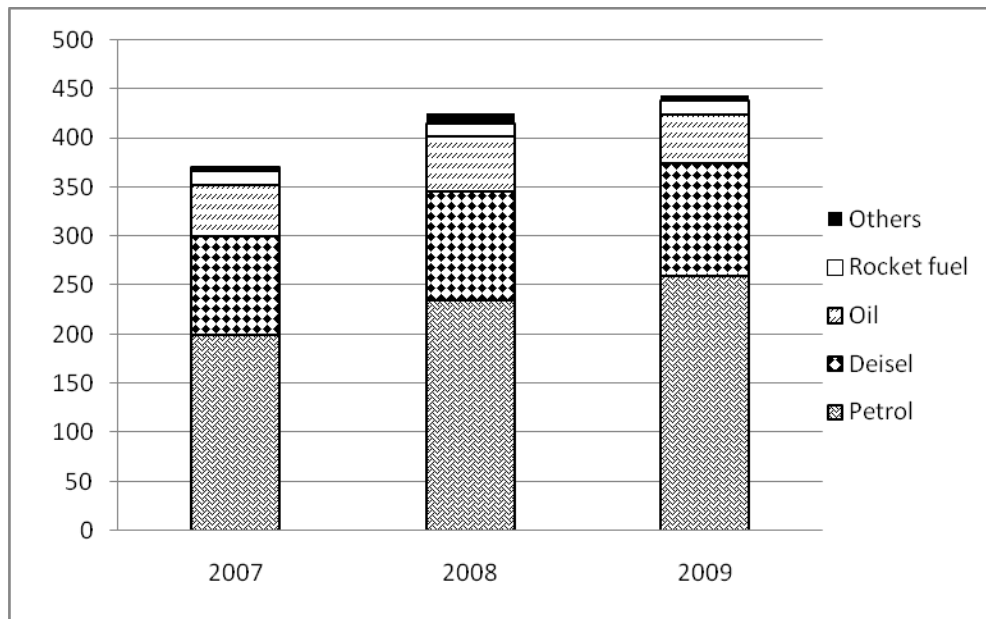


## CAT MOCK TEST PAPER

### SECTION – I

Number of questions: 30

**DIRECTIONS for questions 1 to 3:** The following data corresponds to the production of major fuels at a petroleum company. The data is for three years, and is in '000 tons. Answer the questions below using the graph.



- What is the average growth rate in production of petrol over the given time period?
  - 10%
  - 13%
  - 15%
  - 18%
- Which year saw the highest increase in the total production and by how much?
  - 2008, 13%
  - 2008, 6%
  - 2009, 13%
  - 2009, 6%
- In which year was the proportion of petrol the highest?
  - 2007
  - 2008
  - 2009
  - None of these

**DIRECTIONS for questions 4 to 6:** Each question below is followed by two statements marked I and II. As your answer,

- Mark 1, If the question can be answered by using information contained in any one statement alone, but not by the information contained in the other statement alone;
- Mark 2, If the question can be answered by using the information contained in either statement alone;
- Mark 3, If the question can be answered by using the information contained in both statements together; and,
- Mark 4, If the question cannot be answered even by using the information contained in both statements together.

4. Three integers are written on a board from left to right. The first, second and third integers are  $p$ ,  $q$  and  $r$  respectively. Which is the largest of these integers?
- I. 5 times the first integer equals 3 times the second integer, 16 times the second integer equals 15 times the third integer and 16 times the first integer equals 9 times the third integer.  
 II. The product of the three integers is greater than the square of the second integer.
5. What is the value of positive real number  $P$ ?
- I.  $P < 10$  is not a prime number and  $P^2$  and  $P^3$  each have their sum of digits equal to  $P$  or a multiple of  $P$ .  
 II.  $P < 15$  is a prime number and the values of  $P^2$  and  $P^3$  each have the digit 1 appearing more than once.
6. Each of the angles of  $\square PQRS$  has a different measure and none of them is a right angle. Which is the second smallest side of  $\square PQRS$ ?
- I.  $PQ/3 < QR/4$  and  $QR/2 < RS/3$ .  
 II.  $PQ/3 < PS/6$  and  $RS/4 < PS/3$ .

**DIRECTIONS for questions 7 to 11:** The following is the tariff plan for a local courier service based in Iowa. They have 4 types of service, depending on the time it takes to deliver from spot A to Spot B.

Table 1 : Zones and rates				
Zones	Direct Immediate	Rush (1 hr)	2 hr	Std (3 hr)
A	\$16.38	\$9.79	\$8.86	\$8.59
B	\$16.38	\$10.56	\$9.75	\$9.47
C	\$16.38	\$11.73	\$10.77	\$10.50
D	\$16.38	\$13.10	\$12.01	\$11.65
E	\$16.38	\$14.79	\$13.44	\$12.95
F	\$19.10	\$16.44	\$15.00	\$14.47
G	\$21.84	\$18.49	\$16.84	\$16.22
H	\$24.57	\$20.81	\$18.95	\$18.21
I	\$27.30	\$23.48	\$21.36	\$20.48
J	\$30.04	\$26.61	\$24.15	\$23.13

**Table 2. Division of city as per zip code**

	50309	50310	50311	50312	50313	50314	50315	50316	50317	50320	50321	50322
50309	A	E	D	D	E	C	D	D	E	E	E	F
50310	E	A	D	E	F	D	H	F	H	H	H	E
50311	D	D	A	C	E	D	E	E	H	H	E	E
50312	D	E	C	A	F	E	E	E	H	H	E	E
50313	E	F	E	F	A	D	H	D	F	H	H	H
50314	C	D	D	E	D	A	F	C	E	F	F	F

50315	D	H	E	E	H	F	A	G	H	E	E	H
50316	D	F	E	E	D	C	G	A	E	G	G	H
50317	E	H	H	H	F	E	H	E	A	H	H	J
50320	E	H	H	H	H	F	E	G	H	A	H	J
50321	E	H	E	E	H	F	E	G	H	H	A	H
50322	F	E	E	E	H	F	H	H	J	J	H	A

The standard service guarantees a delivery time of 3 hours, while the rush service has a delivery time of 1 hour. There is one service in between which is a 2 hour service, and the super fast direct delivery, which is immediate. They have divided the city in zones based on the zip codes as given in table 2. To review the rate, determine the assigned area by matching zip code to zip code.

7. Jack stays at zip code 50314 and wants to send a package to 50321. How much extra would he have to pay if he wants the packet to reach in 2 hours as compared to the standard service?

1. \$0.53                      2. \$1.44                      3. \$1.97                      4. \$4.67

8. Sally sends Jack a packet from 50312 to 50314, using the Rush service. If Jack is to spend the same or less using the Rush service, how many different places can Jack send that packet?

1. 4                              2. 5                              3. 6                              4. 8

9. Paul has a packet and has only \$10.00 with him. How many of the combinations of the points in the cities can he use?

1. 12                              2. 15                              3. 13                              4. 14

10. Steven has \$20.00 with him that he can spend. How many combinations of *sending-receiving* cities are possible in this budget?

1. 140                              2. 146                              3. 158                              4. 152

11. Joe is at point 50315. Jerry has to send him a packet, which needs to reach Joe by 1 pm. Jerry would be at home (at zip code 50317) till 10 am, after which he will go to office (at zip code 50322). He takes 1 hour to drive to office, travelling through zip code 50312, which is halfway between his home and office. Which would be the cheapest option for Jerry to send the packet?

1. Standard from home                      2. Standard from office  
3. Standard from mid-way                      4. 2 hours from mid-way

**DIRECTIONS for questions 42-51:** Answer the following questions as per the best of your judgment.

12. A square plot of side 300 metres is divided into a pentagon and two congruent trapeziums by joining the centre of the square plot with the mid-point of one side and two other points on the adjacent sides. If the areas of each of the regions so formed are equal, what is the length of the longer of the parallel sides of the trapezium?

1. 225 m                      2. 180 m                      3. 250 m                      4. 150 m

13. A bag containing 6 balls, has at least one blue and at least one white ball. It is not known whether the bag has balls of any other colour/s. Two balls are drawn at random and it is found that one ball

is blue and the other is white. What is the probability that the bag contains 3 blue and 3 white balls?

1. 12.5%                      2. 6.66%                      3. 50%                      4. 33.33%

14. The sum of the squares of three positive integers  $a$ ,  $b$  and  $c$  is also a perfect square. Which of the following cannot be the value of  $a^2 + b^2 + c^2$ ?

1. 15625                      2. 28561                      3. 33049                      4. 10000

15. A string of 1996 digits begins with the number 6. Any number formed by two consecutive digits is divisible by 17 or 23. What is the last digit of this series?

1. 3                      2. 9                      3. 6                      4. 2

16. Which of the following will yield a remainder of 7 when divided by 9?

1.  $112^{1974}$                       2.  $61^{1976}$                       3.  $148^{1981}$                       4.  $83^{1978}$

17. Let  $a$ ,  $b$  and  $c$  be any real numbers such that  $a, b, c > 1$ . Let  $S = (\log_a bc)^5 + (\log_b ca)^5 + (\log_c ab)^5$ . Then,

1.  $S \leq 32$                       2.  $S \leq 48$                       3.  $S \leq 64$                       4.  $S \leq 96$

18. Santosh was the guest speaker at a seminar on “Careers After Class XII” at the Cummins College of Engineering. He left his office and travelled at a certain speed so that he would reach the college on time. After travelling half the distance, he realised that he had left his laptop in office. He turned back immediately and increased his speed by 50% and reached his office. As compared to his original speed, by what percent should Santosh increase his speed so that he still reaches the college on time?

1. 200%                      2. 500%                      3. 300%                      4. 400%

19. Some chocolates are distributed among three girls in such a way that the product of the number of chocolates with any two of them is 225. If the product of the number of chocolates with the three girls is as large as possible, what is the number of chocolates distributed?

1. 45                      2. 65                      3. 90                      4. 135

20. P contestants for Miss India 2012 are standing in a circle and are numbered from 1 to P. Starting counting from 1 initially, in succession, every second one is removed from the contest and eliminated, and the last one is declared the winner. If contestant number 25 wins eventually, and  $P < 100$ , then how many different values can P take?

1. 3                      2. 1                      3. 2                      4. 4

21. In  $\triangle XYZ$ ,  $\angle YXZ = 90^\circ$ ,  $XY = 15$ ,  $YZ = 25$  and  $XZ = 20$ . A perpendicular, XA, is dropped from vertex X on to hypotenuse YZ and divides  $\triangle XYZ$  into two right triangles. Again, perpendiculars

are dropped from vertex A on to hypotenuse XZ and hypotenuse XY to divide  $\square$  XAZ and  $\square$  XAY into two right triangles each. This process is repeated once more. Including the original triangle, what is the sum of the perimeters of all the triangles formed?

1. 164.64                      2. 426.24                      3. 196.35                      4. 261.6

**DIRECTIONS for questions 52 and 53:**

Ravi wants to build a digester for a biogas plant on a rectangular plot of dimensions 28.8 ft.  $\square$  15.7 ft. so that a third of the height of the digester is below ground. The digester is in the form of a cylinder, with height  $\frac{1}{4}$  of its diameter, surmounted by a hemispherical dome and has volume 792 cu. ft. The earth that is dug out is spread evenly across the remainder of the field. ( $\square = 3.14$ )

22. The depth of the hole dug in the field is what percent of the total height of the digester?
1. 16.66%                      2. 33.33%                      3. 25%                      4. 66.66%
23. If the cost of digging is 112 / cu. ft., how much money does Ravi spend?
1. 38,016                      2. 6,336                      3. 9,504                      4. 28,512
24. 5-digit integers are formed by using the digits 0, 1, 2, 3, 5, 6 and 8 exactly once. What is the sum of the last two digits of the sum of all the integers formed?
1. 0                      2. 5                      3. 10                      4. 15
25. If 10-Nov-2007 is a Saturday, then which of the following is also a Saturday?
1. Mar 14, 2008                      2. Mar 15, 2008                      3. Mar 16, 2008                      4. Mar 18, 2008
26. A man works in a building located 7 blocks east and 8 blocks north of his home. He reaches his office and then walks to a supermarket located 2 blocks east and 4 blocks north of his home. If all the streets in the rectangular pattern are available to him for walking and he always takes the shortest route, how many different routes can he take to go from his house to the supermarket via his office?
1. 6435                      2. 810810                      3. 1890                      4. 293930
27. Which of the following will not leave a remainder of 13?
1.  $11^{1040} \square 18$                       2.  $13^{3885} \square 16$                       3.  $24^{6047} \square 38$                       4.  $16^{2661} \square 23$
28. In the 21<sup>st</sup> century, what is the total number of days of the months with more than 28 days and less than 31 days?
1. 30,000                      2. 36,525                      3. 30,696                      4. None of these
29. In a regular  $n$ -sided polygon, where  $n$  is even, what is the number of diagonals which have length less than the length of the longest diagonal?

1.  $\frac{n^2 - n}{2}$

2.  $\frac{n^2 - 3n}{2}$

3.  $\frac{n^2 - 4n}{2}$

4.  $\frac{n^2 - 5n}{2}$

30. A box contains  $n$  chips numbered  $1, 2, \dots, n$ . One by one,  $n$  chips are removed at random from the box and the numbers on them are noted.  $E_1$  is the event that the  $n$  chips are removed without replacement and  $E_2$  is the event that the chips are removed with replacement.  $P_1$  and  $P_2$  are the probabilities that the numbers on the chips removed in  $E_1$  and  $E_2$  respectively follow the sequence  $1, 2, \dots, n$ . Then,

1.  $P_1 > P_2$

2.  $P_2 > P_1$

3.  $P_1 \square P_2$

4.  $P_2 \square P_1$

**SECTION – II**  
**No. Of Questions - 30**

**DIRECTIONS for questions 1 to 4:** Five friends, Amol, Mandar, Piyu, Shashi and Reena attended Sagar’s birthday party, where they partook of the sumptuous snacks and dinner. Each of the five friends gifted Sagar a different article – a fountain pen, a cell phone, a shirt, a jacket and an I-Pod – and Sagar, in return, gifted each of them a different article – a video game, a sweater, a perfume, a calculator and a pair of sunglasses. The following is additional information about the gifts given by the friends and the gifts received from Sagar.

- Amol gifted the shirt and received the video game in return.
- Shashi did not gift the I-Pod but received the perfume in return.
- Mandar did not gift an electronic item and received the calculator in return.
- The person who gifted the jacket received the sweater in return and Reena received the pair of sunglasses.

**31.** Who among the following gifted the jacket?

1. Mandar                      2. Shashi                      3. Reena                      4. None of these

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

1. Two of the friends who did not gift electronic items, received electronic items in return
2. Piyu gifted the jacket and Shashi gifted the I-Pod
3. Shashi neither gifted nor did he receive an electronic item
4. The person who gifted the cell phone received the calculator in return

**33.** Which of the following is the correct combination of friend, article gifted and article received in return?

1. Piyu – Fountain Pen – Sunglasses                      2. Shashi – I-Pod – Perfume  
3. Reena – I-Pod – Sunglasses                      4. None of these

**34.** Which of the following is false?

1. Only one friend whose name does not start with a vowel, received an electronic item in return
2. The friend whose name appears last in alphabetical order, gifted an electronic item and received a non-electronic item in return
3. In alphabetical order, the friend who gifted the I-Pod appears before at least two other friends
4. The friend whose name in alphabetical order appears in the middle neither gifted nor received an electronic item

**DIRECTIONS for questions 5 to 10:** Mark the answer.

1. If the item is a Major Objective in making the decision: that is. One of the outcomes or results sought by the decision maker.
2. If the item is a Major Factor in making the decision that is, a consideration, explicitly mentioned, in the passage, that is basic in determining the decision.

3. If the item is Minor factor in making the decision; that is a secondary consideration that affects the criteria tangentially, relating to a Major Factor rather than to an objective.
4. If the item is a Major Assumption in making the decision; that is, a supposition or projection made by the decision maker before weighting the variables

### Business Situation

Dr. Goodrich, an upcoming practitioner in Hailey Street, Heartville, felt he needed more room to set up a laboratory next to his clinic. He felt he would invest his savings in buying a few microscopes and lab equipment to set up a new laboratory. A new ceramic factory had come up in the vicinity of Hartville and many families, mainly of those employed in the factory, had taken up residence in the adjoining area. Dr. Goodrich saw a potential increase in his clientele and wanted to cater to this new population. He felt that a small laboratory for testing blood, urine, sputum and other samples would expand his business. The only recourse would be to purchase a small cloth store adjoining his clinic owned by Mr. Terence Hill. This was a small shop, which was already declining due to the advent of a fashionable supermarket down town. Dr. Goodrich felt that Hill would be willing to sell his store at reasonable terms, and this was very important since after the setting up of his new laboratory, he would have very little capital to invest in the expansion of his clinic.

*The following questions consist of items related to the passage above. Consider each item separately in terms of the passage and mark your answer.*

- |     |  |   |   |   |   |
|-----|--|---|---|---|---|
| 35. | increase in child and adult population in Hartville          | 1 | 2 | 3 | 4 |
| 36. | acquisition of property for expanding clinic                 | 1 | 2 | 3 | 4 |
| 37. | cost of Hill's property                                      | 1 | 2 | 3 | 4 |
| 38. | state of the business of Hill's Cloth store                  | 1 | 2 | 3 | 4 |
| 39. | quality of lab equipment that Goodrich intends to buy        | 1 | 2 | 3 | 4 |
| 40. | catering to the needs of patients will increase the business | 1 | 2 | 3 | 4 |

**DIRECTIONS for the question 11:** *The question has a set of 4 sequentially ordered statements which can be classified into*

**Facts:** *which deal with pieces of information that one has heard, seen, or read and which are open to discovery or verification (the answer option indicates such a statement with an **F**).*

**Inferences:** *which are conclusions drawn about the unknown, on the basis of the known (the answer option indicates such a statement with an **I**).*

**Judgements:** *which are opinions that imply approval or disapproval of persons, objects, situations and occurrences in the past, the present or the future (the answer option indicates such a stmt with a **J**).*

*Select the answer option that best describes the set of four statements.*

- 41.



- A. One result of the relatively low allocation to public health care in India is the development of a remarkable reliance of many poor people across the country on private doctors.
- B. Since health is also an asymmetrical information, with the patients knowing very little about what the doctors are giving them, the possibility of fraud and deceit is very large.
- C. In a study conducted by the Prachi Trust, we found cases of exploitation of the poor patient's ignorance of what they are being given to make them part with badly needed money to get treatment that they do not often get.
- D. We even found cases in which patients with malaria were charged comparatively large money for being given saline injections.

1. IJFI

2. IJFF

3. IIFF

4. JJFF

**DIRECTIONS for question 12:** *The question has five statements A, B, C, D and E, which when arranged logically form a coherent sequence. From the options given choose the best sequence.*

42.

- A. The general law of telescoped processes is that, if A causes B and B causes C, it will happen in time that A will cause C directly, without the intermediary of B.
- B. Images may cause us to use words which mean them, and these words, heard or read, may in turn cause the appropriate images.
- C. When we understand a word, there is a reciprocal association between it and the images of what it "means."
- D. Also, by a telescoped process, words come in time to produce directly the effects which would have been produced by the images with which they were associated.
- E. Thus speech is a means of producing in our hearers the images which are in us.

1. CBEDA

2. BCEAD

3. CBDAE

4. CBADE

**DIRECTIONS for question 13:** *Four alternate ways of writing the sentence are given. Choose the option that provides the most meaningful sentence.*

43. Women in a hunter-gatherer society had to spend much of their time collecting plant food, while carrying her baby with her she also had to be ready to run or otherwise to protect herself from wild animals.

- 1. Women in a hunter-gatherer society had to spend much of their time collecting plant food; while carrying her baby with her, she also had to be ready to run or otherwise protect herself from wild animals.
- 2. Women in a hunter-gatherer society had to spend much of their time collecting plant food, while carrying their babies with them; they also had to be ready to run or otherwise protect oneself from wild animals.
- 3. Women in a hunter-gatherer society had to spend much of their time collecting plant food while carried their babies with them; she also had to be ready to run or otherwise protect themselves from wild animals.
- 4. Women in a hunter-gatherer society had to spend much of their time collecting plant food while carrying their babies with them; they also had to be ready to run or otherwise protect themselves from wild animals.

**DIRECTIONS for question 14 :** *In the following paragraph, a part of the paragraph is left unfinished. Beneath the paragraph, four different ways of completing the paragraph are indicated. Choose the best alternative amongst the four.*

44. Challenge is treated differently by different people. Some people are so afraid of life they accomplish about as much as a cow in pasture does; others thrive on challenges and are constantly looking for new ones. Between the two extremes is the denominator called *common sense*, which should separate the challenges that lead nowhere from those that lead somewhere. After a while you learn that challenge is a part of life --
1. and you learn how to take it in your stride knowing that you will win most of the time, lose some of the time, but become a better man either way for having tried.
  2. yet you have to know which challenges to take head on and struggle with; and which ones are better left untouched.
  3. accepting everything that comes your way as a challenge is the sure road to failure.
  4. everyone survives, including the cow in the pasture; but to thrive you need luck.

**DIRECTIONS for questions 15 to 17:** *The passage given below is followed by a set of questions. Choose the most appropriate answer to each question.*

The Bug's history is not just the story of a single model of car but a parable of how the things we buy reflect the character of the culture. In some places and times, the Bug wore a self-deprecating mode of the servant, in others the personality of the émigré, the visitor, the friend and adopted guest.

Part of the universality was the car's harmony between the functional and the aesthetic. Its engineering and styling shared a common modesty and cleverness. It crystallized the idea of the universal design with a human face. The bug was a shape, a set of ideas – and a selfish meme.

The word bug has a rich history and aura of meanings. Today a bug is often used to mean a goof up in circuitry, but it also refers to any human obsession. In 1878, Edison used the word bugs to refer to all the "little faults and difficulties" that emerge to dog the inventor as he refines an idea. "It's not a bug, it's a feature" is used to facetiously justify eccentricity in software. But isn't that the nature of evolutionary mutation: that a bug turns out to be a feature? In many ways the Beetle began as an aberration that turned into a triumph.

While we usually think beloved, iconic products grow integrally from the cultures that produce them, the Beetle shows how shifting the culture around a product can change its meanings – and how a product can alter a culture. It is an assumption of most cultural history that artifacts crystallize out of societies as neatly as rock candy out of a warm glass of sugar water. But the Bug suggests that designs, images, and ideas do not remain identified with the cultures that create them. They change as they move from one culture to another and alter the new environments that have altered them. Rolling through history on wheels of irony, the Bug lives a life somewhere between Woody Allen's Zelig and little Oskar, the protagonist of Gunter Grass's novel *The Tin Drum*, and like them, it is a character that has managed to find itself at the center of key moments in history, including the very darkest.

*Excerpted from "Bug – The Strange Mutations of the World's most famous automobile" by Phil Patton.*

45. Which of the following could the author be implying about the Beetle's presence in the dark moments of history?

1. The exploitation of cheap labor that happens at the factories where it is produced.
2. The role played by Volkswagen in East Germany, after the unification.
3. Its birth in Nazi Germany, mid-wifed by Hitler himself.
4. The inspiration from Ford's Model T and the fact that Volkswagen was always a bit player in Ford's key market - the US.

46. In the second paragraph, the word meme stands for –

1. Species, and not individuals.
2. The cultural equivalent of a gene
3. A vocabulary where the meanings change constantly with contexts.
4. Something very abundant – and therefore expendable.

47. The Bug's direct descendant, the New Beetle of 1998, is culturally and mechanically very different. The old has an air cooled rear engine, the new a water-cooled front one. The old is driven by the rear wheels, the new by the front. The original Beetle was a universal product of minimal ability, built to be cheap above all. The New Beetles is an object of style and pop culture. What do the two then share?

1. A shape, a gestalt, a logos, as simple and winning as a cartoon or a popular tune.
2. A parent determined to carry on the legacy that comes with being the world's largest selling car.
3. A factory where both are produced side by side.
4. A selfishness in the sense that both want to be preserved for posterity.

**DIRECTIONS for questions 18:** *The sentence has some blanks with four answer choices. Pick the best option which completes the sentence in the most meaningful manner*

48. It is to the huge \_\_\_\_\_ of Bangladesh that despite the \_\_\_\_\_ of low income it has been able to do so much so quickly, in which the activism of the NGOs as well as public policies have played their parts.

- |                            |                          |
|----------------------------|--------------------------|
| 1. disappointment, paucity | 2. credit, opulence      |
| 3. credit, adversity       | 3. duplicity, difficulty |

**DIRECTIONS for question 19:** *In the following paragraph, a part of the paragraph is left unfinished. Beneath the paragraph, four different ways of completing the paragraph are indicated. Choose the best alternative amongst the four.*

49. Which of the following does not follow: Prior to the time you terminate an employee, ask yourself:

1. Has a skill of his been underused at our place of business?
2. Is he trying to cope with a job here for which he is under-skilled?
3. If it is a personality problem for us, might that very personality be an asset somewhere else?
4. Can we help him find a more appropriate job outside our company through our contacts?

**DIRECTIONS for questions 20 to 22:** The passage given below is followed by a set of questions. Choose the most appropriate answer to each question.

There are several reasons for the decline of the cabinet as a deliberative collective body. Primary is the heavy work load that governmental activity throws up for cabinet decisions. Cabinet decisions therefore are centred around elimination of overlaps and jurisdictional conflicts and harmonization of viewpoints of the ministries concerned. Even in the area of policy coordination, basic work is done in parallel committees at secretary level. The reputation of a cabinet minister depends on his political weight and/or his efficiency as a minister and not for his contributions to cabinet discussion.

Under the prime-ministerial system, the country is governed by the PM “who leads, co-ordinates and maintains a series of ministers, all of whom are advised and backed by the civil service. Some decisions are taken by the PM alone, some in consultation with senior ministers, while others are left to heads of departments, the cabinet, cabinet committees or permanent officials.” Parallel to the emergence of the prime-ministerial system has been the need for a supportive administrative system for the PM to enable him to initiate, co-ordinate and monitor policies. This does not preclude the cabinet, or for that matter Parliament, from influencing policy.

Parliamentary democracy and the cabinet system trace their origins to Great Britain. But below the similarity of institutional surface operate social attitudes and behaviour patterns which are dissimilar. It is easier to introduce political institutions than evolve a political culture which will correspond to them and make for their smooth working. The hiatus between acquired institutions and inherited attitudes and behaviours is what might be called the “cultural lag”. The pre-modern attitude to authority is based on hierarchical values. Political protest organized by the opposition groups against a duly elected government takes insurrectionary forms which are similar to those adopted against the British imperialist government. The PM office cannot be insulated from the prevailing cultural milieu in which it functions. Thus the temptation to succumb to the feudal ethos is always there.

Political culture is not static, it changes but change comes gradually as inherited expectations and assumptions change. In the field of economic development, it has been noted that in the first phase of development of a backward economy, income distribution deteriorates and improves only after a certain level of development has been reached. Similarly, in the field of political development, the cultural lag seems to widen after their first generation of post-colonial leadership hands over to the more indigenously rooted leadership. The latter are apt to be more dogmatic and authoritarian in their beliefs and behaviour. Respect for democratic norms is the result of long political experience with the workings of democratic institutions and therefore a product of slow growth. The decolonization that followed after the Second World War is replete with examples of states that started as democratic regimes but which succumbed to authoritarian ways under indigenous pressures.

*Excerpted from an essay in “PN Haskar – Our Times and the Man” by P N Dhar.*

**50.** What is implied about the reasons for reluctance of ministers to engage in discussions inside the cabinet on ministries other than their own?

1. They are wont to scratch each other’s backs.
2. The fear of an authoritarian Prime Minister and not wanting to get into his bad books by expressing opinions that may be at variance with his.
3. The need for public discussion of policy options.
4. They will have to work a lot more to present an alternative view on a subject that they are not directly concerned with.

**51.** Which of the following is an example of the cultural lag that the author discusses?



**DIRECTIONS for question 24:** In the following paragraph, a part of the paragraph is left unfinished. Beneath the paragraph, four different ways of completing the paragraph are indicated. Choose the best alternative amongst the four.

54. Ants are so much like human beings as to be an embarrassment. They farm fungi, raise aphids as livestock, launch armies into wars, use chemical sprays to alarm and confuse enemies, capture slaves. The families of weaver ants engage in child labor \_\_\_\_\_ . They exchange information ceaselessly. They do everything but watch television.

1. holding their larvae like shuttles to spin out the thread that sews the leaves together for their fungus gardens.
2. supplementing their diet with carbohydrate-rich honeydew excreted by their larvae
3. inflicting painful bites and spraying formic acid directly at the bite wound on the young ants which stray from their paths.
4. in which a worker will carry a young ant in its mandibles and transport it to a safe location.

**DIRECTIONS for questions 25 to 27:** The passage given below is followed by a set of questions. Choose the most appropriate answer to each question.

With a pertinacity of instinct, the Mahatma had foretold in his pamphlet *Hind Swaraj* that if we took parliamentary democracy of Westminster from the British, we would borrow a ‘prostitute who will be bought and sold.’ But he was convinced that only if we adopted participatory democracy we might build up integral awareness of rights and duties. He wanted the Panchayats to be elected on full suffrage to be run by intelligent young people. In this way he felt that many demands could be answered at the village level and there would be no need for morchas of onion growers demanding better prices in South Maharashtra.

We saw Gandhiji at work, with imperfect weak people around him training their character through Ruskin’s ‘work is worship’ attitude, and how there emerged non-cooperation and those who went to jail under his leadership because he trained them to sacrifice for the ‘cause’.

When asked “What is your goal in education when India obtains self-rule?” he had answered: “Character building.”

He added: “I would try to develop courage, strength, virtue, the ability to forget oneself in working towards great aims. This is more important than literary academic learning which is only a means to this greater end.”

Further he said:

“I would feel if we succeed in building the character of the individual, society will take care of itself. I would be quite willing to trust the organizational society to individuals so developed.”

In a personal tour of two West Bengal districts Burdwan and Midnapur, I have seen the kind of development Gandhiji would have liked. I don’t know if it is communism, or Gandhism, or Nehruvite social democracy. The label is certainly ‘communism’. The primary school works under teachers trained to impart education of the ‘learning by doing’ pattern of Gandhi and Zakir Hussain. There are no free meals but everyone obeys the law of the ‘bread labor’.

I suggest that National Integration cannot be brought about by modeling India on any other country but itself. If this demand is camouflaged by the banners of various communalisms, then there is going to be

frequent disruption, because the demand for bread and water is a natural urge, released by political freedom in many more peoples than were aware of their needs in the British period.

*Excerpted from the afterword to “PN Haskar – Our Times and the Man” by Mulk Raj Anand.*

55. What does the author imply when he chooses to label Burdwan's development as 'communism'?
1. He uses extreme ideas to make a point.
  2. The tools of capitalism are owned by the labour class.
  3. It was initiated by the Left government of West Bengal.
  4. The author himself has leftward leanings and so chooses to see it that way.
56. What can be inferred about the reasons behind the comparison between the importing of Westminster democracy into India and 'a prostitute who will be bought and sold'?
1. Because he felt that the Westminster constitution's obsession with property cannot be transplanted into a country like India.
  2. Because of the loathing that he had for a regime which had double standards: democracy at home and slavery in the rest of the empire.
  3. Because he feels strongly about the plunder and rape of India by the British regime.
  4. Because he feels that democracy is akin to the world's oldest profession – low on morals and high on pleasures.
57. According to the passage, what can be inferred as the reason Gandhi's ideals have yet to be realized?
1. Our education sector remains hung up on certificates and degrees, without bothering whether any skills to improve employability are being imparted.
  2. The democracy that we have is marked by improper electoral practices and low turnouts in elections.
  3. The nation's intelligentsia continues to think in terms of the small and big metropolises rather than in terms of its 700,000 villages.
  4. The Indian mindset remains feudal and the Ma-Baap mentality among the voters remains a hindrance to true nation building.

**DIRECTIONS for question 28:** *The question has five statements A, B, C, D and E, which when arranged logically form a coherent sequence. From the options given choose the best sequence.*

58. A. As a first step, the protagonist lets the foreigner know that he is familiar with his country by making small talk like, "when I was in your country" or "your team did well." We, Indians, are generally aware and that helps.
- B. As the conversation gathers momentum, the protagonist wants to make the guest even more comfortable.
- C. The pleasantries over, a few members or at least one of them (we shall call him the protagonist) takes upon himself, with gusto, the responsibility of making the foreigner "feel at home".
- D. Encouraged, he now goes to the next level — making a vague reference to things or places in that country about which even the foreigner has no clue!
- E. The objective of this small talk is to let the foreigner know that he is among knowledgeable people and not in the company of some ignorant cavemen.

1. CABED  
4. ECBAD

2. CAEBD

3. ECABD



# Bulls Eye

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**DIRECTIONS for question 29:** Given below are sentences that form a paragraph. Identify the sentence(s) or part(s) of sentence(s) that is/are incorrect in terms of grammar and usage (including spelling, punctuation and logical consistency). Then, choose the **most appropriate** option.

59.

- A. Previously, the notion that rationale decision makers prefer risk-avoiding choices
- B. were considered to apply generally, epitomized by the assumption of many economists that
- C. entrepreneurs and consumers will choose a risky venture over a sure thing only when the expected measurable value of the outcome is sufficiently high to compensate the decision maker for taking the risk.
- D. What is the minimum prize that would be required to make a gamble involving a 50 percent chance of loosing \$ 100 and a 50 percent chance of winning the prize acceptable?
- E. It is commonplace that the pleasure of winning a sum of money is much lesser intense than the pain of losing the same amount, accordingly, such a gamble would typically be accepted only when the possible gain greatly exceeds the possible loss.

1. A and E only      2. B and C only      3. A, B, D and E      4. A and B.

**DIRECTIONS for question 30:** Each question has a set of 4 sequentially ordered statements which can be classified into

**Facts:** which deal with pieces of information that one has heard, seen, or read and which are open to discovery or verification (the answer option indicates such a statement with an **F**).

**Inferences:** which are conclusions drawn about the unknown, on the basis of the known (the answer option indicates such a statement with an **I**).

**Judgements:** which are opinions that imply approval or disapproval of persons, objects, situations and occurrences in the past, the present or the future (the answer option indicates such a statement with a **J**).

Select the answer option that best describes the set of four statements.

60.

- A. One of the greatest challenges facing medical students today, apart from absorbing volumes of technical information and learning habits of scientific thoughts, is that of remaining empathetic to the needs of the patients in the face of all this rigorous training.
- B. Requiring students to immerse themselves completely in medical coursework risks disconnecting them from the personal and ethical aspects of doctoring, and such strictly scientific thinking is insufficient for grappling with modern ethical dilemmas
- C. For these reasons, aspiring physicians need to develop new ways of thinking about and interacting with patients.
- D. Training in ethics that takes narrative literature as its primary subject is one method of accomplishing this.

- 1.FJJI      2.JJJJ      3. FJIF      4. JJIF

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P  
A  
G  
E  
1  
3

□□□

## Bull CAT 01 ANSWER KEY

	3		4
1.		31.	
2.	1	32.	1
3.	3	33.	3
4.	3	34.	3
5.	1	35.	4
6.	4	36.	1
7.	1	37.	2
8.	3	38.	3
9.	1	39.	3
10.	1	40.	4
11.	4	41.	2
12.	3	42.	1
13.	2	43.	4
14.	3	44.	1
15.	3	45.	3
16.	4	46.	2
17.	4	47.	1
18.	2	48.	3
19.	1	49.	4
20.	1	50.	4
21.	2	51.	3
22.	3	52.	4
23.	4	53.	3
24.	1	54.	1

25.	2	55.	3
26.	2	56.	1
27.	3	57.	3
28.	4	58.	2
29.	3	59.	3
30.	3	60.	4

## Bull CAT 01

### EXPLANATIONS

1.	Petrol grew from approx 200 to approx 260, which is a change of 30%. This is over 2 years. So average growth rate is $30/2$ or 15%.
2.	Growth in 2008 is approx $50/375 = 13.33\%$ , while in 2009, it is $20/425 = 4.7\%$ .
3.	In 2007, petrol is approx 200 out of 375 or 53%. In 2008, it is $235/425$ or 55%. In 2009, it is $260/445$ or 58%.
4.	From statement I, we we can conclude that $p : q : r = 9 : 15 : 16$ , but we do not know whether these integers are positive or negative. So statement I alone is not sufficient to answer the question. From statement II, we know that $pqr > q^2 > 0$ . However, this does not help determine the largest of the integers. So, statement II alone is not sufficient to answer the question. From statement II, since $pqr > 0$ , either all three integers are positive or exactly two of them are negative and one is positive. From statement I, we know the ratio of the three integers. If we combine this with the information from statement II, we can conclude that all three integers are positive and therefore, $r$ will be the largest. Thus both statements together are required to answer the question.
5.	From statement I, $P$ can take values 1, 4, 6, 8 or 9. If we find the sum of digits of the squares of these numbers, $1^2 = 1$ adds up to 1 and $9^2 = 81$ adds up to 9. If we find the sum of the digits of the cubes of these two numbers, we get $1^3 = 1$ and $9^3 = 729$ . In both cases, the sum of digits equals $P$ or a multiple of $P$ . Since $P = 1$ or 9, statement I alone is not sufficient to answer the question. From statement II, $P$ can take values 2, 3, 5, 7, 11 or 13. If we find the squares and cubes of these numbers, $11^2 = 121$ and $11^3 = 1331$ are the only values where the digit 1 appears more than once. So, $P = 11$ . Thus statement II alone is sufficient to answer the question.
6.	From statement I, $4PQ < 3QR \Rightarrow PQ < QR$ and $3QR < 2RS \Rightarrow QR < RS$ . Since there is no information about $PS$ , statement I alone is not sufficient to answer the question. From statement II, $6PQ < 3PS \Rightarrow PQ < PS$ but $3RS < 4PS$ does not give us any relation between $RS$ and $PS$ . So statement II alone is not sufficient to answer the question. If we combine both statements, we know that $PQ < QR <$

	RS, but we cannot determine the relation of PS with the other three sides. Thus even both statements together are not sufficient to answer the question.
7.	If Jack had used the std service, he would have paid \$14.47 and \$15.00 if he had used the 2 hour service. So he pays \$0.53 extra.
8.	Sally spends \$14.79 to send the packet to Jack. Now Jack can send the packet to any point which has the zone from A to D. (Since he is already in zone E
	and he has to send to different places, E is ruled out.) So Jack can send the packet to 6 different pts.
9.	If he has \$10.00, he can use the zones which are in A or B. There are 12 As and 0 Bs. So a total of 12 combinations.
10.	Here Steven can send from all zones from A to H. There are a total of 144 zones, with 0 Is and 4 Js. So if he sends from one point to another, he can have $144 - 4 = 140$ combinations.
11.	If he sends the packet from home, he will be in zone H, while he is in zone J if he sends it from office. From the midway area, he would be in zone E. So the cheapest would be from the midway. However, he leaves at 10 am, s would be at the midway point at about 10.30, leaving 2 and a half hours for the packet to reach Joe. So he needs to use the 2 hour service.
12.	Suppose the length of the longer side of the trapezium is $x$ . Since the shorter side is formed by joining the centre of the square to the mid-point of the side, its length is 150 m. Similarly, the height of the trapezium is 150 m. Now, the area of the trapezium is $\frac{1}{2} \times (x + 150) \times 150 = \frac{1}{3} \times 300 \times 300$ . Solving this equation yields $x = 250$ m.
13.	Suppose the bag contains B blue balls, W white balls and O balls of some other colour or colours. The bag contains at least one blue and at least one white ball. So, the ordered possibilities (B, W, O) are (1,1,4), (2,1,3), (3,1,2), (4,1,1), (5,1,0), (1,2,3), (1,3,2), (1,4,1), (1,5,0), (2,2,2), (3,2,1), (2,3,1), (3,3,0), (4,2,0) and (2,4,0). Of these 15 possibilities, there is only one case where the number of blue and white balls is 3 each. Thus the required probability is $\frac{1}{15} = 6.66\%$ .
14.	This question can be solved by trial and error. $15625 = 125^2 = 452 + 602 + 1002$ . $28561 = 169^2 = 252 + 602 + 1562$ . 33049 is not a perfect square and $10000 = 100^2 = 362 + 482 + 802$ . Alternate solution: Suppose $a^2 + b^2 + c^2 = x^2$ and $a^2 + b^2 = d^2$ . We can rewrite this as $a^2 + b^2 + c^2 = d^2 + c^2 = x^2$ . This means that we can make use of Pythagorean triplets. $(a^2 + b^2) = d^2$ will yield a Pythagorean triplet (a, b, d) and $(d^2 + c^2) = x^2$ will yield a Pythagorean triplet (d, c, x).
15.	Since we want 2-digit numbers, we are interested in multiples of 17 (17, 34, 51, 68, 85) and 23 (23, 46, 69, 92).. So the series is 6, 9, 2, 3, 4, 6, 9, ... This series is repeated after every 5 digits. So, the 1996th digit will be 6.
16.	Powers of 112 when divided by 9 will leave remainders of 4, 7 and 1. Since the length of the remainder cycle is 3, 1974 when divided by 3 will leave no remainder. So, 1121974 $\div$ 9 will leave a remainder of 1. Powers of 61 when divided by 9 will

	<p>leave remainders of 7, 4 and 1. Since the length of the remainder cycle is 3, 1976 when divided by 3 will leave a remainder of 2. So, 61976 <math>\square</math> 9 will leave a remainder of 4. Powers of 148 when divided by 9 will leave remainders of 4, 7 and 1. Since the length of the remainder cycle is 3, 1981 when divided by 3 will leave a remainder of 1. So, 1481981 <math>\square</math> 9 will leave a remainder of 4. Powers of 83 when divided by 9 will leave remainders of 2, 4, 8, 7, 5 and 1. Since the length of the remainder cycle is 6, 1978 when divided by 6 will leave a remainder of 4. So, 831978 <math>\square</math> 9 will leave a remainder of 7.</p>
17.	<p>If we take the values of a, b and c as 2, then <math>S = (\log_2 4)^5 + (\log_2 4)^5 + (\log_2 4)^5 = 3 \square (\log_2 4)^5 = 3 \square 25 = 96</math>. If we take different values for a, b and c, it can easily be verified that the value of S will be greater than 96. Thus, <math>S \geq 96</math>.</p>
18.	<p>Suppose the distance between office and college is 12 km and the speed is 2 kmph. It would take 6 hrs to reach college. When he reaches half way, he has already spent 3 hours. He turns back at a speed of 3 kmph and takes <math>6/3 = 2</math> hours to reach office. Now, he has only 1 hour to reach college. So the speed must be 12 kmph. Thus the increase in speed is <math>\frac{(12-2)}{2} \times 100 = 500\%</math>.</p>
19.	<p>Suppose the number of chocolates with the three girls is x, y and z respectively. Since <math>xy = 225 \square y = 225/x</math>, since <math>xz = 225 \square z = 225/x</math> and since <math>yz = (225/x)(225/x) = 225 \square x^2 = 225 \square x = 15</math>. From this, we get <math>y = z = 15</math>. So the total number of chocolates is 45.</p>
20.	<p>Let the number of contestants be 2n where n is non-negative <math>\square</math> for <math>n = 0, 1</math> the winner is 1. For <math>n = 2, 3</math> winner is 1. Let the number of contestants be <math>2n + M</math> where <math>0 &lt; M &lt; 2n</math>. Thus, after the first M eliminations, i.e., after passing through 2M contestants and being at <math>2M + 1</math> (which will be spared for elimination), we have 2 n contestants and <math>(2M + 1)</math>th is at 1st position, and will be the winner. Thus, the winner for k number of contestants is <math>2(k-2m) + 1</math> where m is largest integer such that <math>k &gt; 2m</math>. Thus, for <math>P = 12 + 16 = 28, 12 + 32 = 44, 12 + 64 = 76</math>. <math>\square</math> Choice (1) is the right answer.</p>
21.	<div style="text-align: center;"> </div> <p>XA <math>\square</math> YZ divides <math>\square</math>XYZ into two triangles, each of which is similar to <math>\square</math>XYZ. <math>\square</math>AXY has hypotenuse 20, which is <math>4/5</math> that of <math>\square</math>XYZ and <math>\square</math>AXZ has hypotenuse 3, which is <math>3/5</math> that of <math>\square</math>XYZ. So the</p>

perimeters of  $\square AXY$  and  $\square AXZ$  will be  $\frac{4}{5}$  and  $\frac{3}{5}$  of the perimeter of  $\square XYZ$ . This will be true of all subsequent triangles formed.

Since the perimeter of  $\square XYZ = 60$ , the perimeter of  $\square AXY = (\frac{4}{5}) \square 60 = 48$  and the perimeter of  $\square AXZ = (\frac{3}{5}) \square 60 = 36$ . Since the perimeter of  $\square AXY = 48$ , the perimeter of  $\square ABY = (\frac{4}{5}) \square 48 = 38.4$  and the perimeter of  $\square AXB = (\frac{3}{5}) \square 48 = 28.8$ . Since the perimeter of  $\square AXZ = 36$ , the perimeter of  $\square ACX = (\frac{4}{5}) \square 36 = 28.8$  and the perimeter of  $\square ACZ = (\frac{3}{5}) \square 36 = 21.6$ . Since the perimeter of  $\square ABY = 38.4$ , the perimeter of  $\square BEY = (\frac{4}{5}) \square 38.4 = 30.72$  and the perimeter of  $\square BEA = (\frac{3}{5}) \square 38.4 = 23.04$ .

Since the perimeter of  $\square ABX = 28.8$ , the perimeter of  $\square ABD = (\frac{4}{5}) \square 28.8 = 23.04$  and the perimeter of  $\square BDX = (\frac{3}{5}) \square 28.8 = 17.28$ .

Since the perimeter of  $\square ACX = 28.8$ , the perimeter of  $\square CGX = (\frac{4}{5}) \square 28.8 = 23.04$  and the perimeter of  $\square CGA = (\frac{3}{5}) \square 28.8 = 17.28$ .

Since the perimeter of  $\square ACZ = 21.6$ , the perimeter of  $\square ACF = (\frac{4}{5}) \square 21.6 = 17.28$  and the perimeter of  $\square CFZ = (\frac{3}{5}) \square 21.6 = 12.96$ .

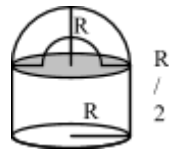
So the sum of all the perimeters is  $60 + 48 + 36 + 38.4 + 28.8 + 28.8 + 21.6 + 30.72 + 23.04 + 23.04 + 17.28 + 23.04 + 17.8 + 17.28 + 12.96 = 426.24$ .

Alternate Solution: It is clear from the diagram that all the triangles formed are similar to the original triangle and the perimeters will form a GP. When we draw AX, the perimeters of  $\square AXY$  and  $\square AXZ$  will be  $\frac{4}{5}$  and  $\frac{3}{5}$  of the perimeter of  $\square XYZ$ . So the sum of perimeters will  $\frac{7}{5}$  that of  $\square XYZ$ . From this we can get the common ratio as  $\frac{7}{5}$ . Since the perpendiculars are drawn three times, we need to add the first 4 terms of this GP. So the sum of

$$\frac{60 \left[ \left( \frac{7}{5} \right)^4 - 1 \right]}{\left[ \frac{7}{5} - 1 \right]}$$

perimeters will be  $\frac{60 \left[ \left( \frac{7}{5} \right)^4 - 1 \right]}{\left[ \frac{7}{5} - 1 \right]} = 426.24$ .

22.



Suppose the radius is R. Then the height of the hemispherical part is also R. Since the height of the cylindrical part is  $\frac{1}{4}$  the diameter, the height must be  $\frac{2R}{4} = \frac{R}{2}$ . The volume of the digester equals the sum of the volumes of the cylinder and the hemispheres, i.e.,  $\square R^2(\frac{R}{2}) + (\frac{2}{3}) \square R^3 = 792 \square R^3 \square (\frac{7}{6}) = 792$ . Solving this equation gives  $R = 6$  ft.

The area of the plot is  $28.8 \square 15.7 = 452.16$  sq. ft.  
 The area of the plot surrounding the digester is  $452.16 - 36 \square = 452.16 - 113.04 = 339.12$  sq. ft.  
 The earth dug out is spread over this area and consequently the height of ground level will increase. Since the total height of the digester is 9 ft., we want



	<p>a depth of 3 ft. Suppose the ground is dug to a depth of H ft. The volume of the earth dug out is <math>36 \square H</math>. This earth is spread over 339.12 sq. ft. so that the height of ground level rises by <math>(3 - H)</math> ft. Since the volume of the earth dug out is constant, we get , <math>36 \square H = 339.12 (3 - H) \square 113.04H = 1017.36 - 339.12H \square 452.16H = 1017.36 \square H = 2.25</math>. So, we need to dig to a depth of 2.25 ft. so that after spreading the earth over the remainder of the plot, we attain a depth of 3 ft. Thus, Ravi has to dig up to a depth which is <math>(2.25/9) \square 100 = 25\%</math> of the total height of the digester.</p>
23.	<p>Referring to the previous solution, we know that Ravi saves 0.75 ft. while digging. So the volume of the earth that he has to dig is <math>36 \square \square 2.25 = 81 \square</math> cu. ft. Thus it will cost him <math>81 \square \square 112 = ` 28,512</math>.</p>
24.	<p>The last two digits of the sum of all integers will depend on the sums of the last two digits of the integers. If the last digit is 0, the remaining digits can be chosen in <math>6 \square 5 \square 4 \square 3 = 360</math> ways. So, there are 360 integers ending in a 0. The ten's digit of these 360 integers will be 1, 2, 3, 5, 6 or 8, each appearing 60 times. If these 360 integers are added, the unit's digit will be 0 and the ten's digits will add up to <math>(1 + 2 + 3 + 5 + 6 + 8) \square 60 = 1500</math>. If the last digit is not 0, the last digit can be chosen in 6 ways and the remaining digits can be chosen in <math>5 \square 5 \square 4 \square 3 = 300</math> ways. So there are <math>300 \square 6 = 1800</math> such integers. 300 each of these will end in 1, 2, 3, 5, 6 and 8 respectively. The sum of all these unit's digits will be <math>(1 + 2 + 3 + 5 + 6 + 8) \square 300 = 7500</math>. Consider the 300 integers ending in 1. Of these, 60 integers will have 0 in the ten's place and 48 each will have 2, 3, 5, 6 and 8 in the ten's place. This logic can be extended to the other integers ending in 2, 3, 5, 6 and 8. So the sum of the digits in the ten's places will be <math>(1 + 2 + 3 + 5 + 6 + 8) \square 5 \square 48 = 6000</math>. Combining all of these, the sum of the digits in the unit's places will be 7500 and the sum of the digits in the ten's places will be <math>(1500 + 6000) = 7500</math>. The unit's place of the sum will be 0 and the 750 is carried over to 7500 to make the total <math>8250 \square</math> ten's digit is also 0. Thus the sum of the last two digits of the integers will be 0.</p>
25.	<p>Let us see when 2007 is ending. <math>20 + 31 = 51</math> days more remaining. All the dates in the options are given in Mar. Days in 2008 till 29-Feb = <math>31 + 29 = 60</math>. Total days from 10-Nov-2007 to 29-Feb-2008 = 111. So 29-Feb-2008 is a Fri. 1-Mar is a Sat. 8-Mar and 15-Mar are also Saturdays.</p>
26.	<p>In order to reach his office, the man must walk 7 blocks east (E) and 8 blocks north (N). He can choose any east-north pattern. The problem is then reduced to arranging the 7 Es and the 8 Ns. The 7 Es can be arranged in <math>15C7 = 6435</math> different ways. The 8 Ns can now be arranged in 1 way. After this, the man must walk 5 blocks west and 4 blocks south in order to reach the supermarket. Using the same logic, the number of ways he can do this is <math>9C5 = 126</math> different ways. Thus, the number of different routes he can choose to reach the supermarket is <math>6435 \square 126 = 810,810</math>.</p>
27.	<p>You can calculate the remainder cycles for each of the options and get the answer. This will, however,</p>

	amount to doing donkey work! If you are smart, there are no calculations required!! Since an even number divided by an even number will never give an odd remainder, the best answer is option 3.
28.	There are exactly 30 days in Apr, Jun, Sep and Nov. So in one year there are $30 \times 4 = 120$ days. So that makes it $100 \times 30 \times 4 = 12000$ days. Also in the years 2001 to 2100 there are 24 leap years, which means 24 months with 29 days. So number of days in such Februarys is $29 \times 24 = 696$ days.
29.	The number of diagonals is $nC_2 - n = (n^2 - 3n)/2$ . Since the polygon has an even number of sides, exactly $n/2$ diagonals will be diagonals of maximum length. Thus the required number of diagonals is $\frac{n^2 - 3n}{2} - \frac{n}{2} = \frac{n^2 - 4n}{2}$ .
30.	Consider E1. The probability that the chip numbered 1 is removed first is $1/n$ . There are now $(n - 1)$ chips and the probability that the chip numbered 2 is removed is now $1/(n - 1)$ . Using the same logic, the probability that the chips removed in E1 follow the sequence 1, 2, ..., n is $P_1 = (1/n) \times [1/(n - 1)] \times [1/(n - 2)] \times \dots \times 1 = 1/n!$ . Consider E2. The probability that the chip numbered 1 is removed first is $1/n$ . This chip is then replaced and the box still contains n chips. The probability that the chip numbered 2 is now removed is $1/n$ . Using the same logic, the probability that the chips removed in E2 follow the sequence 1, 2, ..., n is $P_2 = (1/n) \times (1/n) \times \dots$ n times $= 1/n^n$ . If $n = 1$ , then $P_1 = P_2$ . However, if $n \geq 2$ , then $P_1 > P_2$ . We can therefore conclude that $P_1 > P_2$ .
31-34.	From the given information, we know that Amol, Shashi, Mandar and Reena received the video game, permume, calculator and sunglasses respectively. This means that Piyu received the sweater and we can then conclude that she gifted the jacket. Since Mandar did not gift an electronic item, he could have gifted the fountain pen, the shirt or the jacket. But we know that the shirt and the jacket were gifted by Amol and Piyu respectively. So Mandar must have gifted the fountain pen. We still need to figure out who gifted the cell phone and the I-Pod. Since we know that Shashi did not gift the I-Pod, Reena must have gifted the I-Pod and Shashi must have gifted the cell phone. We can now match the friend's name with the gift given and the gift received as follows: Amol – Shirt – Video Game; Mandar – Fountain Pen – Calculator; Piyu – Jacket – Sweater; Shashi – Cell Phone – Perfume; Reena – I-Pod – Sunglasses.
31.	Piyu gifted the jacket.
32.	Amol and Mandar gifted the shirt and the fountain pen respectively (non-electronic items) and received the video game and the calculator respectively (electronic items).
33.	Reena gifted the I-Pod and received the pair of sunglasses in return.

34.	<p>Only Amol and Mandar received electronic items. So option 1 is true. Shashi gifted the cell phone and received the perfume. So option 2 is true. Reena gifted the I-Pod and in alphabetical order, she would appear second last. So option 3 is not true. In alphabetical order, Piyu appears in the middle and she gifted the jacket and received the sweater in return. So option 4 is true.</p>
36-40.	<p>In such questions it is best to analyse the case without looking at the questions asked. Here is a sample of such an analysis:          What is our objective: To buy the neighbouring cloth store.          Major Factors: Purchase price, the spending on repairs or modifications          (Don't bother too much about minor factors, whatever is not major is minor)          Major Assumptions: Our patients would not want to go to outside labs for their tests.          The patient population around the clinic will continue to reside there.</p>
36.	<p>If we check with our list, we see that this is an assumption, since we have no clear way of forecasting or controlling this fact, yet it is still important.</p>
37.	<p>Checking from our list, this is indeed the purpose of this case – hence objective.</p>
38.	<p>The state of the business does not matter, since the key factor is whether Hill wants to sell or not. Hence minor factor.</p>
39.	<p>Although the quality of equipment matters, he does not need to worry about it as far as this purchase decision is concerned.          Nor relevant – hence minor factor.</p>
40.	<p>Again match with the checklist, you will realise that it is one of the assumptions. In some sense this is like a Critical Reasoning question.</p>
41.	<p>Option 2. The first sentence is an inference as it talks of a result – development of remarkable reliance on private doctors and a cause - the relatively low allocation to public health care. In B, word like <i>very large</i> are descriptive words and hence is a judgment. We can verify both the statements as they are from a study conducted by the Prachi Trust.</p>
42.	<p>Option 1. The passage talks about words and what images they conjure. Hence C will be the opening sentence. B and E are linked and D and A are linked. D talks of telescoped process and A talks of the general law of telescoped processes.</p>
43.	<p>Option 4. In option 1, 'the' after food is incorrect Also women should be followed by their babies. In option 2, protect themselves and not oneself. In option 3, carried should be carrying, also after the semicolon, she and themselves do not agree in number and gender.</p>
44.	<p>Option 1. The para talks about what challenges mean for different people and how people react to challenges. At the end it states that you learn that challenge is a part of life so what would follow would be that challenges can be won or lost but one learns from them.</p>
45.	<p>Option 3. The question talks about dark moments in history, hence option 2 and 4 can be ruled out as</p>

	they denote positive happenings. Exploitation of cheap labour in factories where the Bug is produced cannot be said to be a moment of history as even now Bug is manufactured in Spain where labour is cheaper. Hence we can rule out option 1. Nazi Germany and Hitler are certainly associated with a dark moment of history. Hence Beetle's birth at that time would be what the author is implying.
46.	Option 2. Just like a gene transmits its structure largely intact and is potentially immortal in the form of copies, the beetle has also maintained in shape largely intact and has innumerable copies of the same spread all around in all types of cultures reflecting the culture there as the passage says that "the Bug wore a ..... adopted guest." As it refers to the Bug, it is an individual that we are talking about. The Bug is a meme and the name remains constant in different contexts. There is no mention of abundance and the car is considered to be functional and aesthetic hence cannot be said that it is expendable.
47.	Option 1. From the passage we cannot infer that both the Beetles are the world's largest selling cars. Hence option 2 is incorrect. The features are different hence cannot be produced side by side. The passage states that the Bug should be there forever and not preserved for posterity. As the New Beetle is a descendant of the Bug, they would have some things in common. It is mentioned that culturally and mechanically they are different. No mention is made of shape which then should be the same. A gestalt means a configuration or pattern of elements so unified as a whole that it cannot be described merely as a sum of its parts. The Greek word <i>logos</i> (traditionally meaning word, thought, principle, or speech) has been used among both philosophers and theologians. In most of its usages, logos is marked by two main distinctions - the first dealing with human reason (the rationality in the human mind which seeks to attain universal understanding and harmony), the second with universal intelligence (the universal ruling force governing and revealing through the cosmos to humankind, i.e., the Divine).
48.	Option 3. Despite low income, Bangladesh has been able to do so much so quickly. Hence disappointment and duplicity – deceit or dishonesty cannot fit the first blank. Opulence means wealth and hence we cannot use it in the second blank.
49.	Option 4. We would be more concerned about whether we put the wrong person in the wrong job, or whether we have not utilizes or realised the true potential of an employee. We would not worry about whether he finds another job or not.
50.	Option 4. The passage states that there is heavy work load that government activity throws up for cabinet decisions and hence ministers will be reluctant to engage in discussions which are not from their own cabinets. Option 1 is incorrect as there is no support for it in the passage. (To scratch each other's back means if you help me then I will help you too. Wont - One's habitual way of doing things). The cabinets can and must influence policies. Hence option 2 is incorrect.

	If there was a need for public discussion of policy options then ministers would gladly engage in discussion related to matter which were not related to their ministries too.
51.	Option 3. It is easier to build a political institution like that elsewhere ( here Britain) but getting the same set of mindset, attitudes and behaviour is difficult. Dharmas is a very India specific activity and is an example of a cultural gap or difference. All the others are possible else where too.
52.	Option 4. The Feudal System was a system for ordering society around relationships derived from the holding of land in exchange for service or labour. Ethos means culture. The PM is above the other ministers and hence we cannot say first among equals. In this example, the vacuum is more in the subordinate than the leader. Cultural lag is a hiatus between institutions and behaviour. Feudal system was associated with the lords and vassals and here the PM is the lord and the subordinates are vassals as the subordinates are looking up to the PM for his consent.
53.	Option 3. <i>Due to</i> is an adjectival prepositional phrase, meaning it modifies a noun. <i>Because of</i> is an adverbial prepositional phrase, meaning it modifies a verb. Because of answers the question <i>WHY ?</i> . Example 1. His defeat was due to the lottery issue. ( here due to modifies the noun defeat) 2. He was defeated because of the lottery issue. ( here because of modifies the verb was defeated) <i>Because of</i> answers the question <i>WHY ?</i> <b>Using the above information to the question -</b> In sentences 1, 2 and 4 <i>because of</i> modifies the verbs <i>is rising, started</i> and <i>was narrowed..</i> While in sentences 3 and 5, <i>due to</i> modifies the nouns – <i>our arrival</i> and <i>his frustration</i> .
54.	Option 1. As we are talking of labour, option 2 is not correct. Option 3 talks of discipline and not labour. Option 4 talks of caring for the young as the young ant will be shifted to a safe location.
55.	Option 3. The author is referring to two districts Burdwan and Midnapur in Bengal when he is talking about communism. Bengal has had a Left government for years and hence the author uses the word communism. It is not an extreme idea as Burdwan is in West Bengal and West Bengal does have a communist party ruling the state. The last paragraph states that the author is not having any leftward leanings – he says “ the demand for bread and water is a natural urge ..... British period.”
56.	Option 1. This option states that Gandhiji felt that it was not appropriate to transplant Westminster democracy on Indian soil. A prostitute has no feelings for anyone and will go with a person who pays the most for the services rendered. A democracy on these lines would be bad for our country. Gandhiji talks about importing <i>Westminster democracy</i> and not democracy. Hence option 4 is incorrect. He doesn't compare Westminster democracy to a prostitute to show the double the standards as we are talking of democracy being introduced in India. The comparison is between the

	<p>government in UK and government in India and not with any other aspect. Hence we can rule out option 3.</p> <p>Additional information : In England at that time, agriculture was a dominant profession and majority of the people in the Westminster parliamentary were landlords or property owners and hence concerned only with buying and selling of land at the highest price possible without any feelings or emotions coming into the picture.</p>
57.	<p>Option 3. The author states that “ in a personal tour of two West Bengal districts .....Gandhiji would have liked. So the author wants to convey that we need to work at the village level. At the beginning of the passage too, it is mentioned that Gandhiji wanted Panchayats to be elected on full suffrage to be run by intelligent young people because he felt that in this way many demands could be answered at the village level. This means the focus should have been at a micro-level whereas it was actually at a macro-level. Though Gandhiji says that there more to education than literary academic learning , he is not against academic learning. Hence option 1 is incorrect. Electoral practices and low turnouts are not mentioned. There is no mention of Indian mindset with reference to feudalism and voters.</p>
58.	<p>Option 2. The paragraph talks about how a protagonist takes steps to make a foreigner know that the foreigner is with people who are knowledgeable and not ignorant cavemen. The first sentence then is the one that introduces the protagonist and the foreigner which is statement C. A follows C as it describes the first step the protagonist takes. E talks about why this small talk is necessary. The conversation then gains momentum.</p>
59.	<p>Option 3. In A, <i>rational</i> instead of <i>rationale</i>; in B, <i>was</i> instead of <i>were</i>; in D, <i>losing</i> instead of <i>loosing</i>; in E, <i>less than</i> instead of <i>lesser than</i> and <i>before accordingly</i> there needs to be a semi-colon to separate the independent clause.</p>
60.	<p>Option 4. Statement A is a judgment as words like <i>empathetic</i> and <i>rigorous</i> are used. D can be verified and there is no approval or disapproval. B is a judgment as there is clear disapproval as it uses words like “risks disconnecting” and “ insufficient”. C is an inference as depending on the known “ Requiring ..... Dilemmas”. It is taking about the unknown. There is no approval or disapproval in the sentence.</p>

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