2017

NMAT by GMAC™ Practice Exam

GMAC® PROPRIETARY DOCUMENT

Purpose of the NMAT by GMAC™ practice exam

NMAT by GMAC™ is a computer based exam and is being used for admission into leading South African Business Schools for the academic sessions starting 2018. This practice exam is intended to help aspiring candidates familiarize with the NMAT by GMAC™ exam structure and help you practice well and achieve your personal best.

Structure & Features

The NMAT by GMAC™ exam is computer-delivered and gives each candidate a randomly generated test from a pool of questions, delivered one-at-a-time. The number of questions, difficulty levels, and the time limit for each of the sections is predetermined and, under normal administration conditions, are the same regardless of when and where the test is administered.

The NMAT by GMAC™ exam has three sections – Language Skills, Quantitative Skills and Logical Reasoning.

The three sections of the NMAT by GMAC™ are individually timed. Test takers must answer questions and review answers of each section within the allotted time. Test takers must review their answers before moving to another section of the exam, as once the candidate closes out of a section, all answers are final.

Sections	Questions	Time	Score Range
Language Skills	**32 Questions**	**22 Minutes**	**0-96**
Quantitative Skills	**48 Questions**	**60 Minutes**	**0-144**
Logical Reasoning	**40 Questions**	**38 Minutes**	**0-120**
Total	**120 Questions**	**120 Minutes**	**0-360**

- Each of the three sections is individually timed. Test takers need to answer and review the questions of a particular section within the allotted section time.
- If a test taker completes answering and reviewing a section before the allotted section time expires, he/she may choose either to revise the section or move to the next section, but the balance time cannot be added on to the next section timing.

General Tips for Test Takers.

- Use estimation to solve quantitative problems quickly.
- The problems, during prep and during the exam, must be answered **without a calculator.**
- Consider working the answer options through the problem to see which fits best.
- Read through all answer choices before selecting your response.
- Go back and check your work if you are left with additional time
- All currency units are in Rupees (Rs).

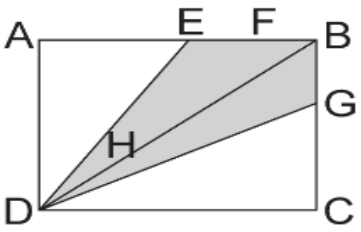
Index

Quantitative Skills Questions

1. **In a group of students, if a student aged 19 years is replaced by a student aged 25 years, the average age of the group increases by 0.4 years. Find the number of students in the group.**

- ☐ A 12
- ☐ B 13
- ☐ C 14
- ☐ D 15
- ☐ E 16

2. **In the given figure, ABCD is a rectangle with an area of 400 sq. units. Find the area (in sq. units) of the shaded region, if EF = FB = 1/5 AB, BG = 1/4 BC and DH = 1/4 BD.**



- ☐ A 90
- ☐ B 130
- ☐ C 140
- ☐ D 150
- ☐ E 180

Directions: A question is followed by two statements, numbered (1) and (2). Using the information provided and general knowledge, decide whether the information given is sufficient to solve the problem

3. Is D+A+B+C even where A, B, C and D are natural numbers?

(1) The product of A, B and C is odd.
(2) The product of D and C is even.

☐ A Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

☐ B Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

☐ C BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

☐ D EACH statement ALONE is sufficient.

☐ E Statements (1) and (2) TOGETHER are NOT sufficient.

4. If (m + 3) is an even integer, which of the following is always an odd integer?

☐ A $5m + 19$

☐ B $\frac{(m+3)}{2}$

☐ C $2m + 7$

☐ D $m + 1$

☐ E $(m + 3)(m + 4)$

5. **A shopkeeper marks his goods 50% above the cost price, but allows a discount of 20% on the marked price. Find his gain percentage.**

- ☐ A 20%
- ☐ B 40%
- ☐ C 80%
- ☐ D 100%
- ☐ E 120%

6. **The roots of the equation $x^2 + x + 1 = 0$ are α and β, and the roots of the equation $x^2 + ax + b = 0$ are α/β and β/α. Then the value of *a* is**

- ☐ A 0
- ☐ B 1
- ☐ C 2
- ☐ D 3
- ☐ E 4

Directions: Solve Questions 7-10 based on the information given below.

Table 1 shows the number of Science and Engineering doctorates from different countries between 1989 and 1993. Table 2 shows the number of only Engineering doctorates from the same countries for the same period of time. Go through the given tables and solve the questions based on them.

Table 1
Science and Engineering Doctorates

Field/Year of Doctorate	Asia	China	India	Japan	South Korea	Taiwan
1989	10,035	1,024	4,209	3,561	984	257
1991	10,871	1,198	4,294	3,874	1,135	370
1993	12,587	1,895	4,320	4,438	1,421	513

Table 2
Engineering Doctorates

Field/Year of Doctorate	Asia	China	India	Japan	South Korea	Taiwan
1989	3,621	726	586	1,774	415	120
1991	4,100	767	629	2,029	466	209
1993	4,700	1,069	323	2,362	659	287

7. **What was the approximate percentage increase in the number of Science doctorates from India between 1989 and 1991?**

- ☐ A 1.16%
- ☐ B 2.00%
- ☐ C 7.33%
- ☐ D 42.00%
- ☐ E 43.00%

8. **In 1993, what percentage of the Science doctorates from Asia were from India?**

- ☐ A 6.87%
- ☐ B 34.32%
- ☐ C 37.34%
- ☐ D 50.67%
- ☐ E 62.65%

9. **The table shows the number of only Engineering doctorates from the same countries in 2003.**

Field/Year of Doctorate	Asia	China	India	Japan	South Korea	Taiwan
2003	NA	6,573	779	3,921	1,868	656

Which country recorded the least percentage increase in the number of engineering doctorates from 1989 to 2003?

- ☐ A India
- ☐ B China
- ☐ C Japan
- ☐ D Taiwan
- ☐ E South Korea

10. From 1989 to 1993 what percentage of Engineering doctorates from Asia were from countries other than India?

- ☐ A 12.39%
- ☐ B 16.18%
- ☐ C 50.36%
- ☐ D 61.71%
- ☐ **E** 87.61%

11. Which represents 28 written in base 4?

- ☐ A 13
- ☐ B 31
- ☐ C 130
- ☐ D 301
- ☐ E 310

12. **Tap A can fill a pool in 0.4 hours and Tap B can fill the same pool in $\frac{8}{15}$ hours. Both the taps are turned on simultaneously. After how much time should Tap B be turned off so that the pool is filled completely in 18 minutes**?

- ☐ A 6 minutes
- ☐ B 7 minutes
- ☐ C 8 minutes
- ☐ D 10 minutes
- ☐ E 11 minutes

13. Find the value of the following expression:

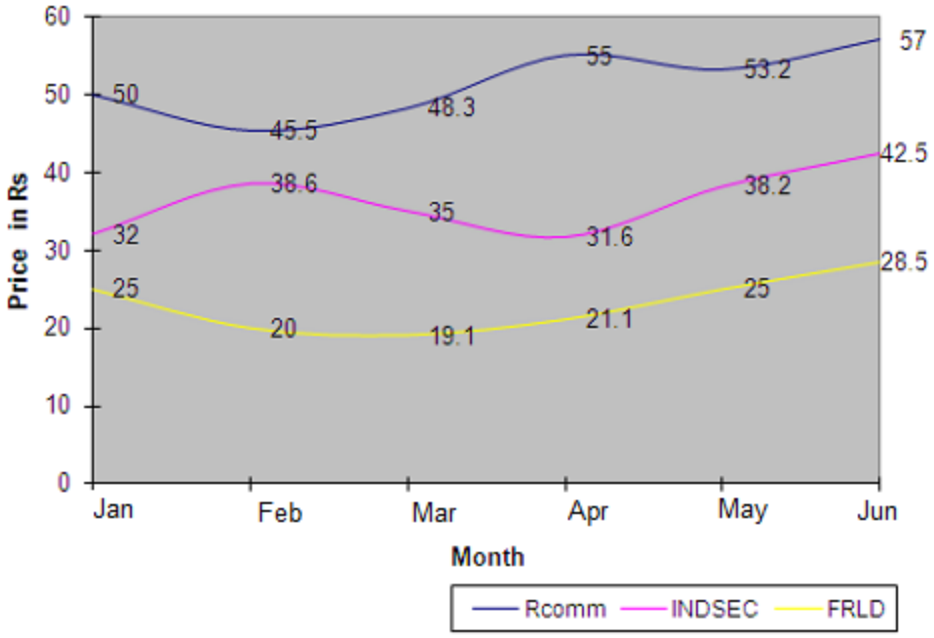
$9^{1/3} \times 9^{1/9} \times 9^{1/27} \times 9^{1/81} \times ...\infty$

- ☐ A 3
- ☐ B $3\sqrt{3}$
- ☐ C $3\sqrt{3} + 3$
- ☐ D 9
- ☐ E $9\sqrt{3} + 1$

Directions: Solve the questions 14-17 based on the information given below.

Go through the given information and solve the question based on it.

The following chart gives the average price of a share at the end of each month, for the first six months of the year. The three lines represent data for the shares of three different companies listed on the BSE (Bombay Stock Exchange) as Relay Communication (Rcomm), India Securities (INDSEC) and My Fair Lady Inc. (FRLD).



Note: For the month being considered, only the average price at the end of the month has to be taken into account.

14. Mr. Chinta has Rs 25,000. He buys Rcomm shares with this amount in January, and sells the same shares in March. He then buys INDSEC, out of the proceeds. How many INDSEC shares does he get?

- ☐ A 490
- ☐ B 590
- ☐ C 690
- ☐ D 790
- ☐ E 890

15. Mr. Chinta has Rs 20,000. Which option will earn him maximum returns on his investment?

- ☐ A Buy FRLD in May and sell it in June
- ☐ B Buy Rcomm in April and sell it in June
- ☐ C Buy FRLD in February and sell it in April
- ☐ D Buy Rcomm in January and sell it in April
- ☐ E Buy INDSEC in January and sell it in February

16. Which share(s) showed the maximum percentage increase from January end till the end of June?

- ☐ A FRLD
- ☐ B INDSEC
- ☐ C Rcomm
- ☐ D Both FRLD and Rcomm
- ☐ E Insufficient data

17. Which of the following is/are true?

I. The average price of Rcomm during the six-month period is Rs 51.50.
II. The price of FRLD, increases from the end of February till June.
III. At the end of March, only FRLD reports a decrease in price.

- ☐ A Only I
- ☐ B Only II
- ☐ C Only III
- ☐ D Only I and II
- ☐ E Only II and III

18. Which of the following could be the sum of any 12 consecutive natural numbers?

- ☐ A 92
- ☐ B 198
- ☐ C 328
- ☐ D 412
- ☐ E 1,570

19. A tank contains a mixture of 200 litres of wine and water. 20% of the mixture is water and the remaining is wine. How many litres of water should be added to the mixture to increase the percentage of water to 25% in the new mixture?

- ☐ A 13.33
- ☐ B 16.33
- ☐ C 19.33
- ☐ D 22.33
- ☐ E 25.33

20. In ΔABC, AD bisects $\angle BAC$. If AB = 12 cm, AC = 10 cm and BD = 6 cm, then what is BC?

- ☐ A 5 cm
- ☐ B 11 cm
- ☐ C 26 cm
- ☐ D 30 cm
- ☐ E 34 cm

Directions: A question is followed by two statements, numbered (1) and (2). Using the information provided and general knowledge, decide whether the information given is sufficient to solve the problem.

21. A, B, C, D and E are five positive integers such that D is the average of A and E. Which is the largest of the five integers?

(1) A − E is negative, and B is not the smallest of all.
(2) E − C is negative, and B is not the largest of all.

- ☐ A Statement (1) ALONE is sufficient, but statement (2) ALONE is not sufficient.
- ☐ B Statement (2) ALONE is sufficient, but statement (1) ALONE is not sufficient.
- ☐ C BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- ☐ D EACH statement ALONE is sufficient.
- ☐ E Statements (1) and (2) TOGETHER are NOT sufficient.

22. What is the unit digit in 17^{222}?

- ☐ A 1
- ☐ B 3
- ☐ C 4
- ☐ D 7
- ☐ E 9

23. At what time (approximately) between 3 AM and 4 AM will the hour and minute hand of an analogue clock make 36 degrees between them?

- ☐ A 3:09:49 AM
- ☐ B 3:22:55 AM
- ☐ C 3:44:39 AM
- ☐ D Both 3:09:49 AM and 3:22:55 AM
- ☐ E Both 3:09:49 AM and 3:44:39 AM

Directions: A question is followed by two statements, numbered (1) and (2). Using the information provided and general knowledge, decide whether the information given is sufficient to solve the problem.

24. A circle circumscribes a square. What is the area of the square?

(1) Radius of the circle is given.
(2) Length of the tangent from a point is 5 cm away.

☐ A Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

☐ B Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

☐ C BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

☐ D EACH statement ALONE is sufficient.

☐ E Statements (1) and (2) TOGETHER are NOT sufficient

25. What is the value of $7^{(3 + \log_7 5)}$?

☐ A 1,200

☐ B 1,715

☐ C 3,140

☐ D 3,460

☐ E 8,575

26. The average age of three people living in a house – man, woman and child, is 24 years. If the man leaves and his mother stays in his place, then the average age in the house becomes 34 years. How much older is the mother than her son?

- ☐ A 20
- ☐ B 25
- ☐ C 30
- ☐ D 32
- ☐ E 36

27. The coordinates of vertices *P* and *Q* of an equilateral triangle *PQR* are (–4, 0) and (4, 0) respectively. Which of the following could be the coordinates of vertex *R*?

- ☐ A $\left(0, 2\sqrt{3}\right)$
- ☐ B (0, 4)
- ☐ C $\left(0, 4\sqrt{3}\right)$
- ☐ D $\left(4\sqrt{3}, 0\right)$
- ☐ E $\left(4, 4\sqrt{3}\right)$

28. A student attempts a question paper comprising 5 true or false questions. If he answers the entire paper randomly, what is the probability that he answers exactly 4 questions correctly?

- ☐ A $\frac{5}{243}$
- ☐ B $\frac{1}{8}$
- ☐ C $\frac{5}{32}$
- ☐ D $\frac{5}{16}$
- ☐ E $\frac{5}{8}$

29. An ice-cream truck crossed Sudha's house every $\frac{1}{4}$ hours , $\frac{5}{6}$ hours and $\frac{15}{2}$ hours. If the ice-cream truck crossed Sudha's house at 2:00 pm, at what time would it next cross her house?

- ☐ A 2:30 pm
- ☐ B 3:30 pm
- ☐ C 5:30 pm
- ☐ D 7:30 pm
- ☐ E 9:30 pm

30. Two trains A and B leave Delhi for Bangalore at 9 am and 9:30 am respectively. Train A travels at a speed of 120 km/hr while Train B travels at a speed of 150 km/hr. At what distance from Delhi will the two trains meet?

- ☐ A 30 km
- ☐ B 60 km
- ☐ C 120 km
- ☐ D 270 km
- ☐ E 300 km

31. Consider the equation $y^2 - py + q$. If the roots of the given equation are a and b, find the equation whose roots are $(ab + a + b)$ and $(ab - a - b)$.

- ☐ A $y^2 - 4y + p^2 = 0$
- ☐ B $y^2 + yq^2 - p^2 = 0$
- ☐ C $y^2 - 2y + q^2 + p^2 = 0$
- ☐ D $y^2 + 2qy - q^2 - p^2 = 0$
- ☐ E $y^2 - 2qy + q^2 - p^2 = 0$

Directions: This problem consists of a question and two statements, labelled (1) and (2), in which certain data are given. Using the information provided and general knowledge, decide whether the information given is sufficient to solve the problem.

32. Is *x* an integer, is it odd?

(1) 3*x* is an odd integer.
(2) *x*/3 is an odd integer.

☐ A Statement (1) ALONE is sufficient, but statement (2) ALONE is not sufficient.

☐ B Statement (2) ALONE is sufficient, but statement (1) ALONE is not sufficient.

☐ C BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

☐ D EACH statement ALONE is sufficient.

☐ E Statements (1) and (2) TOGETHER are NOT sufficient.

33. The sum of five consecutive even numbers is 280. What is the largest number?

☐ A 50

☐ B 52

☐ C 58

☐ D 60

☐ E 62

34. Girish bought a car and got a dealer's discount of 15% on the original price. He sold it at a profit of 20% on the purchase price. If he had got a discount of 12% on the original price and had sold it for the same profit percentage of the purchase price, what would be the difference in the profit percentages of the two transactions?

- ☐ A 2%
- ☐ B 3.6%
- ☐ C 5%
- ☐ D 5.6%
- ☐ E 8%

35. Aahir gets pocket money of Rs 2 every Monday, Rs 4 every Tuesday, Rs 8 every Wednesday and so on. What is his total pocket money that he will receive in two weeks, considering a week starts from Monday?

- ☐ A 126
- ☐ B 252
- ☐ C 254
- ☐ D 504
- ☐ E 508

36. Find the area of the square inscribed in a circle of radius 25 cm.

- ☐ A 225 sq cm
- ☐ B 500 sq cm
- ☐ C 525 sq cm
- ☐ D 625 sq cm
- ☐ E 1,250 sq cm

Directions: Solve the questions 37-40 based on the information given below.

Go through the given table and solve the question based on it.

Railway Time Table – East West Express

City	Arrival Time (h)	Departure Time (h)	Cumulative Mileage
Mumbai	--	0900	0
Igatpuri	1100	1102	80
Nasik	1450	1455	281
Bhusawal	1710	1712	391
Akola	2240	2245	730
Nagpur	0005	0015	800
Durg	0100	0102	845
Jamshedpur	0415	0428	995
Kolkata	0625	--	1100

37. The longest run for the train between two successive halts is between:

- ☐ A Jamshedpur – Kolkata
- ☐ B Mumbai – Igatpuri
- ☐ C Bhusawal – Akola
- ☐ D Nagpur – Durg
- ☐ E Akola – Nagpur

38. The average speed that the train maintained between Mumbai and Kolkata was nearly equal to:

- ☐ A 28 miles/hour.
- ☐ B 35 miles/hour.
- ☐ C 42 miles/hour.
- ☐ D 51 miles/hour.
- ☐ E 61 miles/hour.

39. The train begins its return journey from Kolkata to Mumbai eight hours after it has arrived at Kolkata. If the train left Mumbai on Monday, on what day would it have returned to Mumbai? (Assume that on the return journey the train maintains the same average speed as on the onward journey.)

- ☐ A Monday
- ☐ B Tuesday
- ☐ C Wednesday
- ☐ D Thursday
- ☐ E Friday

40. The average speed the train maintained between two successive stations was the highest between:

- ☐ A Nasik – Bhusawal
- ☐ B Nagpur – Durg
- ☐ C Mumbai – Igatpuri
- ☐ D Jamshedpur – Kolkata
- ☐ E Bhusawal – Akola

41. A tank can be filled by a pipe in 10 minutes and can be emptied by another pipe in 8 minutes. If both pipes are opened when the tank is full, then how long will it take for the tank to be empty?

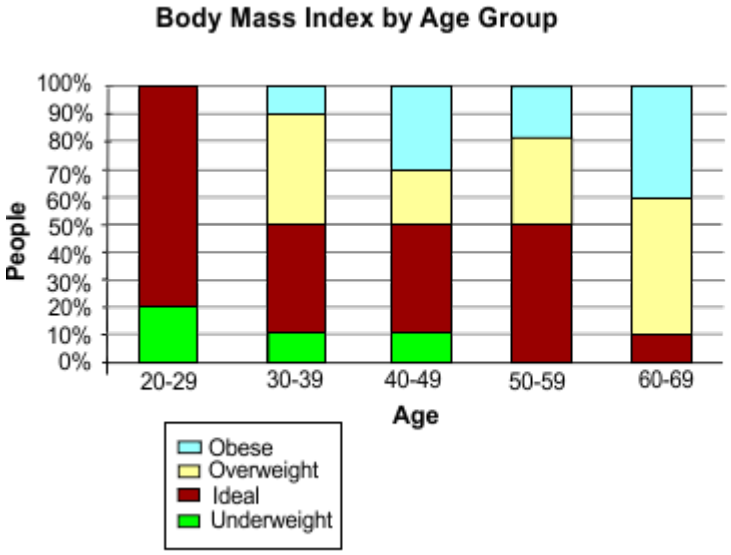
- ☐ A 1 hours
- ☐ B 1.5 hours
- ☐ C 30 minutes
- ☐ D 40 minutes
- ☐ E 45 minutes

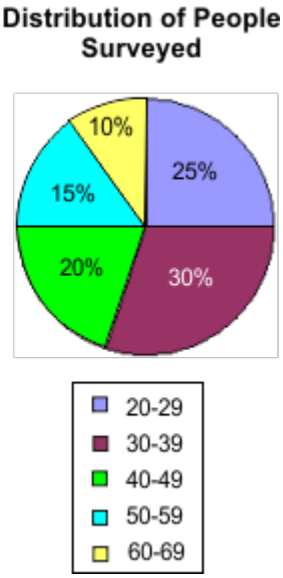
42. If a polygon has 44 diagonals, then how many sides are there in the polygon?

- ☐ A 8
- ☐ B 9
- ☐ C 10
- ☐ D 11
- ☐ E 12

Directions: Solve questions 43-46 based on the information given below.

A survey on Body Mass Index was conducted on a group of 2,000 people of different age groups. The first graph shows the Body Mass index of different age groups. The second graph shows the distribution of age groups of the people who took the survey. Go through the given graphs and solve the questions based on them.





43. How many people who were 50 years and above had an ideal body mass index?

- ☐ A 60
- ☐ B 170
- ☐ C 200
- ☐ D 500
- ☐ E 1,200

44. How many people below 40 years did not have an ideal body mass index?

- ☐ A 460
- ☐ B 640
- ☐ C 900
- ☐ D 1,100
- ☐ E 1,600

45. What percent of people who took the survey were obese?

- ☐ A 10%
- ☐ B 16%
- ☐ C 25%
- ☐ D 42%
- ☐ E 100%

46. Of the total number of overweight people, what percent was in the age group of 50-59?

- ☐ A 4.50%
- ☐ B 17.65%
- ☐ C 21.42%
- ☐ D 30.00%
- ☐ E 45.00%

Directions: A question is followed by two statements, numbered (1) and (2). Using the information provided and general knowledge, decide whether the information given is sufficient to solve the problem.

47. What is the probability of drawing a Rs 5 coin from a bag containing 23 coins?

(1) Rs 2 coins are 12 in number.

(2) Rs 5 coins are 8 in number.

☐ A Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

☐ B Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

☐ C BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

☐ D EACH statement ALONE is sufficient.

☐ E Statements (1) and (2) TOGETHER are NOT sufficient.

Directions: A question is followed by two statements, labelled (1) and (2). Using the information provided and general knowledge, decide whether the information given is sufficient to solve the problem.

$X_1, X_2, X_3, X_4, \ldots, X_n$ are integers. The largest among them is L and the smallest is S. X_1 to X_{24} form a sequence S_1 and the rest form the sequence S_2.

48. What is the total number of elements in S2?

(1) $n = 50$
(2) S2 has 2 elements more than S1.

☐ A Statement (1) ALONE is sufficient, but statement (2) ALONE is not sufficient.

☐ B Statement (2) ALONE is sufficient, but statement (1) ALONE is not sufficient.

☐ C BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

☐ D EACH statement ALONE is sufficient.

☐ E Statements (1) and (2) TOGETHER are NOT sufficient.

Logical Reasoning Questions

1. **Six people - A to F - are sitting around a circular table such that A is sitting two places to the left of E, who is not adjacent to C and F. D is to the right of E and A is sitting between B and F. Who is sitting opposite D?**

- ☐ A A
- ☐ B B
- ☐ C C
- ☐ D F
- ☐ E E

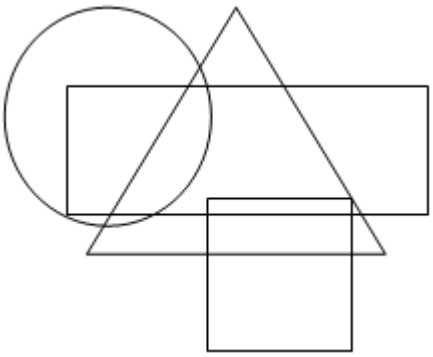
2. **Directions: In the following question, there are five choices (A-E). Four of them are alike and one is different. Mark the one that is different**

- ☐ A calm
- ☐ B cool
- ☐ C tipsy
- ☐ D sober
- ☐ E composed

3. **How many pairs of letters are there in the word ”encyclopedia” such that in the word, each pair has as many letters between them as there are in the English alphabet?**

- ☐ A 1
- ☐ B 2
- ☐ C 3
- ☐ D 4
- ☐ E more than 4

Directions: Solve question 4 based on the information given below.



The Rectangle represents students studying Mathematics.
The Square represents students studying Physics.
The Circle represents students studying Chemistry.
The Triangle represents students studying English.

4. **Which of the following statements is true?**

- ☐ A All students studying Chemistry also study English.
- ☐ B There are some students who study all four subjects.
- ☐ C All students who study Chemistry study at least one more subject.
- ☐ D There are some students who study all subjects except Chemistry.
- ☐ E Some students who study Mathematics and Chemistry also study Physics.

Directions: A statement is given followed by two assumptions numbered I and II. An assumption is something supposed or taken for granted. Consider the statement and the following assumptions and decide which of the assumptions is implicit in the statement.

5. **Statements:**
   A very large number of aspiring students applied for admission to the professional courses run by a renowned college in town.

   Assumptions:
   I. All applicants may be able to get admission to the college.
   II. The admission process adopted by the renowned college may be fair to all applicants.

- ☐ A Only Assumption I is implicit.
- ☐ B Only Assumption II is implicit.
- ☐ C Either Assumption I or II is implicit.
- ☐ D Neither Assumption I nor II is implicit.
- ☐ E Both Assumptions I and II are implicit.

Directions: A statement is followed by a few suggested courses of action. A course of action is a step or administrative decision to be taken for improvement, follow-up or further action in regard to the problem, policy etc. On the basis of the information given in the statement, decide which of the suggested courses of action should logically be pursued.

6. **Statement:**
   There have been a lot of deaths of policemen fighting insurgents in several attacks in many states of the country.

   Course of Action:
   I. Policemen should avoid going to such places dominated by insurgents to maintain peace.
   II. The Government should provide them protection and better equipment to fight these forces.
   III. The Government should try to negotiate with these forces and bring them to the mainstream.

- ☐ A Only I should be pursued.
- ☐ B Only II should be pursued.
- ☐ C Only III should be pursued.
- ☐ D Both I and III should be pursued.
- ☐ E Both II and III should be pursued.

Directions: Given alongside is a statement followed by three arguments numbered I, II and III. Decide which of the given arguments is strong and is able to support the given statement.

7. **Statement:**
   Should category-based reservations in colleges and offices be banned?

Arguments:
I. No. Otherwise, those who belong to the underprivileged categories will not be able to climb up the social ladder.
II. Yes. Category should not be an excuse to avoid the line of merit.
III. Yes. This does not allow for a common platform for everyone and actually creates an unequal and category-based society.

☐ A Only I is strong.

☐ B Only II is strong.

☐ C Only III is strong.

☐ D Both II and III are strong.

☐ E None of them are strong.

Directions: Given alongside are a few facts. Based on these facts, select from among the given statements, the statement that can be best concluded.

8. **Facts:**
Fact 1: In the Nawab Trophy, 3 Asian, 2 European and 1 African team participated.
Fact 2: All Asian team-names are made up of 5 letters.
Fact 3: The name of the African team starts with a "Z".

Statements:
I. Zonnie is the African team participating in the Nawab Trophy.
II. If a team named Germenz is participating, it must be from Europe.
III. If an Asian team named Jenno is participating, then the participating team named Rhinos could not be from Asia.

☐ A Only I can be concluded.

☐ B Only II can be concluded.

☐ C Only III can be concluded.

☐ D Both I and III can be concluded.

☐ E Both II and III can be concluded.

9. **In a certain code language, 'I Love you' is coded as 143, 'I Miss You' is coded as 153, 'Pretty miss' is coded as 75 and 'You are Pretty' is coded as 718. What is the code for 'are' in this language?**

- ☐ A 1
- ☐ B 3
- ☐ C 5
- ☐ D 7
- ☐ E 8

10. **If the code of 'ROHIT' is '72314', the code of 'ASHU' is '5638' and the code of 'NIRMA' is '91705', then what is the code of 'RAMAN'?**

- ☐ A 75059
- ☐ B 79095
- ☐ C 76069
- ☐ D 75096
- ☐ E 79594

11. If the code of 'The sword of Tipu' is '4139', the code of 'Sword purchased by Vijay' is '2746', the code of 'Tipu purchased sword new' is '9645' and the code of 'Tipu by fort Vijay' is '9782', then what is the code of 'Vijay Tipu by new'?

- ☐ A 5481
- ☐ B 7259
- ☐ C 8413
- ☐ D 6492
- ☐ E 7135

12. In a certain code, 'Chocolates cause tooth decay' is written as 'OL U O C', 'Brushing prevents tooth decay' is written as 'SH VE O C' while 'Rahul has toothache' is written as 'H A H'. How will 'Doctor extracted tooth' be coded?

- ☐ A C AC OO
- ☐ B CT AC OT
- ☐ C C TA O
- ☐ D CT A O
- ☐ E AC O T

Directions: Solve questions 13-16 based on the information given below.

Foodie Restaurant is planning to open a new branch in the city where 2 cooks and 3 waiters are required. There are three cooks Amit, Sumit, Punit and five waiters Damini, Rajni, Shalini, Ragini, and Sohini to choose from.

Some other known facts are:

1) Damini and Ragini have not been on speaking terms and shouldn't be teamed together.
2) Damini and Shalini have been competing for promotion and shouldn't be in the same team.
3) Amit and Punit are constantly finding faults with each other and should not be sent together to the new branch as a team.
4) Punit and Rajni function well alone but not as a team and shouldn't be made to work together.

13. If Amit is to be moved as one of the cooks, which of the following cannot be a possible working unit?

- ☐ A Amit – Sumit – Damini – Ragini – Sohini
- ☐ B Amit – Sumit – Shalini – Ragini – Sohini
- ☐ C Amit – Sumit – Damini – Rajni – Sohini
- ☐ D Amit – Sumit – Rajni – Shalini – Sohini
- ☐ E Amit – Sumit – Rajni – Ragini – Sohini

14. If Punit and Shalini are moved to the new branch, how many combinations are possible?

- ☐ A 0
- ☐ B 1
- ☐ C 2
- ☐ D 3
- ☐ E 4

15. If Punit is sent to the new branch, which member of the staff cannot go with Punit?

- ☐ A Sumit
- ☐ B Damini
- ☐ C Shalini
- ☐ D Ragini
- ☐ E Sohini

16. If Damini goes to the new branch, which of the following is true?

I. Punit cannot go.
II. Amit cannot go.
III. Sohini must also go.

- ☐ A Only I is true.
- ☐ B Only II is true.
- ☐ C Only III is true.
- ☐ D Both I and II are true.
- ☐ E Both I and III are true.

Directions: Solve the questions 17-20 alongside based on the information given below.

In the recently concluded World Series Chess tournament, players P1, P2, P3, P4, P5, P6, P7, and P8 participated. Each player played against every other player exactly once. Five players out of these eight players won exactly five matches each. Assume that only these eight players were participating in the tournament. Also, there were no draws/ ties in the tournament.

Some information about the results of some of the matches played was also known.
It was known that P2, P3, P4 and P5 won their matches against P7.
P1 won against P6 while P7 lost against P6.
P7 won against P8 while P1 lost against P3 and P4.

17. At the most, how many matches were won by P1?

- ☐ A 1
- ☐ B 2
- ☐ C 3
- ☐ D 4
- ☐ E 5

18. How many matches were won by P6?

- ☐ A 1
- ☐ B 2
- ☐ C 4
- ☐ D All
- ☐ E Cannot be determined

19. If P8 won against P2, while P6 won against P3, then which are the two players against which P5 lost matches?

- ☐ A P1 and P3
- ☐ B P3 and P4
- ☐ C P2 and P6
- ☐ D P1 and P6
- ☐ E P3 and P6

20. How many players won exactly one match?

- ☐ A 1
- ☐ B 2
- ☐ C 3
- ☐ D 1 or 2
- ☐ E 1 or 3

Directions: Solve questions 21-24 based on the information given below.

A computer program converts an input series into an output series in four steps as shown below. Using the same logic, answer the question that follows.

Input	ant	antelope	catapult	dollop	elves	frog

Step I	antelope	ant	dollop	catapult	frog	elves
Step II	dollop	ant	antelope	elves	frog	catapult
Step III	catapult	frog	elves	antelope	ant	dollop
Step IV	frog	elves	dollop	catapult	antelope	ant

21. If the input series is 10, apple, 14, mangoes, 17, oranges, what is the final output at Step IV?

- ☐ A 10, mangoes, 17, apple, 14, oranges
- ☐ B 10, 14, 17, mangoes, apples, oranges
- ☐ C 17, mangoes, 14, apples, 10, oranges
- ☐ D mangoes, 14, apples, 10, oranges, 17
- ☐ E oranges, 17, mangoes, 14, apples, 10

22. If the Step III output was 60, 70, 80, 90, 100, 110, then what was Step 1?

- ☐ A 110, 100, 90, 80, 70, 60
- ☐ B 100, 80, 90, 60, 70, 110
- ☐ C 100, 90, 80, 70, 60, 110
- ☐ D 90, 100, 110, 60, 70, 80
- ☐ E 80, 70, 90, 110, 100, 60

23. If the output at Step II is 26, 34, 76, 89, 23, 12, then what is the final output?

- ☐ A 89, 76, 34, 23, 12, 26
- ☐ B 23, 89, 26, 12, 76, 34
- ☐ C 34, 76, 12, 26, 89, 23
- ☐ D 12, 23, 26, 34, 76, 89
- ☐ E 89, 76, 34, 26, 23, 12

24. If an input element, 45, occupies the 3rd position in the series at Step III, then what was its position in Step 1?

- ☐ A 2nd
- ☐ B 3rd
- ☐ C 4th
- ☐ D 5th
- ☐ E 6th

25. Savita is the mother-in-law of Vanita, who in turn is the sister-in-law of Deepu. Rahul is the father of Ramesh, the only brother of Deepu. How is Savita related to Deepu?

- ☐ A Mother
- ☐ B Sister
- ☐ C Daughter
- ☐ D Sister-in-law
- ☐ E Granddaughter

26. Al, Ak and At are the children of Mr & Mrs Sds. Mrs Sds is the aunt of Sg. Sg is not the only sister of Bt. Bt is the only brother of Dv. At is the only son of Mr. Sds. What is the relationship between Al and Dv?

- ☐ A Male cousins
- ☐ B Brother-sister
- ☐ C Female cousins
- ☐ D Sister-brother
- ☐ E Cousins, but no other information is available

27. The complaints in Tatkal bookings are increasing day by day. Overwhelmed by the number of complaints, the Railway department has decided to reduce the advance reservation period from two days to one day. Besides this, there will be no refund upon cancellation of confirmed Tatkal tickets, except in the case of cancelled trains or delays in arrival or departure times of trains.

Which of the following options cannot be a conclusion that can be drawn from the given information?

- ☐ A No refund will be made upon the cancellation of confirmed tickets in any case.
- ☐ B Some of the trains may get cancelled or run later than the original schedule.
- ☐ C The Railway department is making efforts to improve the scenario by changing some rules.
- ☐ D The Tatkal booking system is not functioning well, the Railway department realizes this.
- ☐ E Tatkal booking cannot be done on a Friday if the train is scheduled for the following Monday.

28. The condition of hospitals in State *A* is very poor. Patients do not have bed facilities in 50% of the hospital wards. Over 500,000 children belonging to Below Poverty Line (BPL) families remain devoid of basic medical care. Not even 5% of the hospitals have adequate doctors, technical staff and nurses. Many patients in need of emergency treatment died this month.

Which of the following statements can be inferred from the information given above?

- ☐ A If vacant positions are filled, the conditions of hospitals will improve.
- ☐ B There are exactly 500,000 parents belonging to BPL families in State *A*.
- ☐ C A large number of hospitals in other states have all basic medical facilities.
- ☐ D People belonging to non-BPL families do not have any complaints regarding the hospitals.
- ☐ E If the number of necessary doctors, technical staff and nurses is fulfilled, there will be no death in the hospitals.

29. "If you are an MBA aspirant, and hence are preparing for various entrance exams, you should study Thorman Lewis to enhance your vocabulary" – an advertisement.

Which of the following assumptions is not implicit in the above statement?

- ☐ A MBA aspirants generally prepare for entrance exams.
- ☐ B Thorman Lewis is a book meant only for MBA aspirants.
- ☐ C If asked for, Thorman Lewis is available for the readers.
- ☐ D For an MBA aspirant it is important to have enhanced vocabulary.
- ☐ E There are some people who would want to prepare for MBA and will read this advertisement.

30. There should be special tax rebates for small scale enterprises as these enterprises create numerous jobs for thousands of people. It is also suggested that company laws should be flexible up to a certain limit for the small scale industries.

Which of the following, if true, most severely weakens the argument?

- ☐ A Company laws can be easily changed for the sectors that create jobs.
- ☐ B Tax rebates and flexibility of laws will encourage people to engage in only small scale enterprises.
- ☐ C All the small scale enterprises together generate huge revenues and so tax rebates should be there for them.
- ☐ D Most small scale industries, over time, become big enterprises even without any form of rebates or government support.
- ☐ E Some small scale industries are usually subsidiaries of giant ventures so tax rebate and flexible laws are not a viable option.

31. Coconut oil is good for hair.

Which of the following statements strengthens the above argument?

- ☐ A Scientists have found that coconut oil penetrates into the cortex region of the hair, helping to strengthen it.
- ☐ B Ever since Sheeba started applying coconut oil on her hair, she has been encountering hair loss.
- ☐ C Coconut oil makes hair greasier than some of the other oils that can be applied on hair.
- ☐ D Trichologists have stated many times that coconut oil is not suitable for everyone.
- ☐ E Sometimes, excessive application of coconut oil can make hair brittle.

32. The global economy is at a stand-still. None of the big companies are willing to invest money in any project. Company *Y*, the largest international online retail chain, is planning to invest three billion dollars in the Indian market, while a group of investors gave one billion dollars to Company *Z*, India's number one retail giant, in order to strengthen its online business in India.

Which of the following can be inferred from the passage above?

- ☐ A India is not impacted by changes in the global economy.
- ☐ B Internet retailers consider India to be the fastest growing market.
- ☐ C It is safe to invest in India as it will always bring profit to the company.
- ☐ D Companies *Y* and *Z* must be small companies as they have invested in India.
- ☐ E The amount, three billion dollars, is not a big amount for companies like Company *Y*.

33. Among the members of club XYZ, 42% are post-graduates, 43% are sportsmen, and 44% are politicians. Among them, 12% are both post-graduates and sportsmen, 13% are both sportsmen and politicians, 14% are post-graduates and politicians, and 4% are post-graduates, sportsmen and politicians. Thirty-six members of XYZ are neither post-graduates nor politicians nor sportsmen.

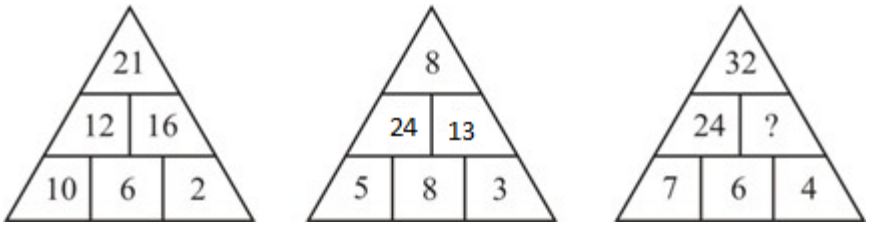
How many people come under exactly any two of the three categories?

- ☐ A 162
- ☐ B 220
- ☐ C 200
- ☐ D 186
- ☐ E 240

34. In a class of 125 students, a survey was conducted with regard to their liking for three cricketers: SRT, MSD and ZACK. 60 students liked SRT, 65 students liked MSD and 70 students liked ZACK. 25 liked both SRT and MSD, 35 liked both ZACK and SRT, and 30 liked ZACK and MSD. 5 students liked all three cricketers. For how many students was at least one cricketer not selected?

- ☐ A 75
- ☐ B 85
- ☐ C 95
- ☐ D 100
- ☐ E 120

35. Which number can replace the question mark in the figure below?



- ☐ A 10
- ☐ B 13
- ☐ C 24
- ☐ D 28
- ☐ E 42

36. Most people are afraid of failure and seek only success. Some say failure is the key to success. If a person does not know failure, he would not understand success. Everyone loses at some point in life. In any case, one cannot achieve absolute success in life.

What should be an experienced person's advice to people struggling with failures in life?

- ☐ A Experience is nothing but learnings from failure.
- ☐ B Failure is the stepping stone to success. So, one must seek failure.
- ☐ C We cannot succeed without failure and should not always chase success.
- ☐ D Failure means inexperience, so we should take initiatives to gain experience, and then succeed.
- ☐ E First, we must think only about experience and not about success, and then, focus only on success.

37. DDDD x 24 = 2BBB4
Here, D and B are distinct digits from 1 to 9. What is the value of B + 4 – D?

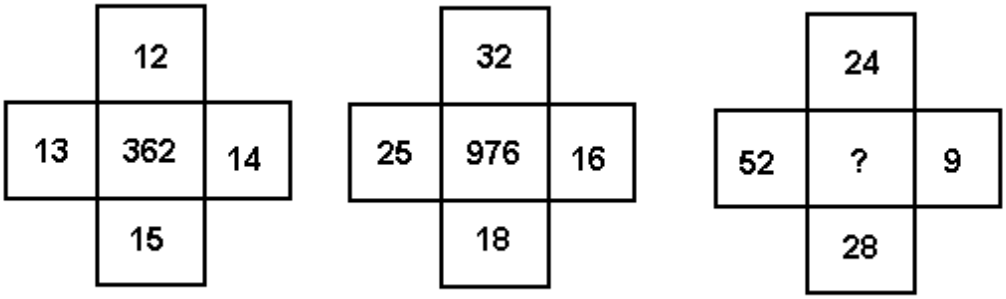
- ☐ A 7
- ☐ B 9
- ☐ C 11
- ☐ D 13
- ☐ E None of these

38. What will come next in the following series?

32, 64, 160, 320, 544, 832, ...?

- ☐ A 32
- ☐ B 352
- ☐ C 416
- ☐ D 1184
- ☐ E 1248

39. Which number can substitute the question mark?



- ☐ A 950
- ☐ B 1140
- ☐ C 2666
- ☐ D 2878
- ☐ E 3476

40. Given the following equation where the letters represent the same digits, what would be the value of D and Y?

$$\begin{array}{r} 2DD \\ *\ Y \\ \hline 20Y7 \end{array} \qquad \begin{array}{r} 2DD \\ *\ A \\ \hline YD2 \end{array}$$

- ☐ A 7, 1
- ☐ B 1, 7
- ☐ C 9, 3
- ☐ D 3, 9
- ☐ E Cannot be determined

Language Skills Questions

Directions: Answer questions 1-4 based on the passage given below.

Passage

As an author of short stories, plays and novels, Charles Dickens became known the world over for endearing characterisation, vivid narration of ordinary lives, and depiction of the social and moral values of his time. For years, Dickens thrilled the readers with his simple stories about simple people forced into real situations.

Although Dickens wanted to make a lot of money from his writings, his works invariably aimed to influence the consciousness of his readers even though it seemed like he knew what his readers wanted.

To some critics, Dickens was an entertainer and his novels lacked intellectual challenge, but the *London Times* described the British author as the greatest instructor of the nineteenth century in his obituary. The unparalleled sentimentality, rage, plight and bitterness in his novels established Dickens as a spokesman for the downtrodden.

Dickens was born on February 7, 1812 into a poor family in Portsmouth on the southern coast of England. He was the second of eight children. In 1822, the Dickens family moved to Camden Town, a poor neighbourhood in London. The extravagance of his father often brought financial embarrassment to the family and eventually imprisonment for him in 1824. This brought an abrupt end to Dickens' childhood. He had to discontinue his schooling and support his family by doing manual work at a factory. Young Dickens was rudely introduced to long hours of harsh working conditions and poor pay. He felt orphaned and betrayed by his parents who he believed should have taken care of him in his childhood. These feelings later became a recurring theme of many of his novels. Characters like Oliver Twist and David Copperfield developed from the harsh experiences of Dickens' early life.

Dickens' literary journey started in 1833 when he submitted sketches to various magazines and newspapers under the nickname "Boz". In 1836, he published *The Posthumous Papers of the Pickwick Club*, which became widely popular with magazine readers. Soon, his first novel, *Oliver Twist*, depicting the life of an orphan and inspired by Dickens' own experience as an impoverished child, hit the stands. The overwhelming success of *Oliver Twist* turned Dickens into a celebrity and over the next few years he had to struggle to match the literary and commercial standard the book had set.

In 1842, Dickens and his wife, Kate, went on a tour of the United States, where people went crazy listening to him. Upon his return, Dickens wrote *American Notes for General Circulation*, a sarcastic travelogue criticising American culture and materialism.

Over the next couple of years, Dickens published two Christmas stories including the classic *A Christmas Carol*. From 1849 to 1850, Dickens worked passionately on his favourite novel *David Copperfield*, a sort of autobiography and probably the first work of its kind.

The deaths of his daughter and father and separation from his wife in the 1850s cast a dark shadow on Dickens' writing during this period. He returned to his original style with *A Tale of Two Cities* in 1859, a historical novel, followed by *Great Expectations* in 1861, widely considered his greatest literary feat.

On June 9, 1870, Dickens suffered a stroke and died at his country home in Kent, England.

1. The author most likely agrees with all of the following statements EXCEPT:

- ☐ A Dickens blamed his parents for enduring a harsh childhood.
- ☐ B Dickens was not impressed by the materialism of the American society.
- ☐ C Dickens' novels portrayed the attitude of the society towards the downtrodden.
- ☐ D To some of his critics Dickens was an entertainer and his writing was not intellectually challenging.
- ☐ E *David Copperfield*, a biographical account of Dickens' life, is often cited as his best literary achievement.

2. **The passage is primarily concerned with:**

- ☐ A Dickens' novels and his characters.
- ☐ B Dickens' success as a writer.
- ☐ C Dickens' harsh childhood.
- ☐ D Dickens' life story.
- ☐ E Dickens' writing.

3. Which of the following statements is best taken to be true in the context of the passage?

- ☐ A Dickens played the role of an instructor through his writings.
- ☐ B Dickens was the best British author of the nineteenth century.
- ☐ C No other Dickens' novel could ever match the standard set by *Oliver Twist*.
- ☐ D Dickens' writing became sarcastic after the deaths of his daughter and father.
- ☐ E All of Dickens' novels were based on the personal experiences of his childhood.

4. Which of the following statements, if true, would most weaken the author's argument?

- ☐ A Dickens' parents were responsible for his harsh childhood.
- ☐ B Dickens sympathised with his characters who often survived a life of struggle.
- ☐ C Dickens' writing emphasised how simple people got forced into real situations.
- ☐ D Characterisation of David Copperfield and Oliver Twist are suggestive of Dickens' harsh life.
- ☐ E Dickens wrote his classics during the period of shock that he experienced after the deaths of his daughter and father.

Directions: Answer questions 5-8 based on the passage given below.

Passage

A team of scientists need to understand the impact of a nuclear explosion on a concrete bunker. Another team of engineers is trying to design an aeroplane that can withstand high wind shear while flying. It is not always possible to carry out direct experimentation or trial to test many real-life situations. Herein, lies the need for developing a modelling system that can incorporate all variables and data to produce a result that can help study the phenomenon at hand. This modelling system is what we call computer simulations. They were first designed as a tool to study metrological phenomenon and nuclear physics. The list has steadily grown to incorporate many other areas of modern society like medical sciences, construction, economics, astrophysics etc.

A computer simulation is a computer program or a model that tries to recreate a model of a particular system in a virtual world. For example, if you want to see the impact of a comet striking Earth, you do not want to wait for a real event, but you also do not want to be caught napping before such an event actually occurs. So, what you do is create a virtual system which resembles a real-world system with objects similar to Earth and the comet, along with parameters like speed, atmosphere, mass etc., as close to reality as possible. This may seem like some grandiose plan of science fiction, but even medical science benefits by using simulations to see the impact of new medicines, thereby helping to cut down risks associated with clinical trials. Architects use the same modelling approach before designing a new bridge or a skyscraper.

There are different types of simulation models. First is the discrete model in which the changes to the system occur at specific times. Second is the continuous model in which the state of the system changes continuously over time. Third is the mixed model in which both discrete and continuous elements are contained. The type of data needed to build a computer simulation includes: the overall process flow, what is being produced or acted on (entities), frequencies at which the entities arrive in the program, the length of time individual steps in the process take, probability distribution that characterise real-life uncertainties and variations in the process.

Computer simulations are also helpful in analysing “what if” scenarios. The advantages of computer simulations include gaining a greater understanding of the process; identifying any potential obstructions or flaws; being able to effectively evaluate processes which have changing variables and even help mitigate possible problems. Computer simulations have indeed provided an enormous impetus to how we do our research and planning.

5. What is the primary purpose of this passage?

- ☐ A Refute the importance of computer simulation.
- ☐ B Discuss simulation, their uses and advantages.
- ☐ C Outline the developmental history of simulations.
- ☐ D Debate the pros and cons of computer simulation.
- ☐ E Describe one particular application of the simulation.

6. Based on the passage, which of the following best describes the author's tone when writing about computer simulations?

- ☐ A Wry humour
- ☐ B Bitter sarcasm
- ☐ C Open optimism
- ☐ D Veiled cynicism
- ☐ E Forthright scepticism

7. The author mentions all of the following EXCEPT:

- ☐ A simulations have reduced the need for direct experimentation.
- ☐ B simulations are able to account for changing variables in a system.
- ☐ C simulations have a limited capacity to evaluate hypothetical scenarios.
- ☐ D studying the effects of a new drug being developed can be aided by simulations.
- ☐ E the amount of traffic a new bridge in the city can handle can be gauged with simulations.

8. **Based on the given information, what can be inferred about the author's opinion of the use of computer simulations in medicine**?

- ☐ A The author is sceptical.
- ☐ B The author is circumspect.
- ☐ C The author remains neutral.
- ☐ D The author supports its use.
- ☐ E The author is against its use.

9. **Select the word or phrase that is nearly the opposite in meaning to the given word: *demean***

- ☐ A incite
- ☐ B praise
- ☐ C humble
- ☐ D disgrace
- ☐ E suppress

10. **Select the word or phrase that is nearest in meaning to the given word: *elucidate***

- ☐ A clarify
- ☐ B confuse
- ☐ C befuddle
- ☐ D convince
- ☐ E contradict

11. **Select the word or phrase that is nearest in meaning to the given word: *jejune***

- ☐ A arid
- ☐ B trivial
- ☐ C childlike
- ☐ D absorbing
- ☐ E superficial

12. **Select the word or phrase that is nearly the opposite in meaning to the given word: *denouement***

- ☐ A proposition
- ☐ B conspiracy
- ☐ C preamble
- ☐ D intrigue
- ☐ E climax

13. **Select the word or phrase that is nearly the opposite in meaning to the given word: *betoken***

- ☐ A belie
- ☐ B auspicate
- ☐ C foretoken
- ☐ D postpone
- ☐ E postpose

Directions: Solve questions 14-17 based on the information given below.

The following passage has blanks that have been numbered (1) to (4). From the given words, fill in the blanks with the most appropriate words.

I wanted _____(1)_____ to the coffee and doughnuts that the management got at work on Fridays. I began to _____(2)_____ a way to get the goodies by being especially nice to the supervisor's secretary. I didn't want to make my scheme _____(3)_____ so I didn't stop in to see her every day. I hoped she didn't _____(4)_____ what I really wanted when I told her how much I loved jelly-filled doughnuts. I wanted to retain my image as a friendly co-worker and still get free food. It worked. She started letting me in the conference room after the morning meeting to help myself to the leftover doughnuts.

14. _____(1)_____

- ☐ A taste
- ☐ B need
- ☐ C desire
- ☐ D excess
- ☐ E access

15. _____(2)_____

- ☐ A report
- ☐ B forecast
- ☐ C evaluate
- ☐ D memorise
- ☐ E manoeuvre

16. _____(3)_____

- ☐ A show
- ☐ B appeal
- ☐ C evident
- ☐ D oriented
- ☐ E highlight

17. _____(4)_____

- ☐ A veil
- ☐ B reveal
- ☐ C surpass
- ☐ D clarified
- ☐ E surmise

Directions: Solve question 18-21 based on the information given below.

Rearrange the jumbled sentences to show the appropriate sequence.

18. (A) In reality, researchers have concluded that pain is used as a means to a different end, that end being the destruction of the individual as a person.
(B) The second is that the purpose of the pain is to elicit information.
(C) The first is that the primary purpose is to inflict pain.
(D) There are two common misconceptions about torture.
(E) Any information elicited is usually no more than a side benefit; often the victim has no information to give.

- ☐ A ABDCE
- ☐ B CBDAE
- ☐ C DCBAE
- ☐ D ABCDE
- ☐ E CDBAE

19. (A) Wine is an alcoholic beverage, typically made of fermented grape juice.
(B) Wine is produced by fermenting crushed grapes using various types of yeast.
(C) Yeast consumes the sugars found in the grapes and converts them into alcohol.
(D) Besides grapes, other fruits such as apples and berries can also be fermented.
(E) And the resultant wines are normally named after the fruit from which they are produced and are called fruit wine or country wine.

- ☐ A ABDCE
- ☐ B EDBCA
- ☐ C ABCED
- ☐ D BEDCA
- ☐ E ABCDE

20. **(A) Within the span of a single year, close to 40 journalists either disappeared or were found killed in Mexico.**
(B) In the face of this threat to lives, many print and television media houses opted to completely stop reporting on the visible and ongoing drug cartels.
(C) The general public, in its thirst for news and information, now turns to the relative safety of the internet for updates on the drug scene there.
(D) Freedom of speech and expression has always been a bit of a risky business for those in the journalistic field.
(E) Reasons for their disappearance may be traced to open-minded debates about the impropriety of drug use, aired on national media networks.

- [ ] A ABECD
- [ ] B ADEBC
- [ ] C CEABD
- [ ] D DAEBC
- [ ] E DBAEC

21. **(A) An organism's cells coordinate to keep their division in check and avoid causing cancer, worker ants sacrifice their own fecundity to serve their queen and colony, female lions within a pride suckle one another's young.**
(B) Even if the helpers may not necessarily be putting their lives on the line, they are risking lowering their own reproductive success for the benefit of another individual.
(C) Although they may not always play out on such an epic scale, examples of selfless behaviour abound in nature.
(D) Humans help other humans to do everything from obtaining food to finding mates to defending territory.

- ☐ A CADB
- ☐ B ABCD
- ☐ C ACBD
- ☐ D CBAD
- ☐ E DBCA

Directions: In the given question, the sentence has four underlined words or phrases. Identify the one underlined word or phrase that must be changed in order to make the sentence correct. Mark E for no error.

22. **<u>Safety glass</u>, a <u>toughened</u> glass sheet, is six <u>times stronger</u> than <u>untreating</u> glass.**

- ☐ A Safety glass
- ☐ B toughened
- ☐ C times stronger
- ☐ D untreating
- ☐ E No error

23. Directions: Choose the set of prepositions whose meaning and sequence best fits the 3 given sentences.

1. Withering of rocks _____ long periods of time leads to the formation of clay minerals.
2. Large bowls such as salad bowls are often intended _____ serve many people at the same time.
3. The chemical compounds that make up perfume can either be manufactured synthetically in labs or extracted _____ the flowers or plants.

(A) to
(B) off
(C) over
(D) from
(E) since
(F) despite

- ☐ A BAC
- ☐ B CBA
- ☐ C ACB
- ☐ D CAD
- ☐ E CAE

Directions: Solve questions 24-26 based on the information given below.

In the given question, the sentence has four underlined words or phrases. Identify the one underlined word or phrase that must be changed in order to make the sentence correct. Mark E for no error.

24. **If I had the opportunity, I would have had someone pick up the parcel from your house.**

- ☐ A If I had
- ☐ B have had
- ☐ C pick up
- ☐ D from your
- ☐ E No error

25. A major contribution of Maratha sculptors during the medieval age were the creation of the Buddha's images in different human forms.

- ☐ A A major
- ☐ B Maratha sculptors
- ☐ C were the creation
- ☐ D the Buddha's
- ☐ E No error

26. **One of the ancient traditions in India commit the guru as well as his disciples to celibacy.**

- ☐ A One of the
- ☐ B commit the guru
- ☐ C as well as
- ☐ D to celibacy
- ☐ E No error

27. Directions: Choose the set of prepositions whose meaning and sequence best fit the 3 given sentences.

1. He is so transparent, it is possible to see _____ every ploy.
2. Paintings should be done in bright shades so that they may stand _____ more vividly.
3. She ran _____ all of the main points of her presentation in a few hours.

(A) into
(B) through
(C) behind
(D) up
(E) out
(F) across

- ☐ A ADB
- ☐ B AEB
- ☐ C BDB
- ☐ D BEB
- ☐ E FEB

28. Directions: Choose the set of prepositions whose meaning and sequence best fits the 3 given sentences.

1. He just wanted to be left _____ peace but his wife continued to nag him all evening.
2. She frowns _____ people who gossip in the office during working hours.
3. The principal disapproves _____ teachers punishing the students for minor mistakes.

(A) of
(B) with
(C) over
(D) in
(E) to
(F) on

- ☐ A BEA
- ☐ B DFE
- ☐ C DFA
- ☐ D EFA
- ☐ E BBC

Directions: In the given question, the sentence has four underlined words or phrases. Identify the one underlined word or phrase that must be changed in order to make the sentence correct. Mark E for no error.

29. Are you the <u>one</u> with <u>who</u> Ravi <u>went</u> home <u>last</u> night?

- ☐ A one
- ☐ B who
- ☐ C went
- ☐ D last
- ☐ E No error

Directions: Choose the word or set of words for each blank that best fits the meaning of the sentence as a whole.

30. The harsh teacher scolded the students in order to establish her _____ over them.

- ☐ A humanity
- ☐ B authority
- ☐ C generosity
- ☐ D selflessness
- ☐ E worthlessness

31. Directions: Choose the word or pair of words that best completes the relationship to the given pair.

endorse : support :: _____ : _____

- ☐ A cavil : nitpick
- ☐ B abrogate : renew
- ☐ C desiccate : destroy
- ☐ D fulminate : fumigate
- ☐ E hypothecate : guess

Directions: Choose the word or set of words for each blank that best fits the meaning of the sentence as a whole.

32. The Transport Commissioner's _____ idea of making attendance at a road safety awareness session mandatory for registration of a new vehicle has failed to take off in the district. Motor Vehicles Department sources said it faced many _____, both infrastructurally and practically, in such a small district.

- ☐ A lame … … jinx
- ☐ B appreciable … … chaos
- ☐ C presuming … … obstacles
- ☐ D overconfident … … hurdle
- ☐ E ambitious … … impediments

Answer Keys

Quantitative Skills Answer Keys

1.D	2.B	3.C	4.C	5.A	6.B	7.A	8.D	9.A
10.E	11.C	12.C	13.A	14.C	15.E	16.B	17.A	18.B
19.A	20.B	21.C	22.E	23.D	24.A	25.B	26.C	27.C
28.C	29.E	30.E	31.E	32.D	33.D	34.B	35.E	36.E
37.C	38.D	39.C	40.E	41.D	42.D	43.B	44.A	45.B
46.B	47.B	48.D						

Logical Reasoning Answer Keys

1.A	2.C	3.D	4.D	5.B	6.E	7.D	8.E	9.E
10.A	11.B	12.D	13.A	14.B	15.B	16.E	17.E	18.E
19.D	20.E	21.E	22.D	23.B	24.E	25.A	26.C	27.A
28.A	29.B	30.D	31.A	32.B	33.A	34.E	35.B	36.D
37.B	38.D	39.B	40.D					

Language Skills Answer Keys

1.E	2.E	3.A	4.E	5.B	6.C	7.C	8.D	9.B
10.A	11.A	12.C	13.A	14.E	15.E	16.C	17.E	18.C
19.E	20.D	21.A	22.D	23.D	24.A	25.C	26.B	27.D
28.C	29.B	30.B	31.A	32.E				

Answer Explanations – Quantitative Skill

1. As a 19-year-old student is replaced by a 25-year-old student, the total age of the group is increased by 6. Now, as the average age is increased by 0.4. if we let the total number of students be x then, 0.4x = 6. The number of students must be 6/0.4 = 15

   Correct option is (D)

2. In this problem, it is better to find the area of the non-shaded region and subtract it from the total area of rectangle ABCD to find the area of the given shaded region.
   Area of triangle ADE = ½ × AD × AE
   As AE = 3/5 AB So, area of triangle ADE is ½ × AD × 3/5 AB = 3/10 × AD × AB
   Now, area of triange DCG = ½ × DC × CG
   Now, CG= ¾ BC
   So, Area of triangle DCG = ½ × DC × ¾ BC = 3/8 × DC × BC
   Now, area of non-shaded portion = Area of triangle ADE + Area of triangle DCG

   = 3/10 × AD × AB + 3/8 × DC ×BC

   As, area of rectangle ABCD = AD × AB = DC × BC = 400

   So, total area of non-shaded region = 3/10 × Area of rectangle ABCD + 3/8 × Area of rectangle ABCD

   = (3/10 + 3/8) × Area of rectangle ABCD

   = 27/40 × Area of rectangle ABCD

   = 27/40 × 400 = 270

   So, area of shaded portion = Area of rectangle ABCD – Area of non-shaded portion

   = 400 – 270 = 130

   Correct option is (B)

3. Using Statement 1 alone- As product of A, B and C is odd, it means A, B and C are all odd individually. But, we don't know whether D is odd or even. Now, A+B+C+D is even if D is odd. So, statement 1 alone is not sufficient

Using statement 2 alone- As the product of D and C is even, so either D or C or both are even. We don't know about A and B. So, statement 2 alone is not sufficient

Using both statements together- As, using statement 1 we know that A, B and C are odd. If we use statement 2 with condition C is odd, then D must be even. So, D+A+B+C is odd. Therefore, we can solve the problem by using both the statements.

So, correct option is (C)

4. If m+3 is even, then m must be odd. 5m+3 is odd+odd so it is even. (m+3)/2 is even/even and it can be either even or odd. 2m+7 is even + odd and so it is odd. Now, m+1 is odd+odd so it is even. Similarly, (m+3)(m+4) is even × odd = even. Hence, from the given options, only 2m+7 is odd

   Correct option is (C)

5. Let the cost be Rs. 100, then Mark Price is Rs. 150 and its selling price is 150(1-20%) = 150×0.8 = Rs. 120. So, gain percentage is 20%.

   Correct option is (A)

6. As for the quadratic equation ax^2+bx+c, the sum of roots is $-b/a$ and the product of roots is c/a

   So, $\alpha + \beta = -1$ and $\alpha\beta = 1$

   Now, $\alpha/\beta + \beta/\alpha = -a$

   So, $(\alpha^2+\beta^2)/\alpha\beta = -a$

   And we have $\{(\alpha+\beta)^2-2\alpha\beta\}/\alpha\beta = -a$

   $\{(-1)^2-2(1)\}/1 = -a$

   $-1 = -a$

   So, $a=1$

Correct option is (B)

7. We need only science graduates for years 1989 and 1991. We can obtain this number by subtracting the number of Engineering graduates (table 2) from Science and Engineering graduates (table 1)

   Therefore, the required value is {(4294-629) – (4209-586)}/ (4209-586) × 100 %

   = (3665-3623)/3623 × 100% = 42/3623 × 100% = 1.16%

   Correct option is (A)

8. This question needs to be solved in the same way as we solved question no. 9.

   The required value =

   (Number of Science doctorates from India in 1993/ Number of Science doctorates from Asia in 1993) × 100%

   = (4320-323)/(12587-4700)×100% = 3997/7887 × 100% = 50.67%

   Correct option is (D)

9. Percentage increase in the number of engineering doctorates from 1989 to 2003 for China

   = (6573-726)/726 × 100% = 805.4%

   Percentage increase in the number of engineering doctorates from 1989 to 2003 for India

   = (779-586)/586 × 100% = 32.9%

   Percentage increase in the number of engineering doctorates from 1989 to 2003 for Japan

= (3921-1774)/1774 × 100% = 121.0%

Percentage increase in the number of engineering doctorates from 1989 to 2003 for South Korea

= (1868-415)/415 × 100% = 350.1%

Percentage increase in the number of engineering doctorates from 1989 to 2003 for Taiwan

= (656-120)/120 × 100% = 446.7%

As it is clear, it is the least for India

Correct option is (A)

Alternative Approach - In this problem, we actually do not need to find each value. If we just compare values for each country for 1989 and 2003 we can say the percentage increase must be the least for India.

10. The total number of doctorates in Engineering in Asia from 1989 to 1993

= Number of Engineering doctorates in Asia in 1989 + Number of Engineering doctorates in Asia in 1991 + Number of Engineering doctorates in Asia in 1993

= 3621+4100+4700 = 12421

The total number of Engineering doctorates in India from 1989 to 1993

= Number of Engineering doctorates in India in 1989 + Number of Engineering doctorates in India in 1991 + Number of Engineering doctorates in India in 1993

= 586+629+323 = 1538

The total number of Engineering doctorates in Asia from 1989 to 1993 from countries other than India are = 12421-1538 = 10883

Percentage of doctorates in Asia from 1989 to 1993 from countries other than India = 10883/12421 × 100% = 87.61%

11. $28 = 16+12 = 4^2 + 3\times4^1 = 1\times4^2 + 3\times4^1 + 0\times4^0$

    So, 28 is written as 130 in base 4

    Correct option is (C)

12. Time needed by Tap A and Tap B to fill the pool individually in minutes is 24 min and 32 min respectively.

    Tap A can fill 100/24 % of pool in 1 min and Tap B can fill 100/32 % of pool in 1 min. Both can together fill (100/24 + 100/32)% of pool in 1 min.

    Suppose both taps were open for x min. Then, only tap A is open for 18-x min.

    So, x(100/24 + 100/32) + (18-x) 100/24 = 100 (as total work is 100%)

    18 × 100/24 + x × 100/32 = 100

    x × 100/32 = 100- 18 × 100/24 = 100-75 = 25

    x= (32×25)/100 = 8 min

    Correct option is (C)

13. The series is $9^{(1/3+1/9+1/27....)}$

    The power is infinite geometric progression with 1st term (a) as 1/3 and common ratio (r) as 1/3

    So, we have $9^{\{(1/3)/(1-1/3)\}} = 9^{1/2} = 3$

    Correct option is (A)

14. The number of Rcomm shares he can buy in January is 25,000/50 = 500

    The money he obtained by selling 500 shares of Rcomm in March is 500 × 48.3 = Rs. 24,150

    Now, the number of INDSEC shares he can buy is 24,150/35 = 690

    Correct option is (C)

15. The best approach is the one for which he will have the maximum amount of money at the end.

    In case A (28.5/25 × 20000) = Rs 22,800

    In case B (53.2/55 × 20000) = Rs 19, 345

    In case C (21.1/20 × 20000) = Rs 21, 100

    In case D (55/50 × 20000) = Rs 22, 200

    In case E (38.6/32 × 20000) = Rs 24, 125

    Clearly, E is best option

    Correct option is (E)

16. Percentage increase from Jan to June for Rcomm is (57-50)/50 × 100% = 14%

    Percentage increase from Jan to June for INDEC is (42.5-32)/32 × 100% = 32.8%

    Percentage increase from Jan to June for FRLD is (28.5-25)/25 × 100% = 14%

    So, INDEC is showing the maximum percentage growth.

Correct option is (B)

17. We must check I, II and III individually

    The average price of Rcomm from January to June is = (50+45.5+48.3+55+53.2+57)/6 = 51.5

    So, I is true

    Price of FRLD falls in March, so II is false

    At the end of March both FRLD and INDSEC show a fall in price, so III is false

    So, only I is true

    Correct option is (A)

18. Let the first number be x. Then other numbers are x+1, x+2 …x+11. Now their sum is 12x+(1+2+3...+11

    = 12x+66. Now, the answer must be the number which gives the integral value for x by using the values given in the options

    12x+66 = 198 gives x=11 and other options do not give the integer value for x

    Correct option is (B)

19. The mixture of 200 litres has 40 litres of water and 160 litres of wine. Now, if x litres of water is added to it, the percentage of water becomes 25% in the mixture.

    So, 40+x/ 200+x = 25% = 0.25

    40+x=50+0.25x

    0.75x=10

    So, x=13.33

Correct option is (A)

20. We have AB/AC = BD/DC

    So, DC = (BD×AC)/AB = (6×10)/12 = 5cm

    BC = BD+DC = 6+5 = 11 cm

    Correct option is (B)

21. Using statement 1 alone – A-E is negative so E>A. As, D is average of A and E. So, it must be between them and hence we have E>D>A and B is not the smallest. All of this information is not sufficient. So, statement 1 alone is not sufficient

    Using statement 2 alone – As E-C is negative, so C>E and B is not the largest. D can not be the largest, as it is the average of A and E. So, it must be between them. Therefore, either A or C is largest. Statement 2 alone is not sufficient

    Using both statement together- C>E>D>A and B is neither largest nor smallest. So, it is clear that C is the largest.

    Hence, both the statements together are sufficient.

    Correct option is (C)

22. The unit digit of 17^{222} is same as of 7^{222}.

    7^1=7, 7^2=49, 7^3= 343, 7^4= 2401. So, the unit digits of 7^1, 7^2, 7^3 & 7^4 are 7, 9, 3 and 1. After it the repetition starts. So, $7^{222} = 7^{4\times55+2} = 7^2 = 49$ and so the last digit is 9.

    Correct option is (E)

23. At exactly 3 am, the hour hand of the clock is leading by 90^0 and at 4 pm, it is leading by 120^0. Between the intervening time, the first minute hand will cover 90^0 and at that time there will be an instant when it will be lagging the hour hand by 36^0 and then it will coincide with the hour hand and then after sometime it will be leading the hour hand by 36^0.

    In 60 minutes, the minute hand travels 360^0 while the hour hand travels only 30^0, so the minute hand covers 330^0.

    In every 60 minutes, the minute hand was lagging by 90^0 at exactly 3 am. To be lagging by 36^0 it must cover 54^0 and so it will take (54/330 × 60) min = 9.81min = 9min 49 sec.

    Now to lead by 36^0, it must cover $(90+36)^0 = 126^0$

    Time taken is (126/330 × 60 min) = 22.91min = 22min 55 sec

    So, the angle will be 36^0 at 3:09:49 AM and 3:22:55 AM

    Correct option is (D)

24. Using statement 1 alone - The diameter of the circle can be obtained with the help of the radius. Then, this diameter is diagonal of square so the side of the square can be known and its square gives the area of the square. So, statement 1 alone is sufficient

    Using statement 2 alone - We cannot use the information about the tangent to find the area of the square as its side cannot be obtained. So, statement 2 alone is not sufficient

    Correct option is (A)

25. $7^{(3+\log_7 5)} = 7^3 \times 7^{\log_7 5} = 7^3 \times 5 = 343 \times 5 = 1{,}715$

    Correct option is (B)

26. If the man leaves and the mother stays then the average age of 3 person is increased by 10 and it shows the total increase by 30 years. So, difference in the age of the man and his mother must be 30 years.

    Correct option is (C)

27. As all the sides of an equilateral triangle are equal, hence, PQ = QR = RP

    Now, using coordinates of P and Q, we can say PQ = 8

    So, QR and RP must also be 8 and also the x-coordinate of vertex R must be 0. Hence, we can check options A, B and C. For option C only, we get QR = RP = 8

    Correct option is (C)

28. If he attempts questions randomly then probability of answering a question correctly is ½ and similarly the probability of a wrong answer is also ½.

    Now, as he attempted 5 questions and 4 should be correct, we can find the required probability by using binomial distribution with n=5, p=q=1/2 and r=4

    Required probability = ${}^{n}C_{r}\, p^{r}\, q^{(n-r)} = {}^{5}C_{4}\, (1/2)^{4}\, (1/2)^{(5-4)} = {}^{5}C_{4}\, (1/2)^{5} = 5/32$

    Correct option is (C)

29. The ice-cream truck crossed Sudha's house after 15 min, 50 min and 7 hour 30 min. So, if it crossed her house at 2:00 pm, it can cross again at 2:15 pm or 2:50 pm or 9:30 pm. As, only 1 of these 3 possible values is given, it must have crossed again at 9:30 pm.

    Correct option is (E)

30. As train A started 30 min early, it must have travelled 60 km when train B started. The relative speed of train B with respect to A is (150-120) km/hr = 30 km/hr. So, it will take 2 hours to catch up with train A. In 2 hours the train B must have travelled 300 km. Therefore, both trains must meet at 300 km from Delhi.

    Correct option is (E)

31. For the quadratic equation $ax^2 + bx + c$, the sum and the product of roots is $-b/a$ and c/a

    So, $a + b = p$ and $ab = q$

    As for the roots, sum of roots = $ab + a + b + ab - a - b = 2ab = 2q$

    Product of roots = $(ab + a + b)(ab - (a + b)) = (ab)^2 - (a+b)^2 = q^2 - p^2$

    Using the value of sum and product of roots

    The quadratic equation is x^2 – (sum of roots) x + product of roots = $x^2 - (2q)x + (q^2 - p^2)$

    $= x^2 - 2qx + q^2 - p^2$

    Correct option is (E)

32. Using statement 1 alone – As a multiple of 2 odd numbers is an odd number, statement 1 alone is sufficient

    Using statement 2 alone – division of 2 odd numbers is odd, so statement 2 alone is sufficient

    Correct option is (D)

33. Suppose the first number is x, then other numbers are x+2, x+4, x+6 and x+8

Now, according to the given information, x + (x+2) + (x+4) + (x+6) + (x+8) = 280

So, 5x = 260

Hence, x=52 and, therefore, the largest number is 52+8 = 60

Correct option is (D)

34. Suppose the price is Rs. 100. Then Girish got the car at Rs. 85 and sold it at Rs 102

In the alternate scenario, he will get it at Rs. 88 and sell it at Rs 105.6

As we can see, the difference is Rs 3.6 on the price of Rs 100. So, the difference is Rs. 3.6 which is 3.6% of the original price (of Rs 100).

Correct option is (B)

Note – In problems of this nature, it is always better to practically assume the initial price to be Rs 100

35. The total money that Aahir will get is 2(2 + 4 + 8 + 16 + 32 + 64 + 128)

It is a G.P. whose first term is 2 and the common difference is 2

The sum of Geometric progression is $a(r^n - 1)/(r-1)$

Using known values, we get, Total money = $2 \times \{2 (2^7-1)/(2-1)\} = 2 \times 254$ = Rs. 508

Correct option is (E)

36. The diameter of a circle is diagonal of square

Let the side of square is a

So, $a\sqrt{2} = 2 \times 25 = 50$

Hence, $a = 50/\sqrt{2}$

Now, area of square is $a^2 = (50/\sqrt{2})^2 = 1{,}250$ sq cm

Correct option is (E)

37. The run between two successive halts can be obtained by subtracting their cumulative mileage

The distance obtained for options A, B, C, D and E are 105, 80, 339, 45 and 70 respectively

Hence, the longest run is for Bhusawal-Igatpuri, that is, 339 miles

Correct option is (C)

38. The train has travelled a total distance of 1100 miles in 21 hour 25 minutes = {21+(25/60)}hr = 21.42hr

Therefore, the average speed is 1100/21.42 = 51.3 miles/hour ≈ 51 miles/hour

Correct option is (D)

39. The train left Mumbai at 0900 on Monday. Now, it must reach Kolkata at 0625 on Tuesday. It started from Kolkata towards Mumbai at 1425 on Tuesday.

    As it maintains the same speed that it maintained for the Mumbai-Kolkata journey, so Kolkata-Mumbai journey will also take 21 hr 25 minutes. Hence, the train would have reached Mumbai on Wednesday at 1150.

    Correct option is (C)

40. The average speed of train for Nasik-Bhusawal is (391-281)/(17:10-14:55)=110/02:15=110/2.25=48.9 miles/hr

    The average speed of train for Nagpur-Durg is (845-800)/(01:00-00:15)=45/00:45=45/0.75=60.0 miles/hr

    The average speed of train for Mumbai-Igatpuri is (80-0)/(11:00-09:00)=80/02:00=80/2=40.0 miles/hr

    Average speed of train for Jamshedpur-Kolkata is (1100-995)/(06:25-04:28)=105/01:57=105/1.95=53.8 miles/hr

    Average speed of train for Bhusawal-Akola is (730-391)/(22:40-17:12)=339/05:28=339/5.46=62.0 miles/hr

    So, average speed was highest for Bhusawal-Akola

    Correct option is (E)

41. As the pipe needs 10 min to fill the tank completely, it will fill 10% of the tank in 1 min

    Another pipe can empty the tank in 8 min and so it can empty (100/8)% = 12.5% tank in 1 min

    So, if both pipes are opened simultaneously, then the tank will be (12.5-10)% = 2.5% empty per min

    So, it will be completely empty in 100%/2.5% = 40 min

    Correct option is (D)

    Important- *In similar problems related to time and work, if we choose total work as 100% and efficiency is calculated as % of work done per min then most of these problems are easier to solve.*

42. Let there be a polygon with side n. Then the number of diagonals will be ${}^{n}C_2 - n$

    So, we have nC2 – n = 44

    So, n(n-1)/2 –n = 44

    So, $n^2 - n - 2n = 88$

    It gives, $n^2 - 3n - 88 = 0$

    So, n= 11 or -8

    As the number of sides cannot be negative, the number of sides must be 11.

    Correct option is (D)

43. The number of people between the age group of 50-59 with the ideal mass index are 50% of 15% of 2000 = 150

    The number of people between the age group of 60-69 with the ideal mass index are 10% of 10% of 2000 = 20

    Total number of required people are 170

    Correct option is (B)

44. Total number of people in the age group of 20-29 years is 25% of 2,000 = 500

    Now, 20% of them do not have the ideal mass index. Therefore, the number of such people are 20% of 500 = 100

    Total number of people in the age group of 30-39 years is 30% of 2,000 = 600

    Now, 60% of them do not have ideal mass index. Therefore, the number of such people are 60% of 600 = 360

    Therefore, the total number of people below 40 years who did not have an ideal body mass index are 460

    Correct option is (A)

45. The total number of obese people who took part in the survey can be obtained by multiplying the percentage of people in each age group and the percentage of obese people in each group

    0% of 25% of 2000 + 10% of 30% of 2000 + 30% of 20% of 2000 + 20% of 15% of 2000 + 40% of 10% of 2000

    0 + 60 + 120 + 60 + 80 = 320

    Now percentage of 320 in 2000 is (320/2000 × 100)% = 16%

    Correct option is (B)

46. Total number of overweight people are 40% of 30% of 2000 + 20% of 20% of 2000 + 30% of 15% of 2000 + 50% of 10% of 2000 = 240 + 80+ 90 + 100 = 510

    The no. of overweight people in the age group 50-59 = 30% of 15% of 2000 = 90

    So, the required percentage = (90/510 × 100)% = 17.65%

    Correct option is (B)

47. Using statement 1 alone - We do not know the number of Rs 5 coins, so we cannot find the required probability. So, statement 1 alone is not sufficient.

    Using statement 2 alone - Using it we can say that the required probability is 8/23. So, statement 2 alone is sufficient.

    Correct option is (B)

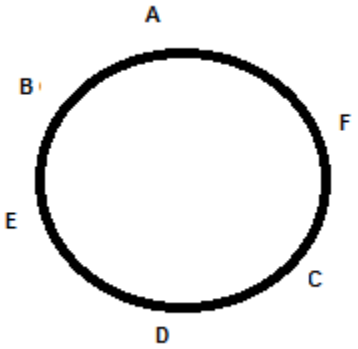
48. Using statement 1 alone - If n=50 and we know S_1 has 24 elements, so S_2 must have 26 remaining elements. So, statement 1 alone is sufficient.

    Using statement 2 alone - As S1 has 24 elements, so if S2 has 2 more elements than S1, it must be having 26 elements. Therefore, statement 2 alone is sufficient

    Correct option is (D)

Answer Explanations – Logical Reasoning

1. Comments



(Explnation_I07438)

2. Other than tipsy, which means slightly drunk, the other words are all suggestive of calm disposition.

3. There are four: ed, op, ce, ci.

4. None of the shapes is completely within another - hence, there is no superset - subset. Thus, A is not correct.
   Similarly, there is no portion which is overlapped by all four shapes - hence, B is not correct.
   Chemistry is represented by the circle and the circle is not overlapping the small square - hence, C is not correct.
   For the same reason as C, E is also not correct.
   There is an overlapped area between the square, the rectangle and the triangle but this area is not overlapping the circle - so D is the correct answer.

5. Had this been in first person and attributed to a candidate, then perhaps Assumption I could have been implicit. But not so in its current form.

6. The first course of action - 'that policemen should avoid going to such places' is not a feasible option.
   The remaining two could be logically pursued and hence, are correct.

7. Since the statement specifically talks about colleges and offices, I is a weak statement (assuming that the disadvantaged categories do get reservations up until college).
   II and III are strong arguments.

8. I cannot be concluded because although it is mentioned that the African team name start with Z, there is no mention of other team names not starting with Z.
   II can be concluded because Germanz cannot be an African team as it does not start with Z and it cannot be an Asian team name as it has more than 5 letters. Hence, it can only be European.
   III For the same reason as for II, Rhinos cannot be from Asia.

   So E is the correct answer.

9. From the first two statements, it is clear that either 1 or 3 could be for 'I' and 'you'.
   From the last statement, it is clear that 1 is the code for 'you'.
   From the last and the third statements, it is clear that 7 is the code for 'pretty'
   Therefore, 8 is the code for 'are'.

   So E is the correct answer.

10. Each letter has an associated number.
    R = 7
    O = 2
    H = 3
    I = 1
    T = 4
    A = 5
    S = 6
    H = 3
    U = 8
    N = 9
    I = 1
    R = 7
    M = 0
    A = 5

    Therefore, RAMAN is 75059.
    So the A is the correct answer.

11. Each word has an associated number which can be figured out from the given examples.

    The = 1/3
    Sword = 4
    Of = 1/3
    Tipu = 9
    Purchased = 6
    By = 2/7
    Vijay = 2/7
    New = 5
    Fort = 8
    Therefore the code for 'Vijay Tipu by new' must be a combination of the numbers 2, 7, 9, 5.
    So B is the correct answer.

12. The central letter or central two letters (for even numbered words) of each word forms the code. For example in 'chocolates' there are 10 letters, and the central two letters are OL and in 'cause' there are 5 letters and the central letter is U.
    Therefore, 'Doctor extracted tooth' would be coded as CT A O.

    So D is the correct answer.

13. Damini and Ragini cannot be together according to rule number 1.

    So A is the answer.

14. Since Punit is there, Amit cannot be there (as per rule number 3) - so among the cooks, the only possible combination is Punit and Sumit.
    Since Punit is there, Rajni cannot be there (as per rule number 4), and since Ragini is there, Damini cannot be there (as per rule number 1). Hence, among the waiters too, there is only one possible combination and that is, Ragini, Shalini, and Sohini.

    So B is correct.

15. Because if Punit is there, Rajni cannot be there (as per rule number 4), hence, Sohini, Shalini and Damini or Ragini have to be there - however, if Damini is there, then Shalini cannot be there (as per rule number 2). Therefore, between Damini and Ragini, Ragini must be chosen.
    So B is correct.

16. Since Damini is going, and there is requirement for 3 waiters, with the given rules (rules 1 and 2 specifically), the other two members would be Rajni and Sohini. So, III is true. Since Rajni is there, Punit cannot be (as per rule 4). Hence, I is true.
    II is not true as Amit has to go if Punit cannot to meet the requirement for 2 cooks.

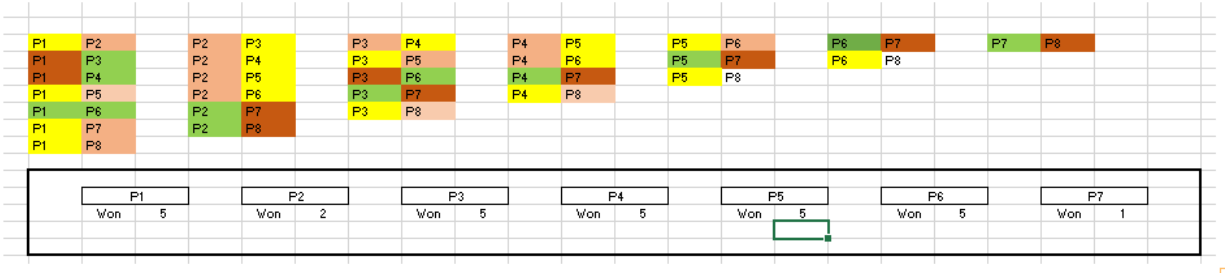
    So E is correct.

17. It can be concluded that there were 28 games played in all. As there were no draws and ties, there were 28 wins. of which 5 players won exactly 5 matches each - so 25 matches - that leaves out another 3. So P1 could have been either one of the players that won exactly 5 matches or they could have won all 7 that they would have played (since there are 8 players, it cannot play a match with itself, so it played 7 matches).
    As it is a given that they definitely lost 2 - assuming that they won all othes, P1 would have a max of 5 wins.

18. With the given data, there are many possibilities. Hence, cannot be determined

19. Given that P8 won his match against P2, and P3 lost his match against P6, then this means that P2, P7 and P8 are the three players who have not won exactly five matches. Each of P2, P7 and P8 have won one match each. The five players that have won exactly five matches each are P1, P3, P4, P5 and P6. Each of these five players have won their match against P2, P7 and P8. Also, P1 lost their match against P3 and P4 and P6 lost their match against P1 and P3.
    Therefore, the pairs of players against whom P5, P3 and P4 lost their matches are (P1 and P6), (P5 and P4) and (P6 and P5) respectively. Hence Option D is correct.

The greens and the browns are the givens - green being the winners and browns the losers. The yellows and the light pinkish browns are the possibilities that can be inferred keeping in mind the givens - yellows being the winners and the browns being the losers.



20. There are 28 wins and 28 losses in the tournament.
Total number of wins by the players who won exactly five matches each is 5 × 5 = 25.
So, the total number of wins by the players that did not win exactly five matches is 3.
So, the possibilities that exist for the players that did not win exactly five matches are as follows:
Case 1: Three players won exactly one match each.
Case 2: One player won exactly two matches, one player won exactly one match and one player won none of the matches.

21. The last step, Step 4 is just the reverse order of all elements in the input series.
So E is the correct answer.

22. The movement of the elements of the input series is as follows:
Step 1 = b a d c f e
Step 2 = d a b e f c
Step 3 = c f e b a d
Step 4 = f e d c b a
By this logic:
Step 3 = c f e b a d
is 60 70 80 90 100 110
then Step 1 wil be:
Step 1 = b a d c f e
Or 90 100 110 60 70 80

So D is the correct answer.

23. The movement of the elements of the input series is as follows:
Step 1 = b a d c f e
Step 2 = d a b e f c
Step 3 = c f e b a d
Step 4 = f e d c b a
So, if Step 2 = 26, 34, 76, 89, 23, 12
then Step 4 = 23, 89, 26, 12, 76, 34

So B is the correct answer.

24. The movement of the elements of the input series is as follows:

Step 1 = b	a	d	c	f	e
Step 2 = d	a	b	e	f	c
Step 3 = c	f	e	b	a	d
Step 4 = f	e	d	c	b	a

As can be seen, the last element of the input series, occupies the 3rd element in Step 3.

So E is the correct answer.

25. Ramesh is Deepu's only brother, hence, Vanita is Ramesh's wife and her mother in law would be her husband's mother.
Hence, Savita is Ramesh's and Deepu's mother.

26. From the given information, Mr and Mrs Sds have three children - 1 boy (At) and two girls (Al and Ak).
Mrs Sds has a niece Sg who has a sister Dv and an only brother Bt. Hence, Al and Dv have to be cousins of the female gender.

27. A is the key as sentence 3 clearly shows this conclusion is incorrect and thus cannot be concluded from the informationn
B can be concluded from the passage, in paticular sentence 3.
c can be concluded as sentence 1 and 2 demonstrate how the Railway department is making an effort to improve the scenario.
D can be concluded from the first sentence.
E can be concluded as this follows the information provided in sentence 2.

28. Only the statement in option A can be inferred. From the 4th sentence, it is evident that there is need to fill in vacancies and it follows from there that things could improve if this happened.
    Statement B is contradicted by Sentence 3 which states 'Over 5,00,000 children belong to BPL families...'
    Statement C cannot be inferred as the information does not mention the condition of other hospitals in other states.
    Statement D cannot be inferred as sentence 2 states 'patients do not have bed facilities in 50% of the hospital wards' which could affect both BPL and non-BPL families and would be a cause for complaint.
    Statement E cannot be conlcuded as the information does not say deaths are caused by the lack of adequate staff, there could other reasons beyond why there are deaths in the hospitals.

29. The usage of the word 'only' makes the assumption in option B not implicit, and therefore the correct answer.

30. If D were true it would mean that with current taxation policies, the small scale industries (most of them) grow into big industries - which means that the current policies and laws help them grow. Hence, the case for special tax rebates and flexibility for small scale industries is weakened.
    Other statements do not weaken the main argument.

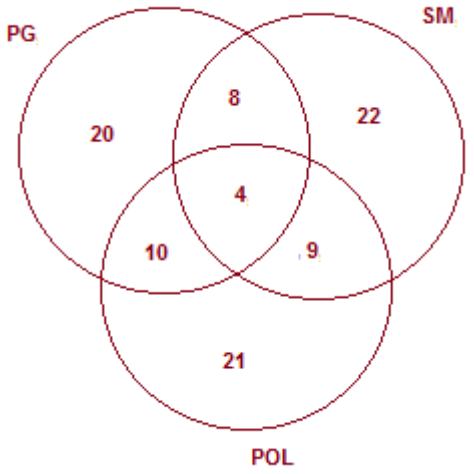
    So D is the correct answer.

31. Options B, C and E offer opposing views to that presented in the statement. Option D neither strengthens nor weakens the statement.
    A obviously strengthens the argument.

    So A is the correct answer

32. Neither A, C, D or E can be inferred. But B can be inferred from the statement.
    That India is a promising place for investment must have been at the root of the decision to invest more in its online business in India.

33. 100-(20+22+21+10+8+9+4) = 6
    6/100 =36. Thus, x= 600
    600* 0.27 = 162



All the nos add up to 94. Thus 6% = 36, or the whole = 600.

34. 125-5 = 120
    As it is given that 5 cricketers liked all 3 - so barring these, the rest did not like atleast one cricketer.

35. The top number in each pyramid is irrelevant - otherwise, it is very simple to figure out that it is the multiplication of the last two base numbers and the addition of the first two base numbers that make up the second layer of numbers.

36. The argument is pointing to experience being gained through every opportunity - whether it leads to success or not.
    Hence, D could be the best advice.
    Experience is nothing but learnings from failure - Option A talks about experience rather than failures and the struggle to face failures.
    Option B - seeking failure is not the advice that anyone should be given.
    Option C - no such sweeping statement can be made that success cannot be had without failures (almost making it sound like B - asking to chase failure)
    Option E - again, the focus here is on experience, not quite about facing failure.

37. 1111*24 = 26664
    Therefore, 6 +4 - 1 = 9
    So B is the correct answer.

38. The series starting from 32
    32
    32+(32*1) = 64
    64 +(32*3) = 160
    160 + (32*5) = 320
    320 + (32*7) = 544
    544 + (32*9) = 832
    832 + (32* 11) = 1184
    So D is the correct answer.

39. The first two examples show:
    12*15+13*14 = 362
    32*18+25*16 = 976
    Therefore: 24*28+52*9 = 1140

    So B is the correct answer.

40. The equations are:
    233*9 = 2097
    233*4 = 932
    Therefore, D = 3 and Y = 9

    So D is the correct option.

Answer Explanations – Language Skills

1. The penultimate paragraph clearly states Great Expectations as being widely considered his best.

2. The passage focuses on the influences on his writing, his motivation for writing, his style of writing, etc and so option E is the best answer.

3. The second paragraph states that 'his works invariably aimed to influence the consciousness of his readers' and other than A, all other statements are actually false.

4. The author supports the view that Dickens' writing was heavily influenced by the society he lived in as well as the harsh childhood he had to face due to his parents. However, if the statement in E were to be true, this would negate all the rest.

5. The correct option is B. The author uses this passage to introduce simulations, discuss their uses and advantages. The author does not engage in any debate our outline development history. The passage does not focus on any one particular use of simulations.

6. The author shows appreciation for and maintains a positive tone about computer simulations. The author does not show any outright scepticism or sarcasm, or make any humorous remarks about computer simulations.

7. The correct option is C. The author clearly states that “what if” or hypothetical scenarios can be studied by using computer simulations. The author mentions all of the other options.

8. D is the correct options as can be seen in the last line of the first paragraph.

9. Demean means to humiliate or disrespect.
   Praise means to express approval of or admiration for.

10. Elucidate means to explain or make something clear.
    Clarify means to make something easier to understand.

11. Jejune means dry and uninteresting.
    Arid means very dry or lack of water.

12. Denouement means the last part - conclusiveness.
    Preamble is the starting portion.

13. Betoken means to indicate or be a sign of (something).
    Belie means failing to give a true impression.

14. The only meaningful word that fits here is 'access'.

15. The only option that fits the sentence meaningfully is 'manoeuvre'

16. The only option that fits the sentence meaningfully is 'evident'.

17. The only option that fits the sentence meaningfully is 'surmise'.

18. (A) In reality, researchers have concluded that pain is used as a means to a different end, that end being the destruction of the individual as a person.
(B) The second is that the purpose of the pain is to elicit information.
(C) The first is that the primary purpose is to inflict pain.
(D) There are two common misconceptions about torture.
(E) Any information elicited is usually no more than a side benefit; often the victim has no information to give.
DCBAE - D opens the topic of the paragraph - torture - more specifically the two misconceptions about torture.This is followed by C, which is clearly stating the first misconception, and B, which is clearly stating the second misconception. A presents a counter argument to those misconceptions and E explains the basis for the counter argument presented in A.

19. (A) Wine is an alcoholic beverage, typically made of fermented grape juice.
(B) Wine is produced by fermenting crushed grapes using various types of yeast.
(C) Yeast consumes the sugars found in the grapes and converts them into alcohol.
(D) Besides grapes, other fruits such as apples and berries can also be fermented.
(E) And the resultant wines are normally named after the fruit from which they are produced and are called fruit wine or country wine.
The sequence is ABCDE.
A introduces the subject of the paragraph (wine) and how it is made. B gives a little further detail on how wine is produced and introduces yeast. C describes how the yeast produces the alcohol. D offers alternative fruits to the grapes discussed in A, B and C and then E gives the names of the wines made with those different types of fruit mentioned in D.

20. (A) Within the span of a single year, close to 40 journalists either disappeared or were found killed in Mexico.
(B) In the face of this threat to lives, many print and television media houses opted to completely stop reporting on the visible and ongoing drug cartels.
(C) The general public, in its thirst for news and information, now turns to the relative safety of the internet for updates on the drug scene there.
(D) Freedom of speech and expression has always been a bit of a risky business for those in the journalistic field.
(E) Reasons for their absence may be traced to open-minded debates about the impropriety of drug use, aired on national media networks.
DAEBC - D introduces the topic of inherent risk in freedom of speech in journalism and A exemplifies the risk by presenting some statistics. A reason for these statistics is presented in E followed by the resulting action in B and finally by a conclusive statement in C.

21. (A) An organism's cells coordinate to keep their division in check and avoid causing cancer, worker ants sacrifice their own fecundity to serve their queen and colony, female lions within a pride suckle one another's young.
(B) Even if the helpers may not necessarily be putting their lives on the line, they are risking lowering their own reproductive success for the benefit of another individual.
(C) Although they may not always play out on such an epic scale, examples of selfless behaviour abound in nature.
(D) Humans help other humans to do everything from obtaining food to finding mates to defending territory.
CADB - C introduces the topic of selfless behaviour in nature. A exemplifies this, followed by more in D. And B ends in a summary type statement.

22. Sentence should read 'Safety glass, a toughened glass sheet, is six times stronger than untreated glass.'

23. 1. Withering of rocks over long periods of time leads to the formation of clay minerals.
2. Large bowls such as salad bowls are often intended to serve many people at the same time.
3. The chemical compounds that make up perfume can either be manufactured synthetically in labs or extracted from the flowers or plants.
Thus the prepositions are over, to and from respectively.
CAD

24. Sentence should read 'If I had had the opportunity, I would have had someone pick up the parcel from your house.'

25. Sentence should read 'A major contribution of Maratha sculptors during the medieval age was the creation of the Buddah's images in different human forms.'

26. Sentence should read ' One of the ancient traditions in India commits the guru as well as his disciples to celibacy.

27. 1. He is so transparent, it is possible to see through every ploy.
2. Paintings should be done in bright shades so that they may stand out more vividly.
3. She ran through all of the main points of her presentation in a few hours.
So, the prepositions have to be through, out and through respectively.
BEB

28. 1. He just wanted to be left in peace but his wife continued to nag him all evening.
2. She frowns on people who gossip in the office during working hours.
3. The principal disapproves of teachers punishing the students for minor mistakes.
The correct prepositions are, in, at and of respectively.
DFA

29. The sentence should read 'Are you the one with whom Ravi went home last night?'

30. The word that best fits into the sentence is authority.

31. Endorse means support.
Similarly, cavil means nitpick or to find fault with.

32. The Transport Commissioner's ambitious idea of making attendance at a road safety awareness session mandatory for registration of a new vehicle has failed to take off in the district. Motor Vehicles Department sources said it faced many impediments, both infrastructurally and practically, in such a small district.