that the novels in "Writing Ocean Worlds" highlight a largely Islamic space, featuring characters of colour and centralising ports like Malindi, Mombasa, Aden, Java, and Bombay. The focus is on the interconnected global south, not the global north. This is reflected through the author's book- sensory image of a southern cosmopolitan culture.

Options 1, 2 and 4 are incorrect because the passage mentions that migration is often portrayed as abandonment rather than adventure. Thus, confirming that the migration was an ambivalent experience. It also indicates that for much of history, travel by sea in the Indian Ocean was easier than by land, and port cities far apart were often more easily connected to each other than much closer inland cities. The passage also mentions that the Indian Ocean world's migration networks were shaped by the religious and commercial histories of the region.

5. **Option (4) is correct.**

The passage indicates that Sahlins's essay, "The Original Affluent Society" brings a critical perspective to bear on the contemporary world, particularly on the issues of prosperity and inequality. By referencing Galbraith's "The Affluent Society," the passage suggests that Sahlins's views complement Galbraith's criticism of consumerism and inequality in modern society. The comparison is made to demonstrate that foraging societies, in contrast to the capitalist pursuit of wealth through material production, follow a "Zen road to affluence" by wanting less and prioritising values such as leisure, mobility, and freedom. Therefore, option 4 accurately captures the relationship between Sahlins's views and Galbraith's criticism of contemporary society.

6. **Option (3) is correct.**

The author mentions Tanzania's Hadza community in the context of Marshall Sahlins's argument that forager communities, like the Hadza, had alternatives to settled agriculture but consciously chose their own way of life. The passage states that the Hadza, despite being surrounded by farmers, knew they had alternatives and rejected them. This illustrates the author's point that forager communities' lifestyles are not a result of ignorance about alternatives but a demonstration of real choices. Therefore, option 3 accurately captures the purpose of mentioning Tanzania's Hadza community in the passage.

7. **Option (2) is correct.**

The passage mentions that when viewed in today's context, not every aspect of Sahlins's essay has aged well. One of the criticisms highlighted is that the essay does not thematise the effects of racism, colonialism, and dispossession as heavily as one might expect today. The author points out that, while acknowledging these issues, the essay does not

give them enough emphasis. Therefore, option 2 accurately reflects the author's criticism regarding the essay's treatment of the effects of racism and colonialism.

8. **Option (2) is correct.**

The passage suggests that Sahlins's main goal in writing his essay, "The Original Affluent Society," was to bring a critical perspective to contemporary society. Sahlins used examples from foraging societies to challenge the acquisitive nature of modern society. By showcasing these foraging societies as successful in choosing non-materialistic ways of life, he aimed to provide an alternative perspective on prosperity and challenge the prevailing views on economic progress and wealth accumulation. Therefore, option 2 aligns with the inferred goal of Sahlins in writing his essay.

9. **Option (4) is correct.**

The passage mentions that in the ninth century, the royal office of the Luparii (wolf-catchers) was created in France to tackle wolf predators. This office, along with other hunters, completed their job in the 1930s when the last wolf disappeared from the mainland. The shutting down of the royal office of the Luparii contributed to the eradication of wolves in France at that time. Therefore, the shutting down of this office did not contribute to the growing wolf population in Lozère.

10. **Option (1) is correct.**

The passage suggests that the return of wolves in Lozère has led to conflicts between farmers, who are concerned about the impact of wolves on their livestock and livelihoods, and environmentalists, who see the presence of wolves as a sign of wider ecological health. However, the author hints at a possible economic solution by mentioning tourist venues, such as parks where wolves are kept and discussions about the animals' spread. These venues generate income and jobs in rural areas, indicating a potential economic solution that takes into account the divergent interests of farmers and environmentalists.

Therefore, option 1, "farmers and environmentalists," best captures the divergent and competing interests mentioned in the passage in the context of a possible economic solution.

11. **Option (4) is correct.**

The passage mentions several issues faced by the inhabitants of Lozère, including a lack of local schools, jobs, phone and internet

connections, and concerns about livestock losses due to the return of wolves. However, there is no mention of a decline in the number of hunting licenses as a specific problem faced by the residents of Lozère. Therefore, option 4 is the correct answer.

12. Option (4) is correct.

The author's claims revolve around the challenges faced by residents in Lozère, including concerns about the return of wolves and the conflicts between farmers and environmentalists. He considers the issue from a dual economic perspective- a loss for farmers on one hand but an economic gain for the country. Thus, with the onset of Wolf attacks on tourists in Lozere, it will question both the economic standpoints. Therefore, Option 4, stating that wolf attacks on tourists are on the rise, weakens the author's claims. The passage focuses on the impact of wolves on livestock, the livelihoods of farmers, and the conflicts between different interest groups, rather than attacks on tourists.

13. Option (3) is correct.

The passage does not criticise scholars for their outdated interpretations of past cultural and historical phenomena. Instead, it discusses scholars' reactions to geographic explanations, particularly their reflex rejection of geographic explanations and the reasons behind it. The criticisms are focused on scholars' labelling of geographic explanations as deterministic, their rejection of the role of biogeographic factors, and their emphasis on individual decisions in studying human phenomena. Therefore, option 3 is not explicitly mentioned as a reason for criticism in the pass

14. Option (3) is correct.

The examples of the Inuit and Aboriginal Australians in the passage illustrate how physical circumstances, specifically biogeographic and environmental factors, can influence human behaviour and cultures. The Inuit developed warm fur clothes in response to the cold climate of the Arctic Circle, while Aboriginal Australians remained hunter/gatherers due to the absence of domestic able native animal and plant species on the Australian continent. These examples highlight the role of geography and environment in shaping the lifestyles and cultural practices of these societies, supporting the idea that physical circumstances can dictate human

behaviour and culture .Therefore, option (3) is correct.

15. Option (1) is correct.

The passage explicitly states that many human phenomena and characteristics are influenced by both geographic factors and non-geographic factors. It does not imply that most human phenomena result solely from culture and individual choice. Instead, it emphasises the interplay of both geographic and non-geographic factors in shaping various aspects of human behaviour, beliefs, economies, etc. Therefore, option 1 is not a correct inference from the passage.

16. Option (2) is correct.

The author presents several reasons why non-geographers often reject or disregard geographic influences on human phenomena. These include the tainted legacy of past racist geographic explanations, a tradition among historians to emphasise contingency and individual decisions, and the technical nature of geographic explanations that many scholars, especially historians and economists, may not acquire in their professional training. The author does not suggest that non-geographers dismiss explanations involving geographical causes for human behaviour. Instead, the passage emphasises the reflex rejection of geographic explanations, attributing it to historical reasons and the perceived lack of relevance in the eyes of scholars from other disciplines. Therefore, option 2 is not presented as a reason in the passage.

17. Option (3) is correct.

The missing sentence, "The discovery helps to explain archaeological similarities between the Paleolithic peoples of China, Japan, and America," would best fit in option 3. This is because option 3 discusses the unexpected genetic link between Native Americans and Japanese people, emphasising the contribution of an ancestral source to the Japanese gene pool, particularly among the indigenous Ainu. The sentence about archaeological similarities logically follows this discussion as it provides additional context and explanation for the observed genetic link. It suggests that the genetic connection is not only supported by DNA analysis but also helps explain similarities in the archaeological record among the Paleolithic peoples of China, Japan, and the Americas.

18. Option (2) is correct.

The missing sentence, "This philosophical cut at one's core beliefs, values, and way of life is difficult enough," would best fit in option 2. This is because after this the paragraph discusses the disquieting experience of reading philosophy, where previously held beliefs are challenged, rendering them implausible. The sentence about the philosophical cut at one's core beliefs fits logically in this context as it further emphasises the difficulty of the experience. Placing it in option 2 helps maintain the coherence of the paragraph by introducing the challenging nature of the philosophical exploration before discussing the need for new beliefs, values, and ways of living. Furthermore, it plausibly connects the next statement starting with 'what's worse' because the missing statement says that the philosophical cut is difficult enough. It enhances the overall flow of the passage by providing a clearer transition between the disquieting experience and the subsequent need for new perspectives.

19. Correct answer is [2].

The odd sentence is 2 because it introduces a different term, "mentalizing" or "mindreading," without establishing its connection to the broader context. The coherent sequence begins with 5, highlighting the human capacity to interpret others' behaviour in terms of mental states. Sentence 1 follows, emphasising the importance of understanding others' minds in various aspects of human development. Sentence 4 logically extends this by discussing the development of this capacity from infancy to adulthood. Finally, sentence 3 adds a temporal perspective, discussing the speculative evolutionary origin of this cognitive ability. Together, they form a cohesive paragraph on the human capacity for understanding others' mental states.

20. Correct answer is [3].

The odd sentence is 3 as it introduces a different topic regarding the challenges children face in learning number words. The coherent sequence begins with 1, discussing the lack of a systematic rule for naming numbers in English, followed by 5, which highlights the potential confusion in forming words like "eleven." Sentence 2 adds complexity by mentioning the inversion of numbers in certain words. Finally, sentence 4 extends the discussion to multiples of 10, forming a cohesive paragraph about the

intricacies and irregularities in English number naming conventions. The odd sentence disrupts the flow by introducing a specific difficulty faced by children.

21. Correct answer is [4123].

The sequence 4-1-2-3 creates a coherent paragraph that explores the factors making certain crimes perennially intriguing. It begins by questioning the unique elements that captivate a specific audience, followed by a consideration of factors such as extreme brutality or a mysterious aura that contribute to a case's appeal. The third sentence emphasises how unsolved cases provide something distinct from "ordinary" murders. The final sentence builds on this by questioning why some crimes endure constant re-examination while others remain perpetually obscure, inviting readers to ponder on the enduring fascination with certain criminal cases.

22. Correct answer is [4123].

The proper sequence is 4-1-2-3. Sentence 4 introduces the subject of the passage- the advent of AI and that the impact of biased decisions is spread over a much wider scale. Sentence (1) logically aligns with it, by stressing on the manner how biases in AI models have resulted in much larger impact. Statement (2) contradicts the preceding statements by asserting that the foundation of such bias is not in algorithms but in data. Statement (3) serves as the appropriate conclusion to the passage- it is relatively easier to fix AI biases than human-generated biases.

23. Option (3) is correct.

Option 3 best captures the essence of the passage. It highlights the crucial role of technological advancements in navigation during the 16th century in transforming colonialism, allowing Europeans to establish settlements and exert political dominance over distant regions. Option (1) is the only close option, but it fails to highlight the influence of European colonialism, political domination over the rest of the world.

24. Option (3) is correct.

Option 3 best captures the essence of the passage. It highlights the historical use of misinformation for gaining power, referencing the Octavian era in ancient Rome, and draws a parallel to the contemporary situation where technology fuels the weaponisation of information by states, politicians, and corporations.

Data Interpretation and Logical Reasoning (DILR)

Solution for Questions 1 to 5:

Block XX		
Column A	Column B	Column C
A1	B1	C1
A2	B2	C2

Block YY			
Column D	Column E	Column F	
D1	E1	F1	Row 1
D2	E2	F2	Row 2

Quoted price (in lakhs of ₹) of a vacant house = Base price + $5 \times$ (road adjacency value) + $3 \times$ (neighbour count).

Given: Maximum Quoted Price of a house in Block XX is 24 lakhs.

Now, we will try to find that house which is having the maximum cost.

A1	Without Parking	Road Adjacent Value- 0 Neighbour Count Possibilities are 0, 1, 2. Quoted Price when Neighbour Count is 0, $= 10 + 5 \times 0 + 0 \times 3 = 10$ lakhs. Quoted Price when Neighbour Count is 1, $= 10 + 5 \times 0 + 1 \times 3 = 13$ lakhs. Quoted Price when Neighbour Count is 2, $= 10 + 5 \times 0 + 2 \times 3 = 16$ lakhs.
	With Parking	Road Adjacent Value- 0 Neighbour Count Possibilities are 0, 1, 2. Quoted Price when Neighbour Count is 0, $= 12 + 5 \times 0 + 0 \times 3 = 12$ lakhs. Quoted Price when Neighbour Count is 1, $= 12 + 5 \times 0 + 1 \times 3 = 15$ lakhs. Quoted Price when Neighbour Count is 2, $= 12 + 5 \times 0 + 2 \times 3 = 18$ lakhs.
B1	Without Parking	Road Adjacent Value- 0 Neighbour Count Possibilities are 0, 1, 2. Quoted Price when Neighbour Count is 0, $= 10 + 5 \times 0 + 0 \times 3 = 10$ lakhs. Quoted Price when Neighbour Count is 1, $= 10 + 5 \times 0 + 1 \times 3 = 13$ lakhs. Quoted Price when Neighbour Count is 2, $= 10 + 5 \times 0 + 2 \times 3 = 16$ lakhs.
	With Parking	Road Adjacent Value- 0 Neighbour Count Possibilities are 0, 1, 2. Quoted Price when Neighbour Count is 0, $= 12 + 5 \times 0 + 0 \times 3 = 12$ lakhs. Quoted Price when Neighbour Count is 1, $= 12 + 5 \times 0 + 1 \times 3 = 15$ lakhs. Quoted Price when Neighbour Count is 2, $= 12 + 5 \times 0 + 2 \times 3 = 18$ lakhs.
C1	Without Parking	Road Adjacent Value- 1 Neighbour Count Possibilities are 0, 1, 2. Quoted Price when Neighbour Count is 0, $= 10 + 5 \times 1 + 0 \times 3 = 15$. Quoted Price when Neighbour Count is 1, $= 10 + 5 \times 1 + 1 \times 3 = 18$. Quoted Price when Neighbour Count is 2, $= 10 + 5 \times 1 + 2 \times 3 = 21$ lakhs

	With Parking	Road Adjacent Value- 1 Neighbour Count Possibilities are 0, 1, 2. Quoted Price when Neighbour Count is 0, $= 12 + 5 \times 1 + 0 \times 3 = 17$ lakhs. Quoted Price when Neighbour Count is 1, $= 12 + 5 \times 1 + 1 \times 3 = 20$ lakhs. Quoted Price when Neighbour Count is 2, $= 12 + 5 \times 1 + 2 \times 3 = 23$ lakhs.
A2	Without Parking	Road Adjacent Value- 1 Neighbour Count Possibilities are 0, 1, 2. Quoted Price when Neighbour Count is 0, $= 10 + 5 \times 1 + 0 \times 3 = 15$ lakhs. Quoted Price when Neighbour Count is 1, $= 10 + 5 \times 1 + 1 \times 3 = 18$ lakhs. Quoted Price when Neighbour Count is 2, $= 10 + 5 \times 1 + 2 \times 3 = 21$ lakhs.
	With Parking	Road Adjacent Value-1 Neighbour Count Possibilities are 0, 1, 2. Quoted Price when Neighbour Count is 0, $= 12 + 5 \times 1 + 0 \times 3 = 17$ lakhs. Quoted Price when Neighbour Count is 1, $= 12 + 5 \times 1 + 1 \times 3 = 20$ lakhs. Quoted Price when Neighbour Count is 2, $= 12 + 5 \times 1 + 2 \times 3 = 23$ lakhs.
B2	Without Parking	Road Adjacent Value- 1 Neighbour Count Possibilities are 0, 1, 2, 3. Quoted Price when Neighbour Count is 0, $= 10 + 5 \times 1 + 0 \times 3 = 15$ lakhs. Quoted Price when Neighbour Count is 1, $= 10 + 5 \times 1 + 1 \times 3 = 18$ lakhs. Quoted Price when Neighbour Count is 2, $= 10 + 5 \times 1 + 2 \times 3 = 21$ lakhs. Quoted Price when Neighbour Count is 3, $= 10 + 5 \times 1 + 3 \times 3 = 24$ lakhs.
	With Parking	Road Adjacent Value- 1 Neighbour Count Possibilities are 0, 1, 2, 3. Quoted Price when Neighbour Count is 0, $= 12 + 5 \times 1 + 0 \times 3 = 17$ lakhs. Quoted Price when Neighbour Count is 1, $= 12 + 5 \times 1 + 1 \times 3 = 20$ lakhs. Quoted Price when Neighbour Count is 2, $= 12 + 5 \times 1 + 2 \times 3 = 23$ lakhs. Quoted Price when Neighbour Count is 3, $= 12 + 5 \times 1 + 2 \times 3 = 26$ lakhs. (This Number is not Possible due to Maximum Sealing of 24 lakhs).
C2	Without Parking	Road Adjacent Value- 2 Neighbour Count Possibilities are 0, 1. Quoted Price when Neighbour Count is 0, $= 10 + 5 \times 2 + 0 \times 3 = 20$ lakhs. Quoted Price when Neighbour Count is 1, $= 10 + 5 \times 2 + 1 \times 3 = 23$ lakhs.

	With Parking	Road Adjacent Value- 2 Neighbour Count Possibilities are 0. Quoted Price when Neighbour Count is 0, $= 12 + 5 \times 2 + 0 \times 3 = 22$ lakhs.
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Out of all the possible value of the Vacant Flats 24 lacs is possible only in B2. In this scenario the count of neighbours was 3 and it was a price of non-parking house.

So, from here we can conclude that all three neighbours of B2 are occupied flats.

Block XX			Block YY			
Column A	Column B	Column C	Column D	Column E	Column F	
A1	B1 (Occupied)	C1	D1	E1	F1	Row 1
A2 (Occupied)	B2 (Vacant + Max Cost+ Non Parking)	C2 (Occupied)	D2	E2	F2	Row 2

Given: Minimum Quoted Price of a house in Block YY is 15 lakhs and one of such houses is in E column.

Now, we will try to find that house which is having the minimum cost.

E1	Non-Parking	Road Adjacent Value- 0, Neighbour Count Possibility- 1. (Since one of the flats from D1 or F1 must be occupied and E2 is unoccupied) Quoted Price= $10 + 5 \times 0 + 3 \times 1 = 13$ lakhs
	Parking	Road Adjacent Value- 0, Neighbour Count Possibility- 1. (Since one of the flats from D1 or F1 must be occupied and E2 is unoccupied) Quoted Price= $12 + 5 \times 0 + 3 \times 1 = 15$ lakhs

Here the Quoted value of E1 arrived at 15 lakhs when we are considering parking.

Block XX			Block YY			
Column A	Column B	Column C	Column D	Column E	Column F	
A1	B1 (Occupied)	C1	D1	E1 (Parking + Min Cost + Vacant)	F1	Row 1
A2 (Occupied)	B2 (Vacant + Max Cost+ non-Parking)	C2 (Occupied)	D2	E2 (Vacant)	F2	Row 2

Statement 2: Row-1 has two occupied houses, one in each block.

In Block XX, 1 Occupied house is B1. So, rest in the same block and row must be vacant.

Statement 3: Both houses in Column-E are vacant. Each of Column-D and Column-F has at least one occupied house.

Case I

Block XX			Block YY			
Column A	Column B	Column C	Column D	Column E	Column F	
A1 (Vacant)	B1 (Occupied)	C1 (Vacant)	D1 (Occupied)	E1 (Parking + Min Cost + Vacant)	F1 (Vacant)	Row 1
A2 (Occupied)	B2 (Vacant + Max Cost+ non-Parking)	C2 (Occupied)	D2 (Vacant/ Occupied)	E2 (Vacant)	F2 (Occupied)	Row 2

Case II:

Block XX		
Column A	Column B	Column C
A1 (Vacant)	B1 (Occupied)	C1 (Vacant)
A2 (Occupied)	B2 (Vacant + Max Cost + non-Parking)	C2 (Occupied)

Block YY			
Column D	Column E	Column F	
D1 (Vacant)	E1 (Parking + Min Cost + Vacant)	F1 (Occupied)	Row 1
D2 (Occupied)	E2 (Vacant)	F2 (Vacant/ Occupied)	Row 2

- Correct answer is [3].**
From the above tables in both the cases the number of vacant houses in Block XX are A1, C1 and B2
Number of vacant houses = 3
- Option (2) is correct.**
Out of the given options B1 will always remain occupied.
- Option (3) is correct.**
Number of vacant houses in Row 2 = Either B2, E2 or B2, E2 & F2
So, the number of vacant houses will be = 2 or 3.
- Correct answer is [21].**
Minimum Quoted Price was of E1. So, Maximum Quoted Price of house in Column E will be E2.
Consider Non-parking house since it given that there is only one parking house in Block YY.
Maximum Quoted Price of E2,
Road Adjacent Value = 1, Neighbour Count = 2
Quoted Price = $10 + 5 \times 1 + 2 \times 3 = 21$
- Option (2) is correct.**
House E1 in the Block YY has the parking.

Solution for Questions 6 to 10:

The direct information given can be tabled as below:

Department	Total Faculty Members	No. of Candidate for Dean	No. of Non-Candidate Faculty
F & A	9		
M & S	7		
O & Q	5	1	4
B & H	3		

Candidates for Dean	Total Votes	Voters	
		Candidate	Faculty Members
Pakrasi	3	Samuel (1)	2
Qureshi	14	Ramaswamy (1)	13
Ramaswamy	6	Pakrasi (1)	5
Samuel	1	Qureshi (1)	0

Given: In each department, all the faculty members who were not candidates voted for the same candidate.

- There cannot be more than two candidates from a single department.
- A candidate cannot vote for himself/herself.
- Faculty members cannot vote for a candidate from their own department.

For Prakasi,

Case I: If we consider the maximum limit of 2 from every department for the dean candidate then the departments will left with 7, 5, 3 and 1 faculty members respectively and Pakrasi got 2 votes from faculty members which is not possible from any of the department.

Case II: If we consider 1 from every department for the dean candidate then the departments will left with, 8, 6, 4 and 2 faculty members respectively and Pakrasi got 2 votes from faculty members which can be possible only when there is 1 Candidate for Dean from B&H department and remaining 2 must have voted him.

Department	Total Faculty Members	No. of Candidate for Dean	No. of Non-Candidate Faculty
F & A	9		
M & S	7		
O & Q	5	1	4
B & H	3	1	2

Candidates for Dean	Total Votes	Voters	
		Candidate	Faculty Members
Pakrasi	3	Samuel (1)	2 (B&H)
Qureshi	14	Ramaswamy (1)	13
Ramaswamy	6	Pakrasi (1)	5
Samuel	1	Qureshi (1)	0

Now, we know that there are only 2 candidates left and there are 3 possibilities of distribution of these 2 candidates,

Case 1: Both of the remaining 2 are from F & A.

Department	Total Faculty Members	No. of Candidate for Dean	No. of Non-Candidate Faculty
F & A	9	2	7
M & S	7	0	7
O & Q	5	1	4
B & H	3	1	2

If we consider this situation as true, then the votes distribution of Non-Candidate Faculty is not satisfying the given numbers because Ramaswamy has got 5 of Non-Faculty and no department has the same no. of Non-Candidate Faculties.

Hence, Case I is eliminated.

Case 2: 1 each from O&Q and B&H.

Department	Total Faculty Members	No. of Candidate for Dean	No. of Non-Candidate Faculty
F & A	9	1	8
M & S	7	1	6
O & Q	5	1	4
B & H	3	1	2

If we consider this situation as true, then the votes distribution of Non-Candidate Faculty is not satisfying the given numbers because Ramaswamy has got 5 of Non-Faculty and no department has the same no. of Non-Candidate Faculties.

Hence, Case 2 is eliminated.

Case 3: Both of the remaining 2 are from M&S.

Department	Total Faculty Members	No. of Candidate for Dean	No. of Non-Candidate Faculty
F & A	9	0	9
M & S	7	2	5
O & Q	5	1	4
B & H	3	1	2

This case satisfying the given condition. Now Ramaswamy can get his 5 Non-Candidate faculty votes from M&S department.

Out of above 3 cases, the only possibility is Case-3.

After considering Case 3 True, the tables will look like;

Department	Total Faculty Members	No. of Candidate for Dean	No. of Non-Candidate Faculty
F & A	9	0	9
M & S	7	2	5
O & Q	5	1	4
B & H	3	1	2

Candidates for Dean	Total Votes	Voters	
		Candidate	Faculty Members
Pakrasi	3	Samuel (1)	2 (B&H)
Qureshi	14	Ramaswamy (1)	13 (F&A + O&Q)
Ramaswamy	6	Pakrasi (1)	5 (M&S)
Samuel	1	Qureshi (1)	0

From the above concluded tables, one more table can be formed for a clarity which will tell about the department of the candidates for Dean.

	F&A	M & S	O & Q	B & H
Pakrasi				
Qureshi				
Ramaswamy				
Samuel				

From the concluded tables, there is no one from F&A for Dean.

	F&A	M & S	O & Q	B & H
Pakrasi	×			
Qureshi	×			
Ramaswamy	×			
Samuel	×			

B&H have voted for Pakrasi and it is given that no non-candidate faculty can vote for his department candidate. Hence, Pakrasi cannot be from B&H.

	F&A	M & S	O & Q	B & H
Pakrasi	×			×
Qureshi	×			
Ramaswamy	×			
Samuel	×			

With the same analogy Qureshi can't, be from O&Q and Ramaswamy cannot be from M&S.

	F&A	M & S	O & Q	B & H
Pakrasi	×			×
Qureshi	×		×	
Ramaswamy	×	×		
Samuel	×			

In M&S there are 2 Candidates, considering above table the 3 possibilities are:

Case I: Pakrasi & Qureshi

Case I: Qureshi & Samuel

Since Qureshi has voted for Samuel so they can't be from same department. Hence, this case is eliminated.

Case III: Pakrasi & Samuel.

Since Samuel has voted for Pakrasi. So, they can't be from the same department. Hence, this case is eliminated. So, the 2 candidates of M&S are from **Case I**: Pakrasi & Qureshi.

The table will look like;

	F&A	M & S	O & Q	B & H
Pakrasi	×	✓	×	×
Qureshi	×	✓	×	×
Ramaswamy	×	×		
Samuel	×	×		

Hence, the final arrangement of the given information will look like;

Department	Total Faculty Members	No. of Candidate for Dean	No. of Non-Candidate Faculty
F & A	9	0	9
M & S	7	2	5
O & Q	5	1	4
B & H	3	1	2

Candidates for Dean	Total Votes	Voters	
		Candidate	Faculty Members
Pakrasi	3	Samuel (1)	2 (B&H)
Qureshi	14	Ramaswamy (1)	13 (F&A + O&Q)
Ramaswamy	6	Pakrasi (1)	5 (M&S)
Samuel	1	Qureshi (1)	0

	F&A	M & S	O & Q	B & H
Pakrasi	×	✓	×	×
Qureshi	×	✓	×	×
Ramaswamy	×	×		
Samuel	×	×		

6. **Option (2) is correct.**

From the above table, M&S is the department which have 2 candidates and those are Qureshi and Pakrasi.

7. **Option (4) is correct.**

Prof. Qureshi received total 13 votes; 9 from F&A and 4 from O&Q. So, out of the given options 9 will be correct.

8. **Option (2) is correct.**

If Prof. Samuel belongs to B&H than the departmental table will look like;

	F&A	M&S	O&Q	B&H
Pakrasi	×	✓	×	×
Qureshi	×	✓	×	×
Ramaswamy	×	×	✓	×
Samuel	×	×	×	✓

Statement A: Prof. Pakrasi belongs to M&S. (True)

Statement B: Prof. Ramaswamy belongs to O&Q. (True)

Hence, both the statements are correct.

9. **Option (3) is correct.**

From the concluded departmental table, there are no concrete information about department O&Q but there are only 2 options available for that either Prof. Ramaswamy or Prof. Samuel.

10. **Option (1) is correct.**

Statement A: Non-candidates from M&S voted for Prof. Qureshi. (False)

Non-Candidate from M&S has voted for Ramaswamy not Qureshi. Hence Statement A is False.

Statement B: Non-candidates from F&A voted for Prof. Qureshi. (True)

Solution for Questions 11 to 15:

Statements (a) and (b) can be filled directly in the table as;

	Ullas	Vasu	Waman	Xavier	Yusuf	Mean Rating By Restaurant
R1	1		5			3.4
R2			1	5	1	2.2
R3			5	5	1	3.8
R4						2.8
R5		5				3.4
Mean Rating	2.2	3.8	3.4	3.6	2.6	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

For Reference,

Median = It is the middle number of a group of numbers that have been arranged in order by size.

Mean = Sum of Terms/ Number of Terms.

From here,

Sum = Mean \times Number of Terms.

Mode = It is the value that occurs the most often in a data set.

We can convert the given means into Sum for better understanding and the table will look like;

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
R1	1		5			17
R2			1	5	1	11
R3			5	5	1	19
R4						14
R5		5				17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

Now we can reduce possible value of ratings for every gig worker using Sum, Median, Mode and Range.

For Xavier,

Range is 4, which and Range is the difference between highest and lowest rating. So, one of the ratings should be 1.

Median also remains the part of data and Xavier's Median is 4 which means another value must be 4.

The 3rd possible rating = $18 - (5 + 5 + 1 + 4) \Rightarrow 3$

So, the other ratings that Xavier got are 1, 4, and 3.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings				1, 4, 3		
R1	1		5			17
R2			1	5	1	11
R3			5	5	1	19
R4						14
R5		5				17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

For Waman,

The Median is 4 which means one of the ratings must be 4.

Then the other number = $17 - (5 + 1 + 5 + 4) = 2$

So, the other ratings that Waman got are 4, and 2.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings			4, 2	1, 4, 3		
R1	1		5			17
R2			1	5	1	11
R3			5	5	1	19
R4						14
R5		5				17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

For Vasu,

The Range is 3 and one of the ratings is 5, which means that another number should be 2.

Median is 4, which means one of the numbers should be 4.

Since, the Mode is 4, which means that 4 rating is there at least twice because than only it will qualify for being mode.

Remaining Possible Number = $19 - (5 + 4 + 4 + 2) = 4$

So, the other ratings that Vasu got are 4, 4, 4, 2.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings		4,4,4,2	4, 2	1, 4, 3		
R1	1		5			17
R2			1	5	1	11
R3			5	5	1	19
R4						14
R5		5				17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

For Yusuf,

The Mode is both 1 and 4, which means 4 must be there 2 times in his rating to satisfy this.

Remaining Rating = $13 - (1 + 1 + 4 + 4) \Rightarrow 3$

So, the other ratings of Yusuf are 4, 4, 3.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings		4, 4, 4, 2	4, 2	1, 4, 3	4, 4, 3	
R1	1		5			17
R2			1	5	1	11
R3			5	5	1	19
R4						14
R5		5				17

Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

For Ullas,

Range is 3 and one of the ratings is 1 which means that the maximum rating he got is of 4.

Mode is 2 which means 2 must be there at least 2 times.

The remaining rating = $11 - (1 + 4 + 2 + 2) \Rightarrow 2$

So, the other ratings of Ullas are 4, 2, 2, 2.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings	4, 2, 2, 2	4, 4, 4, 2	4, 2	1, 4, 3	4, 4, 3	
R1	1		5			17
R2			1	5	1	11
R3			5	5	1	19
R4						14
R5		5				17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

Now, we will focus on the ratings given by the restaurants.

For R2,

The sum of ratings is 11 out of which 7 has already given. It is left with 4 only. The only possible combination of making this 4 is 2 to Ullas and 2 to Vasu.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings	4, 2, 2	4, 4, 4	4, 2	1, 4, 3	4, 4, 3	
R1	1		5			17
R2	2	2	1	5	1	11
R3			5	5	1	19
R4						14
R5		5				17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

For R3,

The sum of ratings is 19 out of which 11 has already given. It is left with 8. The only possible combination of making this 8 is 4 to Ullas and 4 to Vasu.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings	2, 2	4, 4	4, 2	1, 4, 3	4, 4, 3	
R1	1		5			17
R2	2	2	1	5	1	11
R3	4	4	5	5	1	19

R4						14
R5		5				17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

Vasu and Ullas are left with 2 identical number each and with 2 places left so these can be filled directly.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings			4, 2	1, 4, 3	4, 4, 3	
R1	1	4	5			17
R2	2	2	1	5	1	11
R3	4	4	5	5	1	19
R4	2	4				14
R5	2	5				17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

For R5,

The sum of ratings is 17 out of which 7 has already given. It is left with 10. The only possible combination of making this is 2 to Waman, 4 to Xavier and 4 to Yusuf.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating By Restaurant
Possible Ratings			4	1, 3	4, 3	
R1	1	4	5			17
R2	2	2	1	5	1	11
R3	4	4	5	5	1	19
R4	2	4				14
R5	2	5	2	4	4	17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

For R1,

The sum of ratings is 17 out of which 10 has already given. It is left with 7. The only possible combination of making this is 3 to Xavier, 4 to Yusuf.

After these only 1 place with one value will be left which can be filled directly.

	Ullas	Vasu	Waman	Xavier	Yusuf	Sum of Rating by Restaurant
Possible Ratings						
R1	1	4	5	3	4	17
R2	2	2	1	5	1	11
R3	4	4	5	5	1	19
R4	2	4	4	1	3	14

R5	2	5	2	4	4	17
Sum of Rating	11	19	17	18	13	
Median Rating	2	4	4	4	3	
Mode Rating	2	4	5	5	1 and 4	
Range of Rating	3	3	4	4	3	

11. Correct answer is [0].

In the final table we have determined everything concretely hence the answer for this question will be 0.

12. Correct answer is [0].

Referring Above Table,
R2 gave 4 rating to none of the worker.
Hence, 0 will be the correct answer.

13. Correct answer is [3].

From the above table,
R1 gave rating of 3 to Xavier.

14. Correct answer is [4].

Ratings by R3 to the workers = 4, 4, 5, 5, 1
When arranged in ascending order = 1, 4, 4, 5, 5
Since, Median is Middle number after ascending,
in the above numbers 4 will be the median.

R1	1	4	5	3	4
R2	2	2	1	5	1
R3	4	4	5	5	1
R4	2	4	4	1	3
R5	2	5	2	4	4

15. Option (3) is correct.

Ratings by R1 = 1, 4, 5, 3, 4
Ratings in Ascending Order = 1, 3, 4, 4, 5
Median of R1 = 4

Ratings by R2 = 2, 2, 1, 5, 1
Ratings in Ascending Order = 1, 1, 2, 2, 5
Median of R2 = 2

Ratings by R3 = 4, 4, 5, 5, 1
Rating in Ascending Order = 1, 4, 4, 5, 5
Median of R3 = 4

Ratings by R4 = 2, 4, 4, 1, 3
Ratings in Ascending Order = 1, 2, 3, 4, 4
Median of R4 = 3

Rating by R5 = 2, 5, 2, 4, 4
Ratings in Ascending Order = 2, 2, 4, 4, 5
Median of R5 = 4

From the above data, it is clear that only R4 is there, which gave its median rating to only one worker, rest all have given this to more than 1 worker.
Hence, R4 will be the correct answer.

Solution for Questions 16 to 20:

As per data given in the paragraph, the number of slots is 20 and the total duration of the slots is $20 \times 15 = 300$ minutes (9:00 am to 2:00 pm).

The number of counters is 10 and also given US -4, UK -2, Schengen -2, Others-2.

Ten applications are scheduled in each slot and 50% of the applications are from US applications. Therefore, the number of applications of US per slot is 5. UK, Schengen and Others are 5 applications per slot as per given in the data.

The US and UK per application duration is 10 Minutes. In addition, each visa processing office the number of US applications was the same in all the slots. The same was true for the other three categories.

The data can be filled in the table as follows:

Slot Number	Slot Timing (am to pm)	US				UK		Schengen		Others	
		Counter-1	Counter-2	Counter-3	Counter-4	Counter-1	Counter-2	Counter-1	Counter-2	Counter-1	Counter-2
1	9:00 – 9:15	2	1	1	1	0	0	1	2	1	1
2	9:15 – 9:30	1	2	1	1	0	0	2	1	1	1
3	9:30 – 9:45	1	1	2	1	0	0	1	2	1	1
4	9:45 – 10:00	1	1	1	2	0	0	2	1	1	1
5	10:00 – 10:15	2	1	1	1	0	0	1	2	1	1
6	10:15 – 10:30	1	2	1	1	0	0	2	1	1	1
7	10:30 – 10:45	1	1	2	1	0	0	1	2	1	1
8	10:45 – 11:00	1	1	1	2	0	0	2	1	1	1
9	11:00 – 11:15	2	1	1	1	0	0	1	2	1	1

10	11:15 – 11:30	1	2	1	1	0	0	2	1	1	1
11	11:30 – 11:45	1	1	2	1	0	0	1	2	1	1
12	11:45 – 12:00	1	1	1	2	0	0	2	1	1	1
13	12:00 – 12:15	2	1	1	1	0	0	1	2	1	1
14	12:15 – 12:30	1	2	1	1	0	0	2	1	1	1
15	12:30 – 12:45	1	1	2	1	0	0	1	2	1	1
16	12:45 – 1:00	1	1	1	2	0	0	2	1	1	1
17	1:00 – 1:15	2	1	1	1	0	0	1	2	1	1
18	1:15 – 1:30	1	2	1	1	0	0	2	1	1	1
19	1:30 – 1:45	1	1	2	1	0	0	1	2	1	1
20	1:45 – 2:00	1	1	1	2	0	0	2	1	1	1

16. Correct answer is [0].

From the data table, there is no application process at UK counters.

17. Correct answer is [200].

The maximum possible value of the total time at others counters is 10×20 minutes or 200 minutes.

18. Option (2) is correct.

At Schengen counter, Vijay was called to a counter at 9:25 am. So, the application process as follows:

Schengen		
Slot Duration	Counter-1	Counter-2
Slot 9:00 – 9:15	One Application - 9:00 – 9:10	One Application - 9:00 – 9:10 & Second Application - 9:10 – 9:20
Slot 9:15 – 9:30	One Application - 9:15 – 9:25 & Second Application 9:25 – 9:35 (Vijay)	One Application - 9:20 – 9:30 (Ira)
Slot 9:30 – 9:45	One Application - 9:35 – 9:45 (Nandini)	One Application - 9:30 – 9:40 & Second Application 9:40 – 9:55

The only option can be possible is (2) as per above table.

19. Option (3) is correct.

As per options, the only possible false statement is (3).

20. Option (3) is correct.

The last two slots of US, the application process as follows:

U.S.				
Slot 19 & 20	Counter-1	Counter-2	Counter-3	Counter-4
1:30 – 1:45	One Application - 1:30 – 1:40	One Application 1:35 – 1:45	One Application 1:30 – 1:40 & Second Application 1:40 to 1:50	One Application - 1:30 – 1:40
1:45 – 2:00	One Application - 1:45 – 1:55	One Application 1:45 – 1:55	One Application 1:50 – 2:00	One Application - 1:45 – 1:55 & Second Application 1:55 – 2:05

Quantitative Aptitude (QA)

1. Option (1) is correct.

Given that: $x^2 + (x - 2y - 1)^2 = -4y(x + y)$
 $\Rightarrow x^2 + 4xy + 4y^2 + (x - 2y - 1)^2 = 0$
 $\Rightarrow (x + 2y)^2 + (x - 2y - 1)^2 = 0$
 $\Rightarrow x + 2y = 0$ or $x - 2y - 1 = 0$
 $\Rightarrow x - 2y = 1$

2. Option (4) is correct.

$168 = 2^3 \times 3^1 \times 7^1$
 $1134 = 2^1 \times 3^4 \times 7^1$
 Since, 168 is a factor of 1134^n .
 \therefore least value of n is 3.
 Now, $1134^n = 1134^3 = 2^3 \times 3^{12} \times 7^3$
 $168^m = (2^3 \times 3^1 \times 7^1)^m$

Since, 1134^n is a factor of 168^m

\therefore least value of m is 12

Now, $m + n = 12 + 3 = 15$.

3. **Option (3) is correct.**

Given that:

$$\sqrt{(5x+9)} + \sqrt{(5x-9)} = 3(2+\sqrt{2})$$

$$\sqrt{5x+9} + \sqrt{5x-9} = 6 + 3\sqrt{2} = \sqrt{36} + \sqrt{18}$$

So, $5x + 9 = 36$ and $5x - 9 = 18$

$$\Rightarrow 5x = 36 - 9 = 27$$

$$\text{Now, } \sqrt{10x+9} = \sqrt{54+9} = \sqrt{63} = 3\sqrt{7}.$$

4. **Option (1) is correct.**

$$\log_x (x^2 + 12) = 4$$

$$\Rightarrow x^4 = x^2 + 12$$

$$\Rightarrow x^4 - x^2 + 12 = 0$$

$$\Rightarrow (x^2 - 4)(x^2 + 3) = 0$$

$$\because x^2 + 3 \neq 0$$

$$\Rightarrow x^2 - 4 = 0$$

$$\Rightarrow x = +2 \text{ But } x \neq -2$$

$$\therefore x = 2$$

$$\text{Now, } 3 \log_y x = 1$$

$$\Rightarrow \log_y x^3 = 1$$

$$\Rightarrow x^3 = y$$

$$\Rightarrow y = 2^3 = 8$$

$$\text{Now, } x + y = 2 + 8 = 10$$

5. **Correct answer is [3].**

Case 1: $x \geq 0$

$$2x(x^2 + 1) = 5x^2$$

$$\Rightarrow 2x(x^2 + 1) - 5x^2 = 0$$

$$\Rightarrow x[2x^2 - 5x + 2] = 0$$

$$\Rightarrow x[x - 2](2x - 1) = 0$$

$$\Rightarrow x = 0, 2, \frac{1}{2}$$

Integer solutions = 0, 2

Case 2: $x < 0$

$$2x(x^2 + 1) = -5x^2$$

$$\Rightarrow 2x(x^2 + 1) + 5x^2 = 0$$

$$\Rightarrow x[2x^2 + 5x + 2] = 0$$

$$\Rightarrow x(x + 2)(2x + 1) = 0$$

$$\Rightarrow x = -2, -\frac{1}{2}$$

[Integer solution = -2]

Number of integer solutions is 3.

6. **Correct answer is [2].**

Since one root is -2

Let α and β are two roots given equations.

$$\text{Product of roots} = (-2) \alpha \beta = \frac{-d}{a} = \frac{-2}{1}$$

$$\Rightarrow \alpha \beta = 1 \Rightarrow \beta = \frac{1}{\alpha}$$

$$\text{Sum of roots} = \alpha + \frac{1}{\alpha} - 2 = \frac{-b}{a} = 0 \Rightarrow -(2r + 1)$$

$$\Rightarrow \alpha + \frac{1}{\alpha} = -2r + 1$$

$$\text{We have, } -2 \geq \alpha + \frac{1}{\alpha} \geq 2$$

$$\Rightarrow -2 \geq -2r + 1 \geq 2$$

$$\Rightarrow -3 \geq -2r \geq 1$$

$$\frac{3}{2} \leq r \leq -\frac{1}{2}$$

\therefore Minimum possible non-negative integer value of r is 2.

7. **Correct answer is [6].**

$\therefore \alpha$ and β are two roots of $2x^2 - 6x + k = 0$.

$$\therefore \alpha + \beta = -\frac{(-6)}{2} = 3 \text{ and } \alpha\beta = \frac{k}{2}$$

$\therefore \alpha + \beta$ and $\alpha\beta$ are two roots of $x^2 + px + p = 0$

$$\therefore \alpha + \beta + \alpha\beta = -p \Rightarrow 3 + \frac{k}{2} = -p \quad \dots(i)$$

$$\text{and } (\alpha + \beta) \alpha\beta = p \Rightarrow \frac{3k}{2} = p \quad \dots(ii)$$

On solving equation (i) and (ii), we get

$$k = -\frac{3}{2} \text{ and } p = -\frac{9}{4}$$

$$\text{Now, } 8(k - p) = 8\left(-\frac{3}{2} + \frac{9}{4}\right) = 6$$

8. **Option (1) is correct.**

A.T.Q.

$$4G + 6B = 240$$

$$B \leq G \leq 2B \Rightarrow B \leq \frac{120 - 3B}{2} \leq 2B$$

$$\Rightarrow 17.14 \leq B \leq 24$$

Maximum value of $G = 2B$

$$\therefore 2G + 6B = 10B = 10 \times 17.14 = 171.4$$

Minimum value of $G = B$

$$\therefore 2G + 6B = 8B = 8 \times 24 = 192$$

\therefore Number of possible distinct integer value is 21.

9. **Option (1) is correct.**

Let salaries of three friends Sita, Gita and Mita are $5x$, $6x$ and $7x$ respectively.

Increased salary of Sita in 2 years

$$= 5x \left(1 + \frac{20}{100}\right) \left(1 + \frac{40}{100}\right) = 8.4x$$

Increased salary of Mita in 2 years

$$= 7x \left(1 + \frac{20}{100}\right) \left(1 + \frac{25}{100}\right) = 10.5x$$

Let salary of Gita in second year is y :

A.T.Q,

$$\frac{8.4x + y + 10.5x}{3} = y$$

$$18.9x = 2y$$

$$\Rightarrow y = 9.45x$$

$$\text{Salary of Gita in first year} = 6x \left(1 + \frac{25}{100}\right) = 7.5x$$

Percent Increase in 2nd year salary of Gita

$$= \frac{9.45x - 7.5x}{7.5x} \times 100 = 26\%$$

10. Option (1) is correct.

$$\therefore \text{In one min angle} = \left(\frac{11}{2}\right)^\circ$$

$$\therefore 48 \text{ min angle} = \frac{11}{2} \times 48 = 264^\circ$$

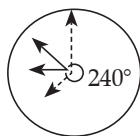
$$\therefore \text{Minor angle} = 264^\circ - 240^\circ = 24^\circ$$

$$50\% \text{ of Minor angle} = 12^\circ$$

$$\therefore \left(\frac{11}{2}\right)^\circ \text{ angle make in 1 min.}$$

$$\therefore 1^\circ \text{ angle make in } \frac{2}{11} \text{ min.}$$

$$\therefore 12^\circ \text{ angle make in } \frac{2}{11} \times 12 = \frac{24}{11} \text{ min.}$$



11. Option (3) is correct.

Given that total distance = 26862 km

By option checking:

Option (4) : Distance in 8 hour

$$= 8 \times 110 = 880 \text{ km}$$

$$\therefore x = 26862 - 880 = 25982$$

But it is not Palindrom.

Option (3) : Distance in 8 hour

$$= 8 \times 100 = 800 \text{ km}$$

$$\therefore x = 26862 - 800 = 26062$$

It is Palindrom.

12. Option (4) is correct.

Let S.P. of both A and B be ₹ x.

$$\therefore \text{C.P. of A} = \frac{x \times 100}{120} = \frac{10x}{12}$$

$$\text{C.P. of B} = \frac{x \times 100}{90} = \frac{10x}{9}$$

After increase on selling price,

$$\frac{10x}{9} \left(1 + \frac{10}{100}\right) = \frac{10x}{12} \left(1 + \frac{y}{100}\right)$$

$$\Rightarrow \frac{12}{9} \times \frac{11}{10} = 1 + \frac{y}{100}$$

$$= \frac{44}{30} - 1 = \frac{y}{100} \Rightarrow \frac{140}{3} = y$$

$$y = 46.6 = 47\%$$

13. Option (3) is correct.

We have,

$$\text{Final ratio} = \frac{16}{9}$$

$$\text{Initial ratio} = \left(1 - \frac{\text{Replaced value}}{\text{Total value}}\right)^{\text{no. of times}}$$

$$\frac{16}{25} = \frac{1}{1} \left(1 - \frac{R}{\text{Total}}\right)^2 \Rightarrow \frac{R}{\text{Total}} = \frac{1}{5}$$

$$\therefore \text{Fraction of cocoa in P} = \frac{1}{5}$$

$$\text{Fraction of cocoa in Q} = 9/25$$

$$\therefore \text{Ratio} = 5 : 9$$

14. Correct answer is [20808].

A.T.Q.,

$$A = 22000 \left(1 + \frac{2}{100}\right)^{12} = x \left(1 + \frac{2}{100}\right)^{10} \left(1 + \frac{10}{100}\right)$$

where x is investment by Sunil.

$$22000 \times \frac{51}{50} \times \frac{51}{50} = x \times \frac{11}{10}$$

$$\therefore x = 20808$$

15. Correct answer is [27].

Given that work done are in H.P.

\therefore Time taken are in A.P.

Given that: Kamal takes twice as much time as Amal.

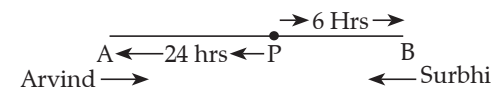
$$\therefore \text{Ratio of time taken of Amal, Sunil and kamal} = 1 : 1.5 : 2 = 2 : 3 : 4$$

$$\text{So, ratio of work done} = \frac{1}{2} : \frac{1}{3} : \frac{1}{4} = 6 : 4 : 3$$

$$\begin{aligned} \text{Total work} &= 4 \times 6 + 5 \times 4 + 16 \times 3 \\ &= 24 + 36 + 48 = 108 \end{aligned}$$

$$\text{Number of days taken by sunil} = \frac{108}{4} = 27 \text{ days.}$$

16. Correct answer is [972].



$$\text{We have } \frac{S_1}{S_2} = \sqrt{\frac{T_2}{T_1}} \Rightarrow \frac{54}{S_2} = \sqrt{\frac{24}{6}} = 2$$

$$S_2 = 27 \text{ km/h.}$$

$$\text{Distance AB} = 27 \times 24 + 6 \times 54 = 972 \text{ km.}$$

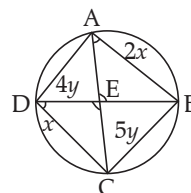
17. Option (3) is correct.

$$\angle CAB = \angle CDB$$

$$\angle AEB = \angle CED$$

$$\therefore \triangle AEB \sim \triangle DEC$$

$$\frac{AE}{DE} = \frac{EB}{EC} = \frac{AB}{CD} = \frac{2}{1}$$



Similarly,

$$\triangle AED \sim \triangle BEC$$

$$\frac{AE}{BE} = \frac{ED}{EC} = \frac{AD}{BC} = \frac{4}{5}$$

$$\frac{AE}{DE} = \frac{2}{1} = \frac{8}{4}$$

$$\frac{ED}{EC} = \frac{4}{5}$$

$$\therefore AE : ED : EC = 8 : 4 : 5$$

$$\frac{AE}{CE} = \frac{8}{5} = 8 : 5$$

18. Option (4) is correct.

Equation of circle is $x^2 + y^2 + 4x - 6y - 3 = 0$

centre = $(-2, 3)$

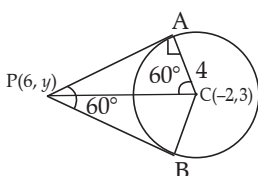
$$\text{radius} = \sqrt{4 + 9 + 3} = 4$$

$$\cos 60^\circ = \frac{4}{CP} \Rightarrow CP = 8$$

$$(6 + 2)^2 + (y - 3)^2 = 8^2$$

$$(y - 3)^2 = 0 \Rightarrow y = 3$$

\therefore Point $(6, 3)$



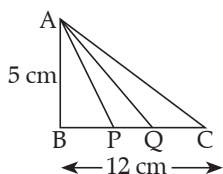
19. Correct answer is [2].

$$\text{Area of } \triangle ABC = \frac{1}{2} \times 5 \times 12 = 30 \text{ cm}^2$$

$$\text{Area } \triangle ABC = 1.5 \text{ area } \triangle ABP$$

$$30 = \frac{15}{10} \text{ area } \triangle ABP$$

$$\triangle ABP = \frac{30 \times 10}{15} = 20 \text{ cm}^2$$



$$\frac{1}{2} \times 5 \times BP = 20 \Rightarrow BP = \frac{20 \times 2}{5} = 8 \text{ cm}$$

\therefore area $\triangle ABP$, area $\triangle ABQ$ and area $\triangle ABC$ are in A.P.

$\therefore 20, x$ and 30 are in A.P.

$$2x = 20 + 30 = 50$$

$$x = 25 \text{ cm}^2$$

$$\therefore \text{Area of } \triangle ABQ = \frac{1}{2} \times 5 \times BQ = 25$$

$$BQ = \frac{25 \times 2}{5} = 10 \text{ cm}$$

$$\therefore PQ = BQ - BP = 10 - 8 = 2 \text{ cm}$$

20. Option (3) is correct.

Let y, x and z are in A.P.

$$\Rightarrow x - z = d, x - y = -d \text{ and } y - z = 2d$$

Now,

$$\frac{1}{\sqrt{x} + \sqrt{z}} + \frac{1}{\sqrt{x} + \sqrt{y}} = \frac{2}{\sqrt{y} + \sqrt{z}}$$

$$\frac{\sqrt{x} - \sqrt{z}}{x - z} + \frac{\sqrt{x} - \sqrt{y}}{x - y} = \frac{2(\sqrt{y} - \sqrt{z})}{y - z}$$

$$\frac{\sqrt{x} - \sqrt{z}}{d} + \frac{\sqrt{x} - \sqrt{y}}{-d} = \frac{2(\sqrt{y} - \sqrt{z})}{2d}$$

$$(\sqrt{x} - \sqrt{z}) - (\sqrt{x} - \sqrt{y}) = \sqrt{y} - \sqrt{z}$$

$$\therefore \sqrt{y} - \sqrt{z} = \sqrt{y} - \sqrt{z}$$

21. Option (1) is correct.

$$\text{Number of one digit number} = 1 \text{ to } 9 = 9$$

$$\text{Number of two digit number} = 9 \times 9 = 81$$

$$\text{Number of three digit number} = 9 \times 9 \times 8 = 648$$

$$\text{Total number} = 9 + 81 + 648 = 738$$

22. Correct answer is [19].

$$1^{\text{st}} \text{ day} = 2$$

$$2^{\text{nd}} \text{ day} = 2 \times 2 + 3 = 7$$

$$3^{\text{rd}} \text{ day} = 2 \times 7 + 3 = 17$$

$$4^{\text{th}} \text{ day} = 2 \times 17 + 3 = 37$$

$$\text{Let } S = 2 + 7 + 17 + 37 + \dots + a_n$$

$$\begin{array}{r} S = \quad \underline{2} + \underline{7} + \underline{17} + \underline{37} + \dots + \underline{a_{n-1}} + \underline{a_n} \\ 0 = 2 + 5 + 10 + 20 + \dots n \text{ term} - a_n \end{array}$$

$$a_n = 2 + \frac{5(2^{n-1} - 1)}{2 - 1} = 2 + 5(2^{n-1} - 1) > 10,00,000$$

$$5(2^{n-1} - 1) > 999998$$

$$\Rightarrow 2^{n-1} - 1 > 199999.6$$

$$\Rightarrow 2^{n-1} > 200,000.6$$

$$\Rightarrow n - 1 \geq 18 = n \geq 19$$

$$\therefore n = 19$$

CAT 2023**Shift-2****QUESTION
PAPER****Time:** 120 Mins**Maximum Marks:** 198**Important Instructions**

- (i) Total Number of Questions: 66
- (ii) Number of Questions in Verbal Ability and Reading Comprehension (VARC): 24
- (iii) Number of Questions in Data Interpretation and Logical Reasoning (DILR): 20
- (iv) Number of Questions in Quantitative Ability (QA): 22
- (v) 40 minutes are allotted to attempt each section.
- (vi) 4 answer options for each MCQ type question.
- (vii) Answers are typed in the given space on the computer screen for Non-MCQ.
- (viii) For each correct answer: + 3 marks
- (ix) Negative marking (Applicable for wrong answers in MCQs): - 1 mark

Verbal Ability and Reading Comprehension (VARC)**Passage 1**

Directions (Q. 1 to 4): Read the following passage carefully and answer the questions that follow.

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

The positivists, anxious to stake out their claim for history as a science, contributed the weight of their influence to the cult of facts. First ascertain the facts, said the positivists, then draw your conclusions from them. . . . This is what may [be] called the common-sense view of history. History consists of a corpus of ascertained facts. The facts are available to the historian in documents, inscriptions, and so on . . . [Sir George Clark] contrasted the "hard core of facts" in history with the surrounding pulp of disputable interpretation forgetting perhaps that the pulpy part of the fruit is more rewarding than the hard core. . . . It recalls the favourite dictum of the great liberal journalist C. P. Scott: "Facts are sacred, opinion is free." . . .

What is a historical fact? . . . According to the common-sense view, there are certain basic facts which are the same for all historians and which form, so to speak, the backbone of history—the fact, for example, that the Battle of Hastings was fought in 1066. But this view calls for two observations. In the first place, it is not with facts like these that the historian is primarily concerned. It is no doubt important to know that the great battle was fought in 1066 and not in 1065 or 1067, and that it was fought at Hastings and not at Eastbourne or Brighton. The historian must not get these things wrong. But [to] praise a historian for his accuracy is like praising an architect for using well-seasoned timber or properly mixed concrete in his building. It is a necessary condition of his work, but not his essential function. It is precisely for matters of this kind that the historian is entitled to rely on what have been called the "auxiliary sciences" of history—archaeology, epigraphy, numismatics, chronology, and so forth. . . .

The second observation is that the necessity to establish these basic facts rests not on any quality in the facts themselves, but on an *a priori* decision of the historian. In spite of C. P. Scott's motto, every journalist knows today that the most effective way to influence opinion is by the selection and arrangement of the appropriate facts. It used to be said that facts speak for themselves. This is, of course, untrue. The facts speak only when the historian calls on them: it is he who decides to which facts to give the floor, and in what order or context. . . . The only reason why we are interested to know that the battle was fought at Hastings in 1066 is that historians regard it as a major historical event. . . . Professor Talcott Parsons once called [science] "a selective system of cognitive orientations to reality." It might perhaps have been put more simply. But history is, among other things, that. The historian is necessarily selective. The belief in a hard core of historical facts existing objectively and independently of the interpretation of the historian is a preposterous fallacy, but one which it is very hard to eradicate.

- Q. 1.** If the author of the passage were to write a book on the Battle of Hastings along the lines of his/her own reasoning, the focus of the historical account would be on:
1. providing a nuanced interpretation by relying on the auxiliary sciences.
 2. exploring the socio-political and economic factors that led to the Battle.
 3. producing a detailed timeline of the various events that led to the Battle.
 4. deriving historical facts from the relevant documents and inscriptions.
- Q. 2.** According to this passage, which one of the following statements best describes the significance of archaeology for historians?
1. Archaeology helps historians to locate the oldest civilisations in history.
 2. Archaeology helps historians to ascertain factual accuracy.
 3. Archaeology helps historians to interpret historical facts.
 4. Archaeology helps historians to carry out their primary duty.
- Q. 3.** All of the following, if true, can weaken the passage's claim that facts do not speak for themselves, EXCEPT:
1. a fact, by its very nature, is objective and universal, irrespective of the context in which it is placed.
 2. facts, like truth, can be relative: what is fact for person X may not be so for person Y.
 3. the order in which a series of facts is presented does not have any bearing on the production of meaning.
 4. the truth value of a fact is independent of the historian who expresses it.
- Q. 4.** All of the following describe the "common-sense view" of history, EXCEPT:
1. only the positivist methods can lead to credible historical knowledge.
 2. history can be objective like the sciences if it is derived from historical facts.
 3. real history can be found in ancient engravings and archival documents.
 4. history is like science: a selective system of cognitive orientations to reality.

Passage 2

Directions (Q. 5 to 8): Read the following passage carefully and answer the questions that follow.

The passage below is accompanied by four questions. Based on the passage, choose the best answer for each question.

Umberto Eco, an Italian writer, was right when he said the language of Europe is translation. Netflix and other deep-pocketed global firms speak it well. Just as the EU employs a small army of translators and interpreters to turn intricate laws or impassioned speeches of Romanian MEPs into the EU's 24 official languages, so do the likes of Netflix. It now offers dubbing in 34 languages and subtitling in a few more. . . .

The economics of European productions are more appealing, too. American audiences are more willing than before to give dubbed or subtitled viewing a chance. This means shows such as "Lupin", a French crime caper on Netflix, can become global hits. . . . In 2015, about 75% of Netflix's original content was American; now the figure is half, according to Ampere, a media-analysis company. Netflix has about 100 productions under way in Europe, which is more than big public broadcasters in France or Germany. . . .

Not everything works across borders. Comedy sometimes struggles. Whodunits and bloodthirsty maelstroms between arch Romans and uppity tribesmen have a more universal appeal. Some do it better than others. Barbarians aside, German television is not always built for export, says one executive, being polite. A bigger problem is that national broadcasters still dominate. Streaming services, such as Netflix or Disney+, account for about a third of all viewing hours, even in markets where they are well-established. Europe is an ageing continent. The generation of teens staring at phones is outnumbered by their elders who prefer to gawp at the box.

In Brussels and national capitals, the prospect of Netflix as a cultural hegemon is seen as a threat. "Cultural sovereignty" is the watchword of European executives worried that the Americans will eat their lunch. To be fair, Netflix content sometimes seems stuck in an uncanny valley somewhere in the mid-Atlantic, with local quirks stripped out. Netflix originals tend to have fewer specific cultural references than shows produced by domestic rivals, according to Enders, a market analyst. The company used to have an imperial model of commissioning, with executives in Los Angeles cooking up ideas French people might like. Now Netflix has offices across Europe. But ultimately the big decisions rest with American executives. This makes European politicians nervous.