



## NMAT Previous Paper 5

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# Language Skills

## Instructions [1]

In each of the following questions, one phrase/word is written in bold followed by five options in which its meaning is given. Identify the best possible meaning of the highlighted phrase to make the sentence grammatically and contextually correct.

1. The current government will ignore members of the middle class to **fawn over** the millionaires who can fund its campaign.

- A to praise someone excessively
- B to start something new
- C to give priority to someone
- D to behave in a proper manner
- E None of the above



2. Which of the following is a synonym for “poignant”?

- A brachydactylic
- B tragic
- C abnormal
- D unnatural
- E zymoid

3. Choose the option which is most opposite in meaning to the word given below.

LIMPID

- A Confound
- B Obscure
- C Corroborate
- D Motley
- E Transparent

4. Bear : Growl :: Donkey : ?

- A Bleat
- B Neigh

- C Bray
- D Squeak
- E Grunt



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#### Instructions [5 - 8]

Read the following passage carefully and answer the questions given below it.

The marketing strategy of any business has a lot to do with its success or failure. The best products can **nosedive** and the lesser products can scale great heights just because of a great marketing strategy. On the web, there are lots of people doing business through selling a host of products. In this Internet age, to be successful in any business it is vital to have a web presence. You need the best marketing strategies to market your goods really well on the web. Using **affordable** search engine marketing is the best way to go about the marketing strategy on the web.

Every business works under a set budget. Affordable search engine marketing is the best way to go about the entire thing. If you have a web presence for your business, then you must make all efforts to tell everyone all about your site. How can anyone know if you do not tell them something about your business and its website? For promoting your site on the web, you can try search engine optimization. In search engine marketing you can commence pay per click advertising, affiliate marketing programs, Internet marketing and content **optimization** and management.

There are some ethical and unethical methods that can be used for promotion. It is up to you to decide what measures you want to adopt for popularizing your business. It all boils down to adopting the most effective search engine marketing strategy. Online visitors use the help of search engines to find anything online. So you must realize how important it is for your site to rank at the top of major search engines.

Before you actually go about starting any business on the web, you must conduct research properly. Conducting research means that you decide on a budget, decide on the marketing strategy and also find out who the target audience of your product is. Also through the research, find out what marketing strategy is working and what is not working. While choosing your marketing strategy, keep in mind the choice and **preference** of your target audience. What is the use of any search engine marketing strategy if you are not able to reach out to your prospective clients?

Having lots of optimized and relevant content is one affordable search engine marketing strategy that can be very easily adopted and implemented by any business. Content management is the process through which you can add new optimized content to your site. It is a fact that no one will come to see your site, if they do not get what they are looking for in adequate quantity. So make it a point to regularly add new features, pictures and fresh content to your site.

Undertaking affordable search engine marketing helps your business in two ways. First of all you can afford the marketing strategy within your limited budget. Secondly you **adopted** those marketing strategies that are bound to bring positive results to your business. There is a huge competition on the web and adopting affordable search engine marketing is the best way of going about it and coming out on top.

- By Pramod K Gupta

5. Which of the following is a suitable title for this passage?

- A Search Engine Marketing: Is It For Your Business?
- B Advantages Of Search Engine Marketing
- C How To Start A Business?

- D Is Search Engine Marketing Good Or Bad?
  - E How does Search Engine Marketing Help An Economy Grow?
6. What is the main point of the passage?

- A To discuss ways to popularize the business
- B To emphasize that using search engine marketing will make a business successful
- C To discuss the ethical strategies that can be used to develop a business
- D To describe different strategies that can be used to develop a business
- E To emphasize the importance of ranking at the top of major search engines

7. Which of the following, according to the author, must be taken care of while choosing a marketing strategy?

- A pros and cons
- B ethics
- C preference of target audience
- D optimization
- E adding new features

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8. According to the passage, which of the following statements is not true?

- A All the businesses work under a budget that is set.
- B It is not very important to have web presence for the success of a business
- C Marketing strategies play an important role in the success of a business
- D It is possible that the business with the best products go down.
- E None of these

### Instructions [9]

Instructions: Each question below has two blanks, each blank indicating that something has been omitted. Choose the set of words for each blank that best fits the meaning of the sentence as a whole.

9. Drawing attention to the pitfalls of \_\_\_\_\_ solely on Uranium as a fuel for nuclear reactors, Indian scientists warned that uranium will not last for long and thus research on Thorium as its \_\_\_\_\_ must be revived.

- A Using, Substitute
- B Relying, alternative
- C Depending, reserve
- D Reckoning, option

E Believing, replacement

10. The following statements when arranged in the correct order form a coherent paragraph. Find the correct ordering.

- A) His most distinctive contribution was the invention of what he called the 'critical' philosophy, which, assuming as a datum that there is knowledge of various kinds, inquired how such knowledge comes to be possible, and deduced, from the answer to this inquiry, many metaphysical results as to the nature of the world
- B) But Kant undoubtedly deserves credit for two things: first, for having perceived that we have "a priori" knowledge which is not purely 'analytic', i.e. such that the opposite would be self-contradictory, and secondly, for having made evident the philosophical importance of the theory of knowledge
- C) Though he lived through the Seven Years War and the French Revolution, he never interrupted his teaching of philosophy at Königsberg in East Prussia
- D) Immanuel Kant is generally regarded as the greatest of the modern philosophers
- E) Whether these results were valid may well be doubted

A DCAEB

B DACEB

C DACBE

D DCBAE

E ACBED



#### Instructions [11]

In each of the following questions a short passage is given with one of the lines in the passage missing and represented by a blank. Select the best out of the five answer choices given, to make the passage complete and coherent (coherent means logically complete and sound).

11. The experiences of Shelley's Creature in the novel make for an unforgettable psychological account of what it meant to be an environmental refugee in that period: \_\_\_\_\_. That said, Shelley renders the 1816 climate crisis in implicit, symbolic form, leading us to wonder what Switzerland (and Europe) was really like that year and the two years following. Of the many accounts that survive, none is more compelling, or resonant with Shelley's novel, than the extraordinary history of the Baroness de Krüdener.

A a figure for the despised and desperate refugees crowding Switzerland's market towns that year.

B starving, skeletal climate refugees in the tens of thousands roamed the highways of Europe.

C how fear of famine and disease-carrying refugees drove middle-class citizens to demonize these suffering masses as subhuman parasites.

D tale of human pathos, suffering, and destruction is headline news: on the TV and internet, in a million images, filling well-fed, well-housed citizens with horror.

E full of fear, consumed with rage and despair, racked with hunger, empty with loneliness.

12. Which of the following summarizes the main point of the paragraph ?

The only way to combat current inflation is to allow the currency to appreciate. An appreciating currency will reduce domestic prices of fuel immediately and allow the government, or private enterprise, to import food grains at a lower cost. This will end up actually reducing prices rather than just slow their rise, which is the best case outcome when using interest rates.

By Rajiv Shastri

- A The government and the private sector can import more goods at a lower cost if the money appreciates.
- B Appreciating money will finally lead to the reduction of inflation.
- C The increase in purchasing power will lead to the fall of prices of goods.
- D Appreciating money value will reduce fuel prices and increases the purchasing power while importing goods.
- E Appreciating the value of money will reduce the cost of resources.

13. Choose the most appropriate option for the underlined portion of the following sentence:

Like the overspending in London and Sochi, the Olympics in Rio de Janeiro are expected to cost far more than what had been originally budgeted.

- A Like the overspending in London and Sochi
- B As London and Sochi
- C Like that in London and Sochi
- D Like the events in London and Sochi
- E same as London and Sochi

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14. Read the following sentence and choose the best alternative which should replace the highlighted part of the sentence.

Economic theory fails to explain the extent **to which savings from personal income has shifted** to short-term bonds, money-market funds, and other near-term investments by the instability in the futures market.

- A to which savings from personal income has shifted
- B of savings from personal income that has been shifted
- C of savings from personal income shifting
- D to which savings from personal income have shifted
- E to which savings from personal income have been shifted

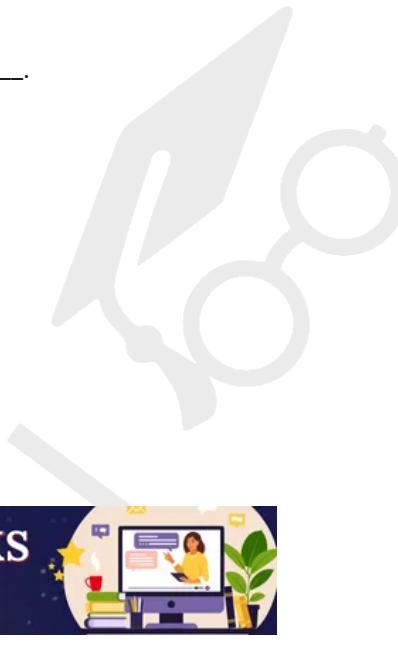
15. Many of these environmentalists proclaim to save nothing less than the planet itself.

- A to save nothing lesser than
- B that they are saving nothing lesser than

- C to save nothing less than
- D that they are saving the most
- E that they save nothing less than

#### Instructions [16]

Choose the option that would fit both the given blanks.

16. The entire movement should not be judged by the elements on the \_\_\_\_\_. 

The table cloth has a velvet \_\_\_ which gave it a luxurious feel.

- A lace
- B end
- C fringe
- D pleat
- E lead



17. Dog: Bark :: Horse:

- A Snort
- B Neigh
- C Squeak
- D Groan
- E Chuckle

#### Instructions [18 - 21]

Read the following passage and answer the questions given below it. Certain words/phrases are given in bold to help you locate them while answering the questions:

Histories of China fall, with few exceptions, into one or the other of two groups, pro-Chinese and anti-Chinese: the latter used to predominate, but today the former type is much more frequently found. We have no desire to show that China's history is the most glorious or her civilization the oldest in the world. A claim to the longest history does not establish the greatness of a civilization; the importance of a civilization becomes apparent in its achievements. A thousand years ago China's civilization towered over those of the peoples of Europe. Today the West is leading; tomorrow China may lead again. We need to realize how China became what she is, and to note the paths pursued by the Chinese in human thought and action. The lives of emperors, the great battles, this or the other famous deed, matter less to us than the discovery of the great forces that underlie these features and govern the human element. Only when we have knowledge of those forces and counter-forces can we realize the significance of the great personalities who have emerged in China; and only then will the history of China become **intelligible** even to those who have little knowledge of the Far East and can make nothing of a mere enumeration of dynasties and campaigns.

Views on China's history have radically changed in recent years. Until about thirty years ago our knowledge of the earliest times in China depended entirely on Chinese documents of much later date; now we are able to rely on many excavations which enable us to check the written sources. Ethnological, anthropological, and

sociological research has begun for China and her neighbors; thus we are in a position to write with some confidence about the making of China, and about her ethnical development, where formerly we could only grope in the dark. The claim that "the Chinese race" produced the high Chinese civilization entirely by its own efforts, thanks to its special gifts, has become just as untenable as the other theory that immigrants from the West, some conceivably from Europe, carried civilization to the Far East. We know now that in early times there was no "Chinese race", there were not even "Chinese", just as there were no "French" and no "Swiss" two thousand years ago. The "Chinese" resulted from the **amalgamation** of many separate peoples of different races in an enormously complicated and long-drawn-out process, as with all the other high civilizations of the world.

The picture of ancient and medieval China has also been entirely changed since it has been realized that the sources on which reliance has always been placed were not **objective**, but deliberately and emphatically represented a particular philosophy. The reports on the emperors and ministers of the earliest period are not historical at all, but served as examples of ideas of social policy or as glorifications of particular noble families. Myths such as we find to this day among China's neighbors were made into history; gods were made men and linked together by long family trees. We have been able to touch on all these things only briefly, and have had to dispense with any account of the complicated processes that have taken place here.

The official dynastic histories apply to the course of Chinese history the criterion of Confucian ethics; for them history is a textbook of ethics, designed to show by means of examples how the man of high character should behave or not behave. We have to go deeper, and try to extract the historic truth from these records. Many specialized studies by Chinese, Japanese, and Western scholars on problems of Chinese history are now available and of assistance in this task. However, some Chinese writers still imagine that they are serving their country by yet again dishing up the old fables for the foreigner as history; and some Europeans, knowing no better or aiming at setting alongside the **unedifying** history of Europe the shining example of the conventional story of China, continue in the old groove. To this day, of course, we are far from having really worked through every period of Chinese history; there are long periods on which scarcely any work has yet been done. Thus the picture we are able to give today has no finality about it and will need many modifications. But the time has come for a new synthesis, so that criticism may proceed along the broadest possible front and push our knowledge further forward.

**18.** Which of the following statements are true as per the passage:

- I. Anti-Chinese history of China dominate pro-Chinese history presently.
- II. Before a thousand years, Chinese civilization was more developed than European civilization.
- III. The history of China is derived primarily from Chinese documents in recent times.

A I

B II and III

C II

D I and II

E I and III

**19.** What does the author think of the reliability of the historical sources in China at present ?

- A The author believes that the sources of history are not objective enough to be reliable.
- B The author's view on reliability cannot be inferred from the passage.
- C The author believes that increased excavations in addition to the researches being conducted on the people of China has helped to increase the reliability of the sources.
- D The author believes that there is no significant change in the reliability of the sources.
- E The author believes that the ethnological, anthropological and sociological researches will help to increase reliability of the historical sources in the near future.

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20. What does the author believe to be the major use of historical sources of the past ?

- A To teach different kinds of social policies and to show in good light the higher strata of the society.
- B To represent a particular philosophy.
- C To show the life of ancient Chinese were superior to that of Europeans.
- D To misinform people.
- E None of these.

21. Why does the author believe the immigrants from the West carried civilization from the far East ?

- A Because the fact has been presented in historical documents.
- B Because the civilization of Europe in ancient times were superior to that of far East.
- C Because excavations conducted in Eastern countries revealed some ancient artifacts of the West
- D Cannot be inferred from the passage.
- E The author believes contrary to it.

22. Which of the following words is opposite in meaning to 'Unavailing'?

- A insipid
- B monotonous
- C efficacious
- D ingenuous
- E ineffective



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23. Which of the following is an synonym for "eugenic"?

- A ancestral
- B digenetic
- C patrimonial
- D acquired
- E hereditary

### Instructions [24]

For each of the questions given below, fill in the blanks with the most suitable idiom or phrase.

24. After the unexpected violence, the leader \_\_\_\_\_ the protest as there was no way to control the situation.

- A Called out
- B called off
- C Start off
- D At the onset
- E kept out

**Instructions [25]**

Arrange the four sentences in their proper order so that they make a logically coherent paragraph.

25. 1. The history of mammals dates back at least to Triassic time.

- A Miocene and Pliocene time was marked by culmination of several groups and continued approach towards modern characters.
- B Development was retarded, however, until the sudden acceleration of evolutional change that occurred in the oldest Paleocene.
- C In the Oligocene Epoch, there was further improvement, with appearance of some new lines and extinction of others.
- D This led in Eocene time to increase in average size, larger mental capacity, and special adaptations for different modes of life.
- 6. The peak of the career of mammals in variety and average large size was attained in this epoch.

- A BDCA
- B ACDB
- C BCDA
- D ACBD
- E DBCA

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26. The claims of the opposition were \_\_\_\_\_ by evidence.

- A proved
- B sustained
- C charged
- D backed up
- E backed out

**Instructions [27]**

Arrange the four sentences in their proper order so that they make a logically coherent paragraph.

27. 1. Visual recognition involves storing and retrieving of memories.

- A Psychologists of the Gestalt School maintain that objects are recognised as a whole in a procedure.

- B. Neural activity, triggered by the eye, forms an image in the brain's memory system that constitutes an internal representation of the viewed object.
- C. Controversy surrounds the question of whether recognition is a single one-step procedure or a serial step-by-step one.
- D. When an object is encountered again, it is matched with its internal recognition and thereby recognised.
6. The internal representation is matched with the retinal image in a single operation.

- A DBAC
- B DCAB
- C BDCA
- D CABD
- E ADBC

28. Which of the following summarizes the main point of the paragraph ?

Over the years, many countries have experimented with the entire spectrum of killing methods to render punishment on those that dare violate man's law. Some societies reserved the most dire of penalties for only the most dire of offences. Others applied the ultimate punishment on a whim. The consequences and effectiveness of its imposition range widely, however, it can never truly be said that enforcing capital punishment has ever served as a deterrent.

By Curtis Sagmeister

- A Capital punishment is ineffective in reducing crimes.
- B Several methods of capital punishment has been used to render punishment on those who violate man's law.
- C The consequences and effectiveness of different methods of capital punishment span widely but it has not helped much in bringing down crimes.
- D Capital punishment has been practiced in many countries in different ways but has produced little effect in reducing crimes
- E Capital punishments are ineffective.



29. Fill in the blanks with the most appropriate word from the options given.

Avail yourself \_\_\_ the opportunity before it is gone.

- A with
- B of
- C to
- D from
- E along

30. From the options given below, select the one that best replaces the part of the sentence in bold.

**My friend and me are** going on a vacation next week.

- A My friends and I are
- B I and my friends are
- C Me and my friends are
- D My friends and I am
- E No correction required

#### **Instructions [31 - 34 ]**

Read the following passage and answer the questions given below it. Certain words/phrases are given in bold to help you locate them while answering the questions:

What exactly do we mean when we speak of the "environment"? It is more complex than saying it is only our surrounding. The environment is a **delicate** equilibrium between every ingredient in our surroundings called the ecosystem. Our ecosystem contains the interaction between organisms and nature.

Man has been chiefly responsible for disturbing this delicate equilibrium by exploiting the natural resources to his end. In fact the resources in the past have faced **uninhibited** exploitation on all accounts and reckless usage leading them to their current depleted stage. An unchecked release of the pollutants in the air has resulted in the greenhouse effect resulting in the ozone layer getting depleted. This has resulted in global warming which has had many disastrous effects like the rising levels of the water bodies. All this has also resulted in more ecological imbalances occurring than ever before. The ecosystem has also suffered on account of the careless mistakes of various industries and certain individuals who want to save on the cost at the expense of damaging the ecosystem. In fact there is no aspect of the ecosystem that has been left untouched by these **perils** as you have air pollution affecting the air you take in, water pollution, land pollution affecting the crops.

There are many organizations that make it their agenda to educate people and corporations on the conservation of the environment. They are stressing the development of alternative green sources as an answer to the non-renewable sources of energy, preserving the **endangered** species, setting up of goals for the reduction of pollution, establishment of natural reserves and the protection of biodiversity upon which the delicate balance of the ecosystem hangs.

There is now international awareness towards these ecological problems. Countries have come in together to solve the environment issues plaguing them. The Global Environment Facility (GEF) that was established in the year 1991 supports many projects related to environment such as climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.

The UN had gotten into the act and developed World Environment Day celebrated on June 5 every year. It is one of the chief vehicles that are used to promote awareness about the environment. It is an important step in launching this campaign for environmental awareness since the environment can be saved if it's a large-scale effort involving people across the globe.

by: Dell Ambint

#### **31. What according to the author is the definition of environment ?**

- A Environment is our surrounding.
- B Environment is the sum total of all the surroundings of a living organism
- C Environment is the delicate balance of some ingredients in our surroundings.
- D Environment is a fine balance of different constituents in our surrounding.
- E Environment is the conditions and circumstances that surrounds someone.

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32. Which of the following is an inference from the passage?

- I. Non-renewable sources of energy are harmful for the environment.
  - II. Unchecked release of pollutants into the air has led to greenhouse effect leading to ozone layer formation.
  - III. Reckless usage is one reason which has led to the depletion of resources.
- A I  
B II  
C III  
D I and II  
E I,II and III

33. What is the probable source of the article ?

- A research journal  
B blog article  
C high school science textbook  
D newspaper report  
E UN's annual report on environment

34. Which of the following statements are true with regard to the given passage?

- I. Establishment of natural resources helps to conserve environment.
- II. GEF supports many projects such as climate change, setting up goals for reduction of pollution, drug abuse etc.
- III. Rising levels of water bodies is an effect of global warming.

- A I  
B I and II  
C II and III  
D I and III  
E I, II and III

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### Instructions [35]

Arrange the four sentences in their proper order so that they make a logically coherent paragraph.

- 35.** 1. The idea of sea-floor spreading actually preceded the theory of plate tectonics.  
A. The hypothesis was soon substantiated by the discovery that periodic reversals of the earth's magnetic field are recorded in the oceanic crust.  
B. In its original version, it described the creation and destruction of ocean floor, but it did not specify rigid lithospheric plates.  
C. An explanation of this process devised by F.J. Vine and D.H. Mathews of Princeton is now generally accepted.  
D. The sea-floor spreading hypothesis was formulated chiefly by Harry H. Hess of Princeton University in the early 1960's.  
6. As magma rises under the mid-ocean, ferromagnetic minerals in the magma become magnetised in the direction of the geomagnetic field.

A DCBA

B ABDC

C CBDA

D DBAC

E BDAC

#### Instructions [36]

Pick out the most effective pair of words from the given pair of words make the sentences meaningfully complete.

- 36.** Weather officials have \_\_\_\_ below-normal rains this year. If the predictions come true, farm output could - \_\_\_\_ as most of India's farmlands depends on rainwater for irrigation.

A forecasted - shrank

B forecast - shrank

C forecast - shrink

D prediction - expand

E prediction - wan



## Logical Reasoning

- 37.** Pointing to a girl in a photograph, Gurvinder said, "her father's sister is the only daughter of my father's father". If Gurvinder's father's father had only one son, then what is the relation of Gurvinder to the girl?

A cousin

B brother

C nephew

D uncle

E Can't be determined



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**Instructions [38]**

In each question below are statements followed by two conclusions numbered I and II. You have to take the two given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts?

Give answer

- (a) If only Conclusion I follows
- (b) If only Conclusion II follows
- (c) If either Conclusion I or II follows
- (d) If neither Conclusion I nor II follows
- (e) If both Conclusions I and II follow

**38.** All boards are pens.

Some chalks are not boards.

Conclusion:

- I) No chalk may be a pen.
- II) At least some pens are boards.

A If only Conclusion I follows

B If only Conclusion II follows

C If either Conclusion I or II follows

D If neither Conclusion I nor II follows

E If both Conclusions I and II follow

**39.** Akash's position is 30th from the top. There are 15 people between Akash and Pruthvi. Pruthvi is below Akash in the line. There are 70 people in the line. What is Pruthvi's position from the bottom?

A 23rd

B 24th

C 25th

D 26th

E None of the above

**Instructions [40]**

**Find the missing number in the given series from the options provided.**

**40.** 7, 18, ?, 248, 1250, 7512

A 24

B 36

C 60

D 144

E 120

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### Instructions [41]

Read the following information carefully and answer the questions that follow.

In a certain code language, some statements are coded as following:

'Silence of the night' is coded as 'pit ri emi dre'

'Night full of terror' is coded as 'ri han pit nem'

'Don't silence the terror' is coded as 'emi bull han dre'

'Don't scream in silence' is coded as 'no dre bull na'

'Scream of the wolf' is coded as 'emi bru no ri'

**41.** The codes for how many words can be uniquely determined?

A 6

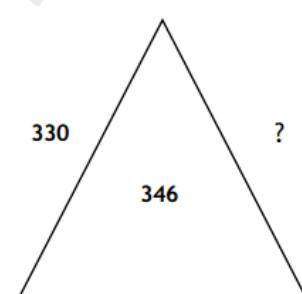
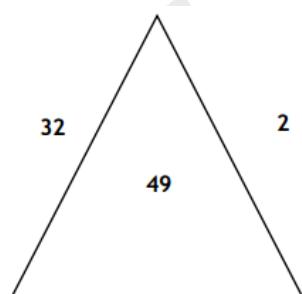
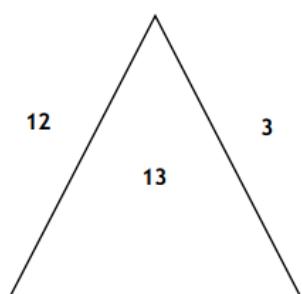
B 7

C 8

D 9

E 10

**42.** Which number should replace the question mark?



A 31

B 11

C 21

D 27

E 18

**43.** In the figure below, what number should replace the question mark (?). The relation can be horizontal or vertical.

4	1	3
3	5	?
84	30	54

A 21

B 7

C 13

D 3

E 4



44. Find the missing value in the following figure

4	7
27	
8	2

9	4
38	
3	6

9	5
?	
6	7

A 43

B 47

C 53

D 59

E 61

#### Instructions [45 - 48 ]

Study the following information carefully and answer the given questions.

When a word and number arrangement machine is given an input line of words and numbers, it arranges them following a particular rule. The following is an illustration of Input and rearrangement.

Input: th rv 37 jy 84 43 sp 65

Step I: 85 th rv 37 43 sp 65 kz

Step II: 85 64 th 37 43 sp sw kz

Step III: 85 64 42 th 37 tq sw kz

Step IV: 85 64 42 36 ui tq sw kz

Step IV is the final step for the given input.

As per the rules followed in the above steps, find out the appropriate step for the below input.

**Input: rh 46 73 ck tc 95 qh 28**

45. How many elements are there between '72' and 'ri' in Step III for the given input?

A Two

- B One
- C Three
- D Four
- E More than four

46. Which of the following is second to the left of 28 in Step III?

- A tc
- B ck
- C 47
- D 72
- E None of these



47. How many elements are to the left of 'tc' in Step II?

- A Three
- B One
- C Four
- D Five
- E Two

48. What is the position of '47' in Step IV for the given input?

- A Third from the left end
- B Second from the left end
- C Fourth from the right end
- D Third from the right end
- E None of these

#### Instructions [49 - 52 ]

A and his 7 other family members are sitting around a circular table. There are 4 male members and 4 female members. People of same gender do not sit next to each other. A is sitting opposite to his father. The other male members of his family are his son and his brother. A's brother is not sitting adjacent to his mother or sister. A's mother is sitting opposite to A's wife. The other female member in the family is A's daughter.

49. If A's wife is sitting adjacent to A's father, then who among the following is sitting adjacent to A's sister?

- A A's son

- B A's father
- C A's brother
- D A
- E More than one of the above

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50. If A's sister is sitting adjacent to A, then A's father is sitting adjacent to

- A A's daughter
- B A's wife
- C A's mother
- D A's sister
- E More than one of the above.

51. If it is provided that the male members are facing away from the center and the female members are facing towards the center and A's wife is sitting third to the left of A, then who is sitting second to the left of A's wife?

- A A's mother
- B A's sister
- C A's daughter
- D A's brother
- E None of the above

52. If all the members are facing the centre and A's father is sitting to the left of A's wife, then who is sitting to the right of A's daughter?

- A A
- B A's brother
- C A's father
- D A's son
- E Cannot be determined

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53. There are 69 people standing in a row to buy movie tickets. Raman is standing at the 33rd place from the front and Raja is standing at the 41st place from the back. There are two people between Raja and Rohit and Rohit is standing behind Raja. How many people are there between Raman and Rohit?

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

#### Instructions [54]

Read the following information carefully and answer the questions which follow.

P, Q, R, S, T, U, V and W are the members of a family. There are 4 married people in the family. Further the following information is also known

- 1. The family is spread across only two generations.
- 2. Neither V nor S is married and both of them are from the first generation.
- 3. U is R's aunt and both of them are unmarried.
- 4. T is the daughter in law of W.
- 5. P is Q's father and V has 2 nephews.
- 6. V is the paternal uncle of R.

**54.** How is Q related to S?

- A Nephew
- B Cousin
- C Brother
- D Niece
- E cannot be determined

#### Instructions [55]

Study the information given below and answer the two questions that follow:

Darpan boards a flight facing North-West and travels 141.4 kms. Then the flight turns 270 degrees clockwise and travels 70.70 kms. Then the flight turns 315 degrees clockwise and travels 50 kms before landing. Note:  $\sqrt{2} = 1.414$

**55.** In what direction is Darpan facing when the plane landed?

- A East
- B West
- C North
- D South
- E South-West



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**56.** Based on the statements given below, which of the following conclusions follow?

Statements:

- 1) All animals are birds.
- 2) All birds are insects.
- 3) Some insects are mammals.
- 4) Some mammals are reptiles.

Conclusions:

- 1) Some insects are birds
- 2) Some reptiles are animals
- 3) Some insects are animals
- 4) Some reptiles are birds

**A** Only 1, 2 and 3 are true

**B** Only 2 and 3 are true

**C** Only 1 and 3 are true

**D** Only 1, 2 and 4 are true

**E** None of these

**57.** Based on the statements given below, which of the following conclusions follow?

Statements:

- 1) All lights are glass.
- 2) Some glass are solid.
- 3) No solid is fruit.
- 4) Some fruits are eatables.

Conclusions:

- 1) Some eatables are glass
- 2) Some fruits are lights
- 3) No eatable is glass
- 4) Some solids are lights

**A** Only 4 is true

**B** Either 1 or 3 and 2 are true

**C** Either 1 or 3 and 4 are true

**D** Either 1 or 3 is true

**E** None of these

**58.** Based on the statements given below, which of the following conclusions follow?

Statements:

- 1) All shrubs are plants
- 2) Some trees are bushes
- 3) All bushes are shrubs
- 4) Some plants are small

Conclusions:

- 1) Some small are bushes
- 2) Some plants are trees
- 3) No small is bush
- 4) Some plants are bushes

- A Only 1, 3 and 4 are true
- B 2, 4 and either 1 or 3 are true
- C 2 and either 1 or 3 are true
- D 4 and either 1 or 3 are true.
- E None of these

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**59.** Statement: A large scale cotton manufacturer is holding a meeting on whether to move into the finished cloth business.

Course of Action:

1. Analyse the opportunity cost and other parameters before making any decision.
2. Start using only half of the warehouses to store finished cloth instead of cotton.
3. Follow in the footsteps of another large cotton manufacturer who made the same move 10 years ago and today is very successful.

- A Only 1 follows
- B Only 2 follows
- C Only 3 follows
- D Both 1 and 3 follow
- E Both 1 and 2 follow

### Instructions [60]

In each of the following questions a statement is given and it is followed by two conclusions. Identify the conclusions which can logically follow from the given statement and accordingly choose the appropriate option.

**60.** Statement: GST is expected to increase the revenues of the government.

Conclusion I: GST will bring more people under the tax blanket  
 Conclusion II: GST rates will be higher than the normal tax rates

- A Only conclusion I follows
- B Only conclusion II follows
- C At least one of the conclusions follow.
- D Both conclusion I and conclusion II follow
- E None of the conclusions follow

### Instructions [61]

In each of the following questions a statement is given and it is followed by two conclusions. Identify the conclusions which logically follow from the given statement and accordingly choose the appropriate option.

**61.** Statement: The former RBI governor said that he was not consulted about the demonetization move.

Conclusion I: If the governor had been consulted he would have suggested not to go for demonetization.  
 Conclusion II: The government did not consult the experts of the field which resulted in a failed initiative.

- A Only conclusion I follows
- B Only conclusion II follows
- C Either conclusion I or conclusion II follow
- D Both conclusion I and conclusion II follow
- E None of the conclusions follow



**62.** Since the issue of gender diversity in corporate world became mainstream, governments and consultancy groups have urged companies to diversify their boards. Gender diversification has been shown to increase profits, improve strategic organization, boost goodwill, reduce group think and increase innovation and creativity by exposing company boards to multiple worldviews and perspectives. The diversity in input thus created leads companies to produce diverse products that cater to a wider consumer base and thereby increase market share. However, an important aspect of gender diversification is missed in mainstream discussion. Gender diversification cannot be conflated with merely appointing women to company boards. Gender diversification includes the responsibility of dismantling unintended, subtle discriminatory practices and creating an environment for equal opportunity, participation and collaboration. Only then does gender diversification truly fulfil its purpose, enable companies to capture maximum benefits and utilize the capabilities of the population of States.

Which of the following statements cannot be inferred from the paragraph?

- A Increasing gender diversity can increase the profits of a company.
- B Gender discrimination is still existent in many companies.
- C Government has made it mandatory to appoint women to the boards of the companies.
- D Gender diversification can help companies tap into markets which would not have been possible otherwise.
- E There is an active support to promote gender diversity in companies.

**63.** The New England colonies were founded by English Puritans who left England because they could not do as they wished in the home land. All Puritans were agreed in wishing for a freer government than they had in England under the Stuart kings and in state matters were really the Liberals of their time. In religious matters, some of them wished to make only a few changes in the Church. These were called Non-Conformists. Others wished to make so many changes in religion that they could not stay in the English State Church. These were called Separatists.

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

- I. English Puritans were proponents of more freer state matters.
- II. All the English Puritans were liberals who supported greater changes in the Church.
- III. The English puritans were divided on religious matters unlike on state matters.

- A Only I
- B Only II
- C Only III
- D Both I and III

E Both II and III

64. Read the following information carefully and answer the question that follows.

**Many organizations have been resorting to recruitment based upon performance at graduate/ post-graduate level exams rather than conducting exams for the same purpose.**

Which of the following statements would **strengthen** the argument given in the above statement?

- A A recent study shows no link of past performance with the performance in recruitment exams.
- B The graduate/post graduate exams are considered to be severely deficient in training in job related environment.
- C Organizations which had undertaken recruitment on the basis of graduate/ post graduate exams report a significant drop in the quantity of the recruited employees.
- D Such policies would add to unemployment among students having below average performance in graduation or post-graduation.
- E Such policies could save time, money and resources of the organization which are wasted in the conduct of recruitment examinations.

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65. Eighty percent of the subjects in an experiment used only ayurvedic medicines which were prepared without using any chemicals. observing the patients for 2 years, it was observed that people who used ayurvedic medicines were more immune to common diseases like common cold and fever . The positive effects of ayurvedic medicines were attributed to the absence of harmful chemicals.

Which of the following, if true, would best support the conclusion that the absence of chemicals in ayurvedic medicines was responsible for the experimental results?

- A Another similar experiment which was conducted showed similar results.
- B The people who were subjected to the experiment had same level of immunity against the cold and fever before the experiment.
- C The cost associated with the ayurvedic medicines is very high and hence people don't use them in regular lives.
- D Some of the medicines which were used were proved to have no impact on immunity in whatever way.
- E People generally do not consume ayurvedic medicines in as much amounts as it was done during the experiment.

66. Answer the following question on the basis of the following paragraph:

The popular William Makepeace Thackeray-theory, before his arrival, was of a severe satirist, who concealed scalpels in his sleeves and carried probes in his waistcoat pockets; a wearer of masks; a scoffer and sneerer, and general infidel of all high aims and noble character. Certainly we are justified in saying that his presence among us quite corrected this idea. We welcomed a friendly, genial man; not at all convinced that speech is heaven's first law, but willing to be silent when there is nothing to say; who decidedly refused to be lionized--not by sulking, but by stepping off the pedestal and challenging the common sympathies of all he met; a man who, in view of the thirty-odd editions of Martin Farquhar Tupper, was willing to confess that every author should "think small-beer of himself."

Which of the following, if true, would weaken the main point of the paragraph?

- A Thackeray was extremely capricious by nature
- B Thackeray was considered an average author in his lifetime and his fame became widespread only after his death
- C The acerbic side of Thackeray's personality found expression only in his literary works
- D Goethe publicly criticized Thackeray for being disingenuously humble
- E None of the above

**67.** Answer the following question on the basis of the following paragraph:

Yahoo, which owns a 16% stake in Chinese retailing giant Alibaba, will see a 5% jump in its share price after Alibaba's initial public offering. Yahoo's current stake in Alibaba is worth at least \$5 per Yahoo share. Hence, once Alibaba undergoes the IPO, Yahoo shares should rise at least by \$5 from their current levels of \$100.

Which of the following, if true, would weaken the main point of the paragraph?

- A Yahoo's core business is valued at \$95 per share
- B Softbank, and not Yahoo, is Alibaba's single largest stockholder
- C Yahoo has stated that it does intend to sell its stake in Alibaba
- D Yahoo's share price has already risen by 10% in anticipation of the IPO
- E Both A and B



**68.** College Principal: Some students from our college whose families were affected by the recent earthquake have not been mentally stable off late. It is not surprising that their test scores are showing a steep decline in the same period. It is one example of the general truth: Mental health can significantly affect students' scores.

Which of the following is an assumption underlying in the argument made by the principal?

- A Teachers have not been paying attention to such students.
- B Test scores are an accurate measure of a one's intellectual ability.
- C The academic performance of students fluctuate very often.
- D If proper counseling is not given to such students, their academic performance may irreversible.
- E These students have been devoting equal time to academics as they did earlier.

**69.** Given below is a statement followed by two assumptions. An assumption is something supposed or taken for granted. You have to consider the statement to be true even though it may seem untrue in the real life and decide which of the assumptions is implied in the statement.

Statement: An advertisement says "Use a fluoride toothpaste to avoid tooth decay."

Assumption 1: Tooth decay is an issue among the viewers.

Assumption 2: Fluoride toothpaste is affordable to the viewers.

- A Only assumption 1 is implicit
- B Only assumption 2 is implicit
- C Either assumption 1 or assumption 2 is implicit
- D Neither assumption 1 nor assumption 2 is implicit
- E Both assumptions 1 and 2 are implicit.

70. Three statements are given below. The three sentences may bear a cause-effect relationship between them or may not be related at all. Choose the correct option based on the relationship between the sentences:

Statements:

- I. Nearly 20 villages are submerged in water with a loss of almost all crops.
- II. Forest officials opened up the dam as the water had started overflowing.
- III. Continuous rainfall for more than 60 hours was witnessed for the first time in last 50 years.

- A I is the cause, II and III are the effects.
- B I and II are the causes, III is the effect.
- C II and III are the causes, I is the effect.
- D III is the cause, I and II are the effects.
- E All the three are effect of a common cause



71. A statement has been given, followed by three arguments. You need to choose which argument is strong (if any) and supports the statement.

Statement: Should euthanasia be legal?

Arguments:

- 1. No, people can take advantage of euthanasia and commit murder by claiming the person opted for euthanasia.
- 2. No, it is equivalent to making suicide legal.
- 3. Yes, it will allow for people to end their suffering and die in peace.

- A Only 1 is strong.
- B Only 2 is strong.
- C Only 3 is strong.
- D Both 1 and 2 are strong.
- E None of them are strong.

#### Instructions [72]

Given is a statement followed by two arguments numbered I and II. Consider the statement and the arguments and decide which of the arguments is strong.

**72. Statement :** The growing deforestation needs to be checked. Should the government make an independent agency to counteract the problem of deforestation ?

Arguments :

I : Making an independent agency would create a bureaucratic nightmare as the government is already notoriously famous for its bureaucratic fallacies.

II : Instead of making another agency, the government should just ban all forms of deforestation to counteract the problem.

- A Only argument I is strong
- B Only argument II is strong
- C Both I and II are strong
- D Neither I and II are strong
- E Either I or II is strong



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## Quantitative Skills

**73.** A triangular area is formed in fourth quadrant by the inequalities  $ax-by \leq 28$ ,  $x \geq 0$   $y \leq 0$  where a and b are positive integers. What is a if

- A The area of the triangle is 14
- B The number of points with integral coordinates including boundaries is 21

- A Question can be answered by A alone but not B alone
- B Question can be answered by B alone but not A alone
- C Question can be answered with A & B but not with either alone
- D Question cannot be answered with both A & B
- E Each statement alone is sufficient



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**74.** Given that M and N are natural numbers greater than 10 (not necessarily unique), find out if M is a prime number?

Statement 1: N is a prime number and  $N!+1 < M < N!+N$ .

Statement 2: N is a prime number and  $M \times N$  has an odd number of divisors.

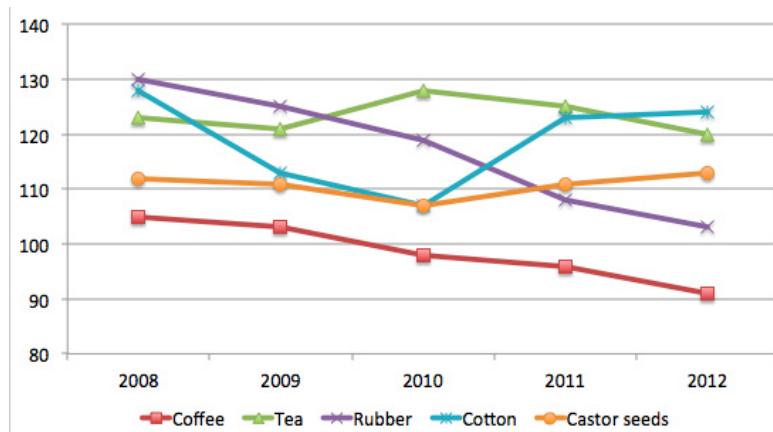
- A The question can be answered using statement 1 alone and not by using statement 2 alone.
- B The question can be answered using either of the statements alone.

- C The question can't be answered by either of the statements alone, but can be answered by using both statements together.
- D The question can't be answered by using both the statements together.
- E The question can be answered using statement 2 alone and not by using statement 1 alone.
- 75.** A, B and C are standing in the clockwise direction at the corners of an equilateral triangle of side 'a'. A and B run clockwise while C runs anti clockwise along the sides of the triangle with speeds of 1:2:3 respectively. How much distance does C run when they meet for the third time?

- A 18a
- B 24a
- C 12a
- D 16a
- E None of these

**Instructions [76 - 79 ]**

The graph shows the price trends of the five commodities grown in India. The price shown is as on the 31st December of that year.



- 76.** The Commodities India Index is an index that tracks the price of an equally weighted basket (i.e. 20% weight to each commodity) of these five commodities. The price of the index is directly proportional to the price of the basket. Assuming that the Index was 100 on 31 Dec 2008, what was its value on 31 Dec 2012?

- A 92
- B 89
- C 95
- D 97
- E 96

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**77.** The return earned by an investor by investing in a commodity is given by return  $r = \text{side} \times ((\text{Price in 2012}) / (\text{Price in 2008}) - 1)$  where side=1 if he buys the commodity and -1 if he sells the commodity. Which of the following options has the highest return?

- A Buy Castor Seeds and Sell Cotton
- B Buy Tea and Sell Rubber
- C Buy Castor Seeds and Sell Rubber
- D Buy Tea and Sell Coffee
- E Buy Castor Seeds and Sell Coffee

**78.** An investor wants to invest in a pair of commodities in such a way that he never loses money in any year. Which pair of commodities if bought would ensure that we do not have a single year with a negative return?

- A Castor seeds and Tea
- B Tea and Rubber
- C Tea and Coffee
- D Rubber and Coffee
- E None of the above

**79.** If the price of a commodity  $p = k/s$ , where  $s$  is the supply and  $k$  is a constant, which commodity had the highest increase in supply over the 5 years?

- A Rubber
- B Coffee
- C Tea
- D Cotton
- E Castor seeds

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**80.** A certain number of people take 40 hours to process a fixed quantity of a substance. The substance is priced at Rs  $x$  per unit which is determined by the labour costs and other costs. After a new technology is developed, the same number of people take 20 hours to process the same amount of the substance. If the cost of technology is negligible, how much would the new price of the processed substance per unit quantity be? Assume that the other costs remain the same.

- A  $> x$
- B  $< x/2$
- C  $x/2$

D  $> x/2$

E  $< x$

**Instructions [81 - 84 ]**

Among 10 F1 racers - A, B, C, D, E, F, G, H, I and J - exactly 5 racers have improved their ranking in 2015, compared to 2014. The below table provides the information about the ranking and total points scored of each of the top 10 rankers in 2015. The blanks spaces are intentional.

Further, D and H lost the same number of positions and F lost the maximum number of positions of 7. The increasing order of improvement in the rankings of those five players who improved their ranking is B, C, E, I and G.

Racer	<u>2015-Rank</u>	<u>2014-Rank</u>	<u>Points in 2015</u>
C	1	3	252
G	2		199
J	3	2	178
E	4		97
A	5	4	92
I	6		91
	7		58
	8		55
	9		38
	10		33

**81.** What is the sum of points scored by the racers in 2015 whose ranks in 2014 were 1, 7 and 10.

- A 243
- B 280
- C 204
- D 260
- E Cannot be determined

**82.** How many points did the racer, who ranked 1st in 2014, score in 2015?

- A 33
- B 38
- C 55
- D 58
- E Cannot be determined

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**83.** What is the sum of points scored in 2015 by the racers B, F and D?

- A 151
- B 146
- C 126
- D 131
- E Cannot be determined

**84.** What was E's rank in 2014?

- A 6
- B 7
- C 8
- D 9
- E 10

**85.** How many three digit numbers exist such that the sum of their digits is greater than the product of their digits?

- A 196
- B 199
- C 200
- D 205
- E 198



**86.** A weighing machine suffers from some fault. Once a person stands on the machine, it shows a weight 20% less than the actual weight of the person. Prabhu used the weighing machine 3 times in the last month to measure his weight. Prabhu observed that his weight has increased by 20% between the first and second weighing and by 6 kg between the second and third weighing (according to the weighing machine). If the percentage increase in Prabhu's weight between the first and second weighing is twice the percentage increase in Prabhu's weight between the third and second weighing, then the weight gained by Prabhu during the entire period is

- A 24 kg
- B 10 kg
- C 16 kg
- D 20 kg

E 12 kg

87. In a school 60% of the students play football, 84% of them play cricket and 72% of them play tennis. What is the minimum percentage of students that play all three sports?

A 22%

B 14%

C 16%

D 58%

E 18%

88. 8 spheres of radii  $r$  are arranged one eight vertices of a cube such that the centres of the spheres are on the vertices of the cube. Another sphere, of radius  $r$  is put such that its centre coincides with the centre of the cube and also the sphere touches all the remaining 8 spheres. Find the approximate percentage volume of cube that does not coincide with any of the 9 spheres.

A 73%

B 27%

C 68%

D 32%

E 48%

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89. If  $0 < X < 10$  and  $0 < Y < 10$ , what is the probability that  $X > Y$  and  $X + Y > 16$ ?

A  $1/10$

B  $8/125$

C  $1/16$

D  $1/25$

E  $5/32$

90. A rice trader selling basmati rice makes a profit on the trade by adulterating the rice with an inferior substitute surti kolam. When he mixes the basmati and kolam in the ratio 3:2 he makes a profit of 33.33%. When he mixes them in the ratio 4:1 he makes a profit of Rs 25 per kg. In what ratio must he mix the two rices to make a profit of 100%? (Assume he sells at the stated price of basmati per kg)

A 1:3

B 2:5

C 1:4

D 1:7

E 3:7

91. How many four letter words can be formed from the letters of the word 'ELEMENTARY'.

A 1960

B 5040

C 1932

D 2352

E 2480

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92. The value of the expression  $\log_a \frac{a^3}{b^2} + \log_b \frac{b^3}{a^2}$ , where  $a, b > 1$  cannot be which of the following?

A 0

B 1

C 2

D 3

E None of these

93. What is the speed of Duranto Express running from Ahmedabad to Mumbai?

Statement 1: Jan Shatabdi, a 100 m train running at 5m/s from Mumbai to Ahmedabad takes 10 seconds to completely cross Duranto

Statement 2: Karnavati Express, 150m train running at 10m/s from Ahmedabad to Mumbai takes 30 seconds to completely cross Duranto

A The question can be answered using statement 1 alone and not by using statement 2 alone.

B The question can be answered using either of the statements alone.

C The question can't be answered by either of the statements alone, but can be answered by using both

D The question can't be answered by using both the statements together.

E The question can be answered using statement 2 alone and not by using statement 1 alone.

94. All the natural numbers less than 'N' were written on a board. When one of the numbers was erased, the average of the remaining numbers was 25.375. Which number was erased?

A 6

B 7

C 8

D 9

E None of these

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95. A water melon weighing 5 Kg was left in the sun. Due to evaporation of water, the % of water content decreased from 99% to 90%. What is weight of the watermelon after water evaporation?

- A 2 Kg
- B 4 Kg
- C 0.5 Kg
- D 4.5 Kg
- E 1 kg

96. A tap X can fill a tank is 3 hours. Another tap Y can empty the tank is 4 hours. Starting with tap X, if the taps are opened alternately for 1 hour each, find the time in which the tank is full.

- A 6 hours
- B 12 hours
- C 24 hours
- D 18 hours
- E 17 hours

97. Is C positive?

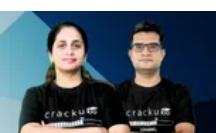
Statement 1: A,B,C,D and E are consecutive terms of an arithmetic progression.

Statement 2: A > |E|

- A The question can be answered using statement 1 alone and not by using statement 2 alone.
- B The question can be answered using either of the statements alone.
- C The question can't be answered by either of the statements alone, but can be answered by using both statements together.
- D The question can't be answered by using both the statements together.
- E The question can be answered using statement 2 alone and not by using statement 1 alone.

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98. The average age of the Indian Cricket team comprising of 11 players is 29 years. K L Rahul, whose current age is 27 years joined the team 2 years ago. Another player, Sachin Tendulkar whose present age is 38 years, retired from the team when KL Rahul joined the team. What was the average age of the team one year prior to Sachin's retirement?

A 27 years

B  $26\frac{5}{11}$

C  $27\frac{6}{11}$

D  $27\frac{5}{11}$

E 28 years

99. Consider the following set of non-negative integers:  $A = \{a, a+6, 2a, b, b+5\}$ . This set has 4 distinct integers. What is the average of all the numbers of this set?

Statement 1:  $a$  is not equal to 5

Statement 2:  $8b + 32 = 4(b + 8)$

A The question can be answered using statement 1 alone and not by using statement 2 alone.

B The question can be answered by using either statement alone

C The question can be answered by using both the statements together

D The question cannot be answered even by using both the statements together

E The question can be answered using statement 2 alone and not by using statement 1 alone.

100. During the month of November, Rama went to a temple every day. She offered 4 flowers to her favorite deity. At the end of the month, she noticed that she didn't offer the same combination of flowers on any two days during the month. What is the minimum number of varieties of flowers offered by Rama during the month?

A 8

B 9

C 7

D 10

E None of these

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101. What is the maximum power of 5 that divides  $626^{300} - 1$ ?

A 3

B 4

C 5

D 6

E 7

**102.** A shopkeeper decreases the price of an article by 20% on day 1. On day 2, he increases the price of the article by 20%. He follows this cycle on days 3 and 4, 5 and 6 and so on. Find the day on which the price of the article goes below 60% of the initial price for the first time.

- A 17th day
- B 18th day
- C 19th day
- D 20th day
- E 21st day

**103.** A bag contains 7 red balls, 8 white balls, and 9 yellow balls. If two balls are drawn from the bag simultaneously then find out the probability that at least one of these two balls is red?

- A  $\frac{34}{69}$
- B  $\frac{35}{69}$
- C  $\frac{10}{23}$
- D  $\frac{13}{23}$
- E  $\frac{32}{69}$



**104.** Amit, Rohan, and Sanjay went to buy some pens, erasers, and rulers. Amit bought some pens and erasers in the ratio 5:3, Rohan bought some rulers and erasers in ratio 3:2 and Sanjay bought some pens and rulers in ratio 3:5. If together they bought more pens than rulers and more rulers than erasers, then what is the minimum number of items bought by the three friends?

- A 29
- B 21
- C 34
- D 26
- E 33

**105.**  $a_1$  and  $a_2$  are the roots of the equation  $px^2 + qx + r = 0$ . Given that p, q and r are positive numbers in a geometric progression, what is the value of  $(\frac{1}{pa_1+q})^2 + (\frac{1}{pa_2+q})^2$ ?

- A  $\frac{-1}{q^2}$
- B  $\frac{-1}{4}$

- C  $\frac{-p}{q^3}$
- D  $\frac{-1}{q^3}$
- E None of these

106. The ratio of earnings of Ajay and Alay is 2:5. Ajay gets an increment of Rs. 2 lakhs and Alay gets an increment of Rs. 4 lakhs. Which of the following cannot be the new ratio of their earnings?

- A 15:34
- B 10:23
- C 3:7
- D 4:9
- E 5:13



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107. A test has 5 questions. Each question has 5 options. Each correct response is awarded 5 marks whereas a mark is deducted for an incorrect response. 5 friends take a test and each one of them marks a different response for each of the five questions. Also, it is known that no 2 friends mark the same response for a question. Which of the following options is definitely true?

- A The total marks scored by no 2 friends is the same.
- B The difference between the highest and lowest scores is 30 marks.
- C At least one person scored 0 mark.
- D The sum of marks scored by the 5 friends is a constant.
- E More than one of the above

108. A nine digit number N is formed using the digits 0 to 9 atmost once. The probability that N is divisible by 45 is

- A 5/216
- B 19/648
- C 7/216
- D 23/648
- E 17/648

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# Answers

## Language Skills

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

## Logical Reasoning

37.E	38.E	39.C	40.C	41.E	42.B	43.D	44.A
45.D	46.C	47.C	48.A	49.E	50.E	51.C	52.A
53.A	54.A	55.D	56.C	57.D	58.B	59.A	60.C
61.E	62.C	63.D	64.E	65.B	66.A	67.D	68.E
69.E	70.D	71.C	72.D				

## Quantitative Skills

73.D	74.A	75.B	76.A	77.C	78.E	79.A	80.D
81.A	82.C	83.E	84.B	85.B	86.D	87.C	88.D
89.D	90.C	91.A	92.D	93.C	94.B	95.C	96.E
97.C	98.A	99.C	100.C	101.D	102.A	103.B	104.C
105.A	106.E	107.D	108.D				

# Explanations

## Language Skills

### 1. A

The correct meaning of the given phrase is 'to praise someone excessively in order to get some favor from them'. So, option (a) is correct.

### 2. B

Poignant means "evoking a keen sense of sadness or regret". Option (b) has the same meaning as this. Hence, that's the correct answer.

### 3. B

Limpid means something which is clear and unambiguous. The nearest opposite among the given options is 'Obscure' which is unclear or complicated. Hence, option B is correct.

### 4. C

A bear growls. Similarly a donkey brays. These are the sounds made by these animals. Hence Option C.

### 5. A

The author describes the strategies in search engine marketing. So, he is not talking about only advantages. Hence, option B is wrong.

Option C is wrong because the author only talks about search engine marketing and not starting a business.

Option D is wrong because the author does not give his opinion on search engine marketing.

Option E is totally irrelevant.

Option A fits to be a proper title.



### 6. D

In the passage, the author describes different strategies that can be used to develop a business.

He is not too concerned about ethical strategies.

Hence, option D is the answer as it satisfies both the above statements.

### 7. C

The author says that "While choosing your marketing strategy, keep in mind the choice and preference of your target audience."

So, he believes that preferences of audience are important for a marketing strategy to work successfully.

Hence, option C is the answer.

### 8. B

The author says that "In this Internet age, to be successful in any business it is vital to have a web presence."

So, according to him, it is important to have a web presence for the success of a business.

Hence, option B is wrong and is hence the answer.

### 9. B

Relying and alternative best fit the meaning of the sentence as a whole. The answer is option B.

### 10. A

Statement D must be the start of the paragraph as it introduces us to Kant. We see a link between the statements A-E-B where A talks of the results of his method, E casts a doubt on the validity of those results and B states that nonetheless his theory deserves credit. These must be at the end of the paragraph. Hence the order is DCAEB.

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### 11. E

On reading the sentences preceding and succeeding the blank, we understand that the blank should express the psychological state of the refugee. All the options except E, paint a general picture of the refugees. Hence, option E which mentions the state of a refugee, is the correct answer.

### 12. B

The whole paragraph discusses how appreciating currencies leads to the reduction in inflation. Option B captures this main point, thus B is the right choice. No other option links the effect of appreciation of money to inflation.

### 13. D

The subject in the second half of the sentence is "the Olympics in Rio de Janeiro". Comparison using "like" should be between similar elements. Thus, we can compare the olympics to events in London and Sochi, not the cities, overspending or the ambiguous "that". Hence, the correct option is option D.

### 14. D

Since it is 'savings' and not 'saving', the sentence should be 'to which savings from personal income have shifted' and not 'to which savings from personal income has shifted'. The correct option is d).

### 15. E

Whenever the word "proclaim" is used, it must be followed by "that". Hence, options A and C can be eliminated.

As "proclaim" is in simple present, it is better to have "save" in simple present as well.

So, option E is the correct answer.

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### 16. C

The word fringe has two meanings - the extreme part of a group and the edge of an object. Hence, option C is the only option that fits both blanks.

### 17. B

Dog barks so we have to look for the option which depicts the sound made by Horse. Horse neighs, hence option B is correct.

### 18. C

From the first sentence of the first paragraph we can see that pro-Chinese history of China dominates anti-Chinese history. Thus, statement I is wrong.

In the first paragraph the author says, "A thousand years ago China's civilization towered over those of the peoples of Europe." Thus, statement II is correct.

From the first two lines of the second paragraph we can see that dependence of Chinese documents to unearth Chinese history has been reduced over the years. Thus, statement III is incorrect.

### 19. C

In the second paragraph the author says, "Ethnological, anthropological, and sociological research has begun for China and her neighbors; thus we are in a position to write with some confidence about the making of China, and about her ethnical development, where formerly we could only grope in the dark." From this we can conclude that due to the increased researches and excavations the author believes the reliability of the sources has increased. Thus, C is the right choice.

### 20. A

In the third paragraph the author says, "The reports on the emperors and ministers of the earliest period are not historical at all, but served as examples of ideas of social policy or as glorifications of particular noble families." Thus, we can say the main use of Chinese history was to show different methods of social policy and to glorify the upper strata of society. Thus, option A is the right choice.



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**21. E**

In the second paragraph the author uses the example of western immigrants to prove the point that the theory, Chinese civilization originated from the Chinese race is just as false as the case with western immigrants spreading civilization to the East. Thus, the author believes contrary to the statement given in the question.

**22. C**

'Efficacious' and 'unavailing' are antonyms.

Hence, option C is the correct answer.

**23. D**

**Eugenics** deals with self-selecting genetic characteristics, such as hair or eye color. Other options given mention how genes are passed on naturally. Only acquired implies about things that are not passed on.

**24. B**

Here 'called off' fits the best.

Called off means to cancel something.

**25. A**

Sentence B states a fact and sentence D provides the effect of this. Thus, sentence BD forms a pair. The only option which has the pair BD is option A. Thus, A is the right choice.



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**26. D**

A claim should be supported by relevant evidence. The phrasal verb that is closest in meaning to this is "backed up".

**27. D**

Sentence C raises the main theme discussed in the passage i.e. whether recognition is a single one-step procedure or a serial step-by-step one. The rest of the sentence A, B and D tries to answer this question. Thus, C should precede A, B and D. Only option D has sentence C in the first position and thus, option D is the right choice.

**28. D**

The central theme of the paragraph is the use of different methods of capital punishment in different countries and the effect of capital punishment in reducing crime(as seen from the last sentence 'it can never truly be said that enforcing capital punishment has ever served as a deterrent.')

Only option D covers both the main themes. Thus, D is the right answer.

**29. B**

The answer is 'of'. Whenever the word 'avail' is used, the preposition to be used with it is 'of'.

**30. A**

The correct grammatical usage is 'My friend and I are going on a vacation next week'. Option a) is the correct answer. When the subject is two people, X and the speaker, it should always be referred to as 'X and I'.



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**31.D**

In the second sentence of the first paragraph, it is given that environment is a delicate equilibrium between every ingredient in our surrounding. Option D is the restatement of the same and is thus the right choice.

**32.A**

The third paragraph talks about ways to reduce the harmful effects on the environment and in the second sentence of the third paragraph, it is given that alternative green sources is a good replacement for non-renewable resources. Since, non-renewable resources are suggested as a replacement to conserve the environment we can infer that they are harmful to the environment. Thus, statement I is an inference from the passage.

In the second paragraph, it is given that unchecked release pollutants causes greenhouse effect leading to the depletion of ozone layer. In statement II, it is given that greenhouse effect leads to the formation of ozone layer which is contrary to what is said in the passage. Thus, statement II is incorrect.

Statement III is directly given in the second sentence of the first paragraph, thus statement III is not an inference.

Since, only statement I is true, option A is the right choice.

**33.B**

The article given does not provide an in depth analysis of environmental issues and its remedies. It just gives us a basic outline of environmental problems without delving into the details. Thus, it cannot be part of a report or research journal. Thus, options A, D and E are eliminated.

The passage is not definitely from a high school science text book because the passage does not explain the underlying scientific principles of the causes of environmental degradation. Thus, C is also incorrect.

A blog article is a probable source of the passage as the passage contains the opinions of the author expressed without any technical jargon. Also the passage contains a proper introduction and conclusion thus making it a standalone blog article. Thus, B is the right choice.

**34.D**

In the third paragraph, establishment of natural reserves is given as a step organizations would take to help conserve the environment. Thus, statement I is true as per the passage.

GEF is an organization which only supports projects related to environment change and drug abuse is not an environment change related problem. Thus, statement II is incorrect.

Statement III can be observed from the fourth sentence of the second paragraph. Thus, statement III is incorrect.

Thus, statement I and III are correct, therefore D is the right choice.

**35.A**

The "process" described in sentence C refers to the sea-flooring hypothesis mentioned in sentence D. Thus, sentence DC form a pair. Only options A and B has sentence DC as a pair. Sentence C does not make sense as the preceding sentence of sentence 6. Thus, option B also can be eliminated. Thus, the correct choice is option A.

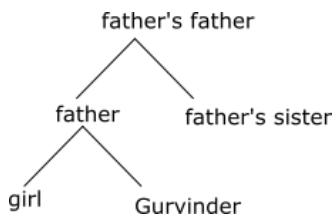


**36.C**

Could is always followed by the present tense of the word. Here could should be followed by "shrink". Hence (c) is the correct choice.

Logical Reasoning

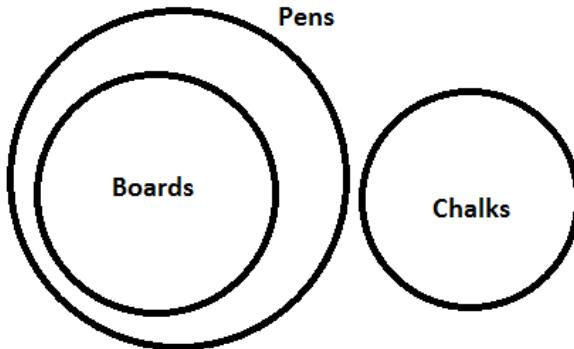
**37.E**



Since we do not know the gender of Gurvinder, we cannot determine how he/she is related to the girl.

**38. E**

The following Venn diagram can be drawn using the given statements.



Since there is no direct relationship between Chalks and Pens, No Chalk being Pen is possible.

Some Pens are Boards is true from the above Venn diagram.

Hence, Both the conclusions follow.

**39. C**

There are 29 people above Akash and 15 people between Akash and Pruthvi. So, there are 45 people above Pruthvi (including Akash). There are 70 people in the line. So, number of people below Pruthvi =  $70 - 45 - 1$  (1 is Pruthvi) = 24. So, Pruthvi's position is 25th from the bottom.

**40. C**

$$\text{First term} = 5 * 1 + 2 = 7$$

$$\text{Second term} = 7 * 2 + 4 = 18$$

$$\text{Fourth term} = 60 * 4 + 8 = 248$$

$$\text{Fifth term} = 248 * 5 + 10 = 1250$$

$$\text{Sixth term} = 1250 * 6 + 12 = 7512$$

We observe that each term of the series is given by multiplying the previous term by natural number in increasing order and starting from 1 and adding even numbers in increasing order starting from 2.

$$\text{So, Third term} = 18 * 3 + 6 = 60$$

Hence, option C is the correct answer.

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**41. E**

'Full' and 'wolf' are used only once and so are the codes 'hem' and 'bru'. Thus, 'full' is 'hem' and 'wolf' is 'bru'. 'Of' is the only word common in sentences 1, 2, and 5 and so is the code 'ri'. Thus, 'of' is 'ri'. In sentence 1 and 5, 'of' and 'the' is common. Since we have found of the code for 'of' as 'ri', 'the' must be the other common code i.e. 'emi'.

Similarly, in sentence 1 and 2, 'night' and 'of' are common. So, 'night' must be 'pit'. Thus, 'silence' must be 'dre'.

Similarly, only code left for 'terror' is 'han'.

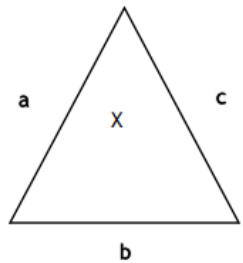
'Don't' and 'silence' are common in 3 and 4. But 'silence' is 'dre'. So, 'don't' must be 'bull'.

In sentence 4 and 5, 'scream' is common and so is the code 'no'. Thus, 'scream' must be 'no'. This leaves 'in' as 'na'.

silence	dre
of	ri
the	emi
night	pit
full	nem
terror	han
don't	bull
scream	no
in	na
wolf	bru

We can see that the codes for all 10 words can be uniquely determined.

42. **B**



For the above sample figure,

$$X = (b + c)^2 - a$$

This can be validated from the figures in the question.

For fig (i),

$$(2 + 3)^2 - 12 = 13$$

For fig (ii),

$$(7 + 2)^2 - 32 = 49$$

Let the value of the unknown digit be Y.

$$\text{Thus, } 346 = (15 + Y)^2 - 330$$

$$(15 + Y)^2 = 346 + 330 = 676$$

$$15 + Y = 26$$

$$Y = 11$$

Thus, the correct option is B.

43. **D**

In the given figure, the relation is as follows.

$$\text{In column 1: } (4 + 3)(4)(3) = 84$$

$$\text{In column 2: } (1 + 5)(1)(5) = 30$$

$$\text{In column 3: } (3 + x)(3x) = 54$$

$x = 3$

Hence, the answer is option D.

**44.A**

$$27 = (4^2 + 8^2) - (7^2 + 2^2) = 80 - 53$$

$$38 = (9^2 + 3^2) - (4^2 + 6^2) = 90 - 52$$

$$? = (9^2 + 6^2) - (5^2 + 7^2) = 117 - 74 = 43$$

**Explanation [45 - 48]:**

The largest number is taken in each step. If it is odd, then it is decreased by 1 and if it is even, then it is increased by 1. The obtained number is placed at first position in the first step, second position in the second step and so on.

The letter cluster which appears first in the dictionary is taken and the letters are replaced by their next letter and placed at the last position in the first step, second last position in the second step and so on.

Input: rh 46 73 ck tc 95 qh 28

Step I: 94 rh 46 73 tc qh 28 dl

Step II: 94 72 rh 46 tc 28 ri dl

Step III: 94 72 47 tc 28 si ri di

Step IV: 94 72 47 29 ud si ri di

**45.D**

Four elements are there between '72' and 'ri' in Step III for the given input.



**46.C**

47 is second to the left of 28 in Step III.

**47.C**

Four elements are to the left of 'tc' in Step II.

**48.A**

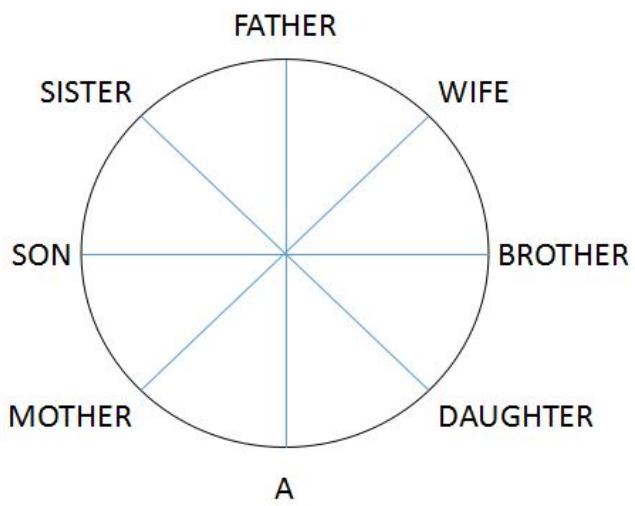
'47' is third from the left end in Step IV for the given input.

**Explanation [49 - 52]:**

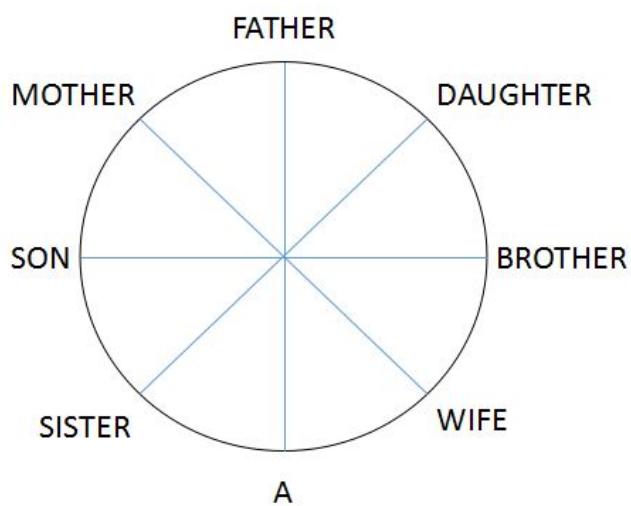
We can make the following inferences from the question provided.

Two members belonging to the same gender do not sit together. Hence, a male member will be sitting opposite to a male member and the same holds true for female members as well.

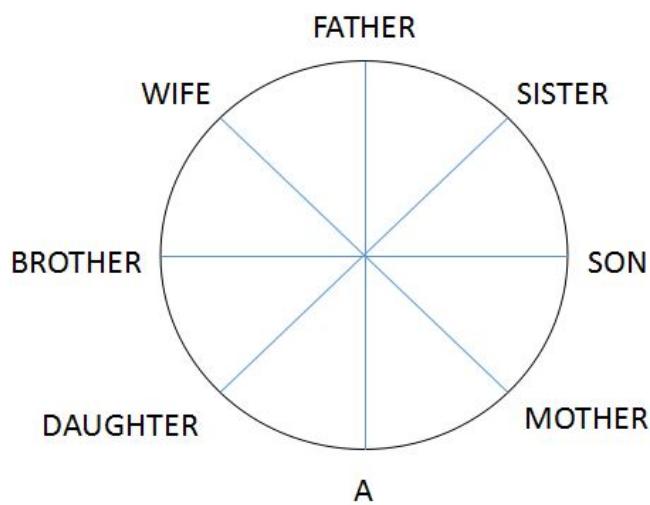
A is sitting opposite to his father. Hence, his brother must be sitting opposite to A's son. A's mother and wife sit opposite to each other. But, A's mother (same as A's brother's mother) does not sit next to A's brother. Hence, a total of 4 different arrangements are possible (Considering clockwise and anticlockwise arrangements to be different).



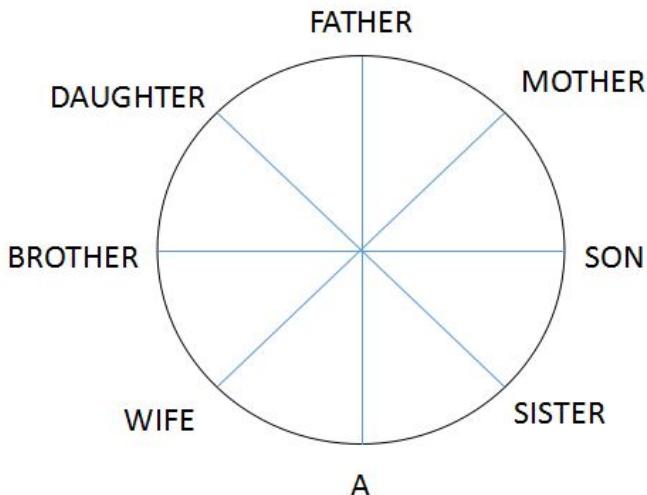
A



A



A



49. E

53. A

Position of Raman from the front = 33rd

Position of Raja from the front =  $(69 - 41 + 1) = 29\text{th}$

There are two people between Raman and Rohit.

So, position of Rohit =  $(29 + 2 + 1) = 32\text{nd}$

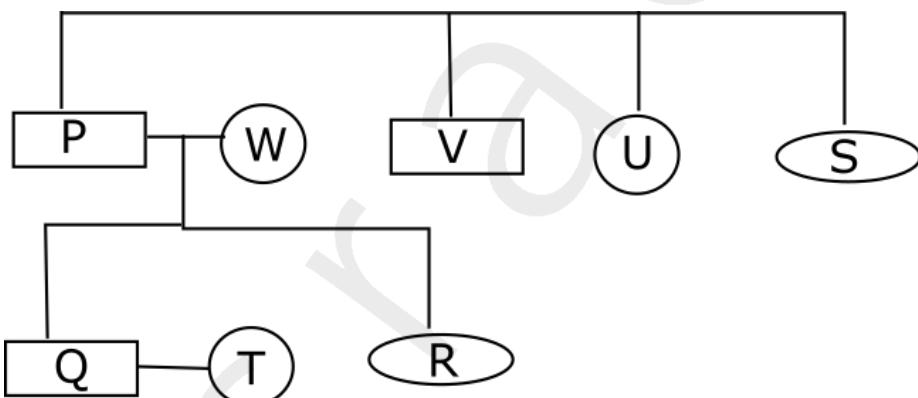
Number of people between Raman and Rohit =  $(33 - 32 - 1) = 0$

Hence, option A is the correct answer.



54. A

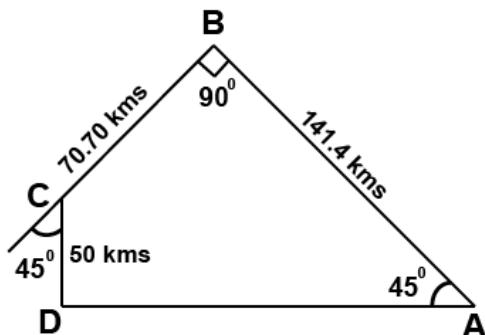
We have been given that the family is spread across only two generations. U is R's aunt. There U must be from the first generation and R must be from the second generation. V and S are unmarried and both of them are from the first generation. Q is P's son. So Q must be from the second generation and P from first generation. T is daughter in law of W. Hence T must be from the second generation. Thus, there is one married couple in the first generation and 1 in second. Hence, we have the final family tree which is as follows. Rectangle implies males, circle implies females and ellipse implies people whose gender cannot be determined.



Hence Q is S's nephew.

55. D

The diagram below shows the movement of the plane from take-off to landing.



Note: 270 degrees clockwise = 360 - 270 degrees anticlockwise = 90 degrees anticlockwise.

315 degrees clockwise = 360 - 315 degrees anti-clockwise = 45 degrees anticlockwise.

So, the plane finally faces South.

**56.C**

Draw the figure based on the given four statements.

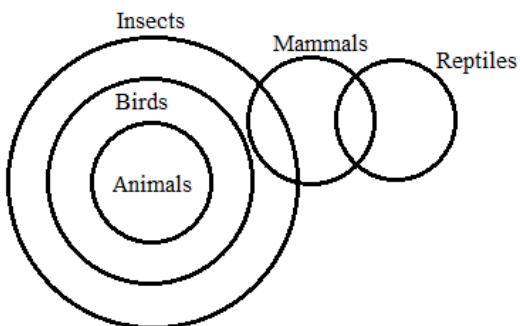
Consider those statements first that have the least number of possibilities.

All animals are birds => The set of animals is a subset of the set of birds => The circle representing the set of animals must be totally inside the circle representing the set of birds.

All birds are insects => The set of birds is a subset of the set of insects => The circle representing the set of birds must be totally inside the circle representing the set of insects. Hence, both the sets of animals and the birds are subsets of the set of insects.

Some insects are mammals => The set of mammals intersects the set of insects but not the subsets of insects, such as the sets animals and birds, as such a condition is not mentioned in any of the statements.

Some mammals are reptiles => The set of reptiles intersects the set of mammals and it may or may not intersect the remaining sets.



We know that the set of birds and the set of animals are subsets of the set of insects. So, we can say that at least some birds and some animals are insects => Conclusion 1 and 3 are true.

From the figure, we can see that there is a possibility that no animal is a reptile. As conclusion 2 is not always true, we can say that conclusion 2 is not true.

There is no relation between the set of reptiles and the set of birds. Hence, they may or may not have an intersection. So, we cannot make conclusion 4.

=> Only conclusions 1 and 3 are true.

=> Option C is the answer.

**57.D**

Draw the figure based on the given four statements.

Consider those statements first that have the least number of possibilities.

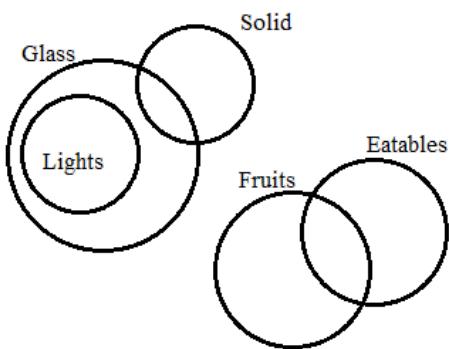
All lights are glass => The set of lights is a subset of the set of glass => The circle representing the set of lights must be totally inside the circle representing the set of glass.

Some glass are solid => The set of glass intersects only the set of solids and not its subsets, such as the set of lights, because no such statement has been given.

No solid is fruit => The circle representing fruits can be drawn anywhere such that it does not intersect the circle representing solids.

Some fruits are eatables => The circle representing eatables must intersect the circle representing the fruits. It may or may not intersect other sets.

Many figures are possible with the given 4 statements. The below venn-diagram is just one such possibility.



The set of glass may or may not intersect the set of eatables => Conclusions 1 and 3 cannot be made.

But we know that conclusions 1 and 3 are exhaustive. So, at least one of them must be true => Either conclusion 1 or conclusion 3 is true.

Similarly, the set of fruits may or many not intersect the set of lights => Conclusion 2 cannot be made.

The set of solids may not intersect the set of lights according to the figure. Hence, conclusion 4 cannot be made.

=> Either conclusion 1 or conclusion 3 is true.

#### 58. B

Draw the figure based on the given four statements.

Consider those statements first that have the least number of possibilities.

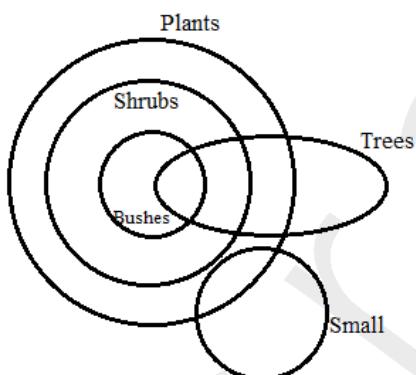
All bushes are shrubs => The set of bushes is a subset of the set of shrubs => The circle representing the set of bushes must be totally inside the circle representing the set of shrubs.

All shrubs are plants => The set of shrubs is a subset of the set of plants => The circle representing the set of shrubs must be totally inside the circle representing the set of plants.

Some trees are bushes => For the set of trees to intersect the set of bushes in the figure, they need to intersect the sets of Shrubs and Plants as well.

Some plants are small => The set of small intersects only the set of plants and not its subsets because no such statement has been given.

The below figure satisfies all the four statements.



From the figure, we can see that the set of small and the set of bushes do not intersect => No small being a bush is a possibility. Hence, conclusion 1 is not true.

The set of trees and the set of plants interset in the figure => At least some trees are plants => Conclusion 2 is true.

Some plants are small. It is possible that those plants which are bush are also small. Hence, there is a possibility that some small are bush. Hence, conclusion 3 is not true.

But, the conclusions 1 and 3 are exhaustive. So, at least one of them must be true => Either statement 1 or statement 3 is true.

From the figure, we can see that the set of bushes is a subset of the set of plants. Hence at least few bushes are plants => Conclusion 4 is true.

Hence, either statement 1 or statement 3, statement 2 and statement 4 are true.



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59. A

The change should not be that radical that half of the warehouses are reserved to store finished textile products. Hence 2 is rejected.

The steps followed by a successful company 10 years ago might have become obsolete by now. Moreover, their success could be attributed to factors other than these steps. Hence 3 is rejected.

The best plan of action is to analyse each parameter before moving in the market. Hence, 1 follows.

60. C

The statement talks about the increase in government revenues. This is only possible in two ways. Either by increasing the number of people who pay taxes or by increase the tax which current tax payers pay. Hence, one of the given two conclusions must be true. Thus, option C is the correct answer.

61. E

None of the conclusions follow from the given statement. The statement talks about RBI governor saying that he was not consulted. We cannot infer anything about his motives or what suggestions he would have given. Hence, I can be ruled out. II is beyond the scope of the given statement. Hence, none of the conclusions follow from the given statement.

62. C

All the options except option C can be inferred from the paragraph. Though it is mentioned that "Gender diversification cannot be conflated with merely appointing women to company boards.", it does not imply that the government has made it mandatory to appoint women directors to the board.

Hence, option C is the correct answer.

63. D

According to the author English, all English Puritans supported a freer government. Thus I can be inferred. The passage states the two types of English Puritans when it came to religious matter; we cannot say that all of the English puritans were liberals.

The passage highlights that all English Puritans were on the same side when it came to state matters but the views differed for religious matters. Thus, III can be inferred.

Thus, option D is the correct choice.



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64. E

Option e would strengthen the argument because it mentions saving resources as a possible outcome of not conducting separate recruitment exams.

65. B

The author cites an study and then concludes that the use of ayurvedic medicines improves the immunity of the body against the common diseases. We have to look for an option which strengthens this conclusion. Option C is completely unrelated to the discussion and hence can be ruled out easily. Option D is weakens the conclusion instead of strengthening it. Option E is again irrelevant and does not strengthen the conclusion. Both option A and B validates the conclusion. However option B strengthens the conclusion more because it mentions that the immunity levels before the experiment were same. Hence, option B is the correct answer.

66.A

The main point of the passage is that the author had a negative opinion of Thackeray which was corrected after meeting the man. The author thought that Thackeray was genial person after the meeting.

If statement A is true then it would mean that Thackeray was unpredictable by nature and hence as one cannot judge a capricious person by one meeting as the author does in this case, A would weaken the author's assertion the most.

67.D

The main conclusion of the paragraph is that there will be a 5% jump in Yahoo's share price. The implicit assumption is that the information about the IPO has not already been factored in by the market. Statement D rebuts this assumption and hence we can no longer reach the conclusion. Hence, option D.

68.E

The principal argues that it is because of their mental health that these students could not perform better in the tests. So, he is assuming that all other factors that can affect the test scores of a student are same as before. Thus, he is assuming E, which says that the time devoted to academics in both the cases is same.

So, E is the correct answer.



69.E

If tooth decay is not an issue among the viewers, then the direction given in the advertisement wouldn't make sense. 2- If a fluoride toothpaste is not easily available then the advertisement doesn't make sense.

70.D

The cause is the excessive rainfall. It caused opening of dams and submerging of many villages. Hence, III is the cause and, I and II are the effects.

Thus, option D is the correct choice.

71.C

Euthanasia is the practice of intentionally ending a life to relieve pain and suffering. Argument 1 states a loophole through which euthanasia can be misused, however in this case-the loophole must be closed and not the concept of euthanasia. Laws must be made fool-proof so as to not misuse them. Argument 2 does not state why suicide should not be made legal, also it fails to differentiate between euthanasia (which is only for the extremely sick who cannot be cured) and suicide (which anyone can commit). Argument 3 explains the reason behind euthanasia and hence is valid.

72.D

Argument I is weak as the government needs to take some action against a growing issue that is affecting everyone. Argument II is weak as some deforestation is necessary to fuel industries on which the economy works. Thus, both the arguments are weak.

## Quantitative Skills

73.D

The coordinates of the vertices are  $(0,0)$ ,  $(28/a,0)$ ,  $(0,-28/b)$ .

Hence area of the triangle is  $\frac{1}{2} * \frac{28}{a} * \frac{28}{b} = 14 \Rightarrow ab=28$ .

Hence A cannot be used alone to find the answer.

The number of points with integral coordinates would be symmetric for a and b. Hence as both equations are symmetric, we cannot uniquely find a even if we find a pair of possible a and b. Hence D



74.A

Using Statement 1 alone we can conclude that M is not a prime number. Because all the numbers between  $(N!+1)$  and  $(N!+N)$  will have atleast one common divisor with  $N!$

Using Statement 2 alone, we can conclude that  $M^2 * N$  is a perfect square. So, M is of the form,  $k^2 * N$  for some natural number k.

M will be a prime if k=1 and not a prime otherwise.

Hence, we can't conclude whether M is a prime number or not by using Statement 2 alone.

#### 75. B

All the three always meet at the position where C is initially standing. In the time taken by A to cover one side, C covers the three sides and reaches its starting position. The first time A and C meet, A, B and C traverse 2a, 4a and 6a respectively. From the second time onwards, A, B and C traverse 3a, 6a and 9a respectively before meeting again. So, total distance run by C by the time they meet for the third time is  $6a + 9a + 9a = 24a$

#### 76. A

The sum of the commodities in 2008 is 598 and in 2012 is 551. Hence the index =  $100 * (551/598) \sim 100 * 552/600 = 552/6 = 92$

#### 77. C

Rubber loses 20% over the five years, the most among the five commodities. Castor seeds is the only commodity to have a positive return. Hence, Buy Castor seeds and sell rubber.

#### 78. E

There is no pair that can be bought so that there is not a single year with negative return. In 2009, all commodities fall wrt 2008. Hence no combination of buying two commodities can give non-negative return



#### 79. A

As price and supply are inversely proportional, an increase in supply must be offset by decrease in price. Hence, to have the highest increase in supply, the commodity must have the largest decline in price. Since rubber had the highest decline in price, it must have had the highest increase in supply

#### 80. D

Assuming the quantity as y, the labour cost as L and the other cost as m.

$$\text{So, } \frac{L+m}{y} = x$$

Now,  $\Rightarrow a+b = x$ , (Assuming  $L/y=a$  and  $m/y=b$ )

Since y and m remain the same. Only L is reduced to half.

$$\text{Then, } \frac{a}{2} + b = \frac{a+b}{2} + \frac{b}{2} = \frac{x}{2} + \frac{b}{2} > \frac{x}{2}$$

Hence, D is the answer.

#### Explanation [81 - 84]:

According to the question, F lost the maximum number of ranks i.e 7. Now, it can only happen when he has 1, 2, or 3 rank in 2014. But, 2, and 3 are already mentioned. Thus, F must have rank 1 in 2014 and 8 in 2015. Now, C has a rank improvement of 2. This means E can have minimum rank improvement of 3 and I 4. As it turns out, I's 2015 rank is 6. So he has to have rank 10 in 2014 which translates to minimum improvement that he can have. This also means E has a rank improvement of 3. Thus, E is 7 in 2014. Now, B has a rank improvement of 1. So, he can't be rank 10 in 2015. Also, he can't be rank 9 since rank 10 of 2014 is already allotted. Thus, B has rank 7 in 2015 and rank 8 in 2014. Similarly, all other places can be allotted except for D and H which can't be uniquely determined.

#### 81. A

	<b>2015</b>	<b>2014</b>	<b>Points</b>
C	<b>1</b>	<b>3</b>	<b>252</b>
G	<b>2</b>	<b>9</b>	<b>199</b>
J	<b>3</b>	<b>2</b>	<b>178</b>
E	<b>4</b>	<b>7</b>	<b>97</b>
A	<b>5</b>	<b>4</b>	<b>92</b>
I	<b>6</b>	<b>10</b>	<b>91</b>
B	<b>7</b>	<b>8</b>	<b>58</b>
F	<b>8</b>	<b>1</b>	<b>55</b>
D/H	<b>9</b>	<b>5</b>	<b>38</b>
H/D	<b>10</b>	<b>6</b>	<b>33</b>

According to the table, the racers who were ranked 1, 7 and 10 in 2014 scored 55, 97 and 91 points in 2015.  
=> Sum = 243 points.

82.C

	<b>2015</b>	<b>2014</b>	<b>Points</b>
C	<b>1</b>	<b>3</b>	<b>252</b>
G	<b>2</b>	<b>9</b>	<b>199</b>
J	<b>3</b>	<b>2</b>	<b>178</b>
E	<b>4</b>	<b>7</b>	<b>97</b>
A	<b>5</b>	<b>4</b>	<b>92</b>
I	<b>6</b>	<b>10</b>	<b>91</b>
B	<b>7</b>	<b>8</b>	<b>58</b>
F	<b>8</b>	<b>1</b>	<b>55</b>
D/H	<b>9</b>	<b>5</b>	<b>38</b>
H/D	<b>10</b>	<b>6</b>	<b>33</b>

According to the table, the racer who ranked 1st in 2014 was F, and he scored 55 points in 2015.

83.E

	<b>2015</b>	<b>2014</b>	<b>Points</b>
C	<b>1</b>	<b>3</b>	<b>252</b>
G	<b>2</b>	<b>9</b>	<b>199</b>
J	<b>3</b>	<b>2</b>	<b>178</b>
E	<b>4</b>	<b>7</b>	<b>97</b>
A	<b>5</b>	<b>4</b>	<b>92</b>
I	<b>6</b>	<b>10</b>	<b>91</b>
B	<b>7</b>	<b>8</b>	<b>58</b>
F	<b>8</b>	<b>1</b>	<b>55</b>
D/H	<b>9</b>	<b>5</b>	<b>38</b>
H/D	<b>10</b>	<b>6</b>	<b>33</b>

According to the table, D could have scored either 38 points or 33 points.  
Therefore the sum cannot be exactly determined.



84.B

	<b>2015</b>	<b>2014</b>	<b>Points</b>
C	<b>1</b>	<b>3</b>	<b>252</b>
G	<b>2</b>	<b>9</b>	<b>199</b>
J	<b>3</b>	<b>2</b>	<b>178</b>
E	<b>4</b>	<b>7</b>	<b>97</b>
A	<b>5</b>	<b>4</b>	<b>92</b>
I	<b>6</b>	<b>10</b>	<b>91</b>
B	<b>7</b>	<b>8</b>	<b>58</b>
F	<b>8</b>	<b>1</b>	<b>55</b>
D/H	<b>9</b>	<b>5</b>	<b>38</b>
H/D	<b>10</b>	<b>6</b>	<b>33</b>

85.B

3 digit numbers with atleast one 0 is  $900 - 9 \times 9 \times 9 = 171$ . 3 digit numbers with no zero and two ones is  $3 \times 1 \times 1 \times 8 = 24$  (the two 1s can be placed in three ways and the other digit should not be 0 or 1). 3 digit numbers with all three digits as 1 is 1. 3 digit numbers with two 2s and one 1 is 3. Total is  $171 + 24 + 1 + 3 = 199$ .

#### 86.D

Since the machine is faulty, all the readings shown by the machine will be less by 20%. Therefore, the percentage change in the actual weight will be the same as the percentage change in the weights shown by the machine.

Prabhu's weight increased by 20% between the first and second weighing. It has been given that the percentage increase in Prabhu's weighing between the first and second weighing was twice the percentage increase between the second and third weighing.

Therefore, percentage increase in Prabhu's weight after the second weighing = 10%

Let Prabhu's weight at the time of second weighing be  $x$  kg (According to the machine).

$$10\% \text{ of } x = 6 \text{ Kg}$$

$$\Rightarrow x = 60 \text{ kg}$$

Let Prabhu's weight at the time of first weighing (according to the machine) be  $y$ .

$$1.2y = 60 \text{ kg}$$

$$\Rightarrow y = 50 \text{ kg.}$$

Prabhu's weight has increased from 50 kg to 60 kg according to the machine. The increase in weight according to the machine is 10 kg.

$$\Rightarrow \text{The actual increase in weight} = 10/0.8 = 12.5 \text{ kg.}$$

Therefore, option D is the right answer.

#### 87.C

Assuming A is the number of students who play exactly 1 game, B is the number of students who play exactly 2 games and C is the number of students who play exactly 3 games.

$$A+B+C = 100;$$

$$A+2B+3C = 60+84+72 = 216.$$

$$3 \times \text{first equation} - \text{second equation} \Rightarrow 2A+B = 84.$$

$$\text{IF } A=0, B=84.$$

$$\text{Therefore, min. of } C = 16\%.$$

#### Alternate explanation:

Assuming A is the number of students who play exactly 1 game, B is the number of students who play exactly 2 games and C is the number of students who play exactly 3 games.

$$A+B+C = 100$$

$$A+2B+3C = 60+84+72 = 216$$

$$\text{Second Equation} - 2 \times \text{First Equation} = C-A = 16$$

$$\Rightarrow C = A+16, \text{ the minimum value of } A \text{ can be 0. Hence the minimum value of } C \text{ will be 16.}$$

#### 88.D

All the spheres are of equal radii  $r$ .

If the side of the cube is  $s$ , then  $r + 2r + r = s\sqrt{3}$

$$\Rightarrow s = \frac{4r}{\sqrt{3}}$$

$$\text{Number of spheres inside the cube} = 8 * \frac{1}{8} + 1 = 2$$

$$\Rightarrow \text{Total volume of spheres} = 2 * \frac{4}{3}\pi r^3 = \frac{8\pi r^3}{3}$$

$$\text{Total volume of cube} = \frac{64r^3}{3\sqrt{3}}$$

$$\text{Percentage of volume common to spheres are cube} = \frac{\frac{8\pi r^3}{3}}{\frac{64r^3}{3\sqrt{3}}} = \frac{\sqrt{3}\pi}{8} = 0.68$$

=> percentage volume outside = 0.32



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89. D

The total possible area is the square with sides (0,0); (0,10); (10,0) and (10,10). The required area is the area of the square which is surrounded by the lines  $X>Y$  and  $X+Y>16$ . So, probability is  $(1/2)*4*4/10*10 = 1/25$

90. C

Let the price of basmati and kolam be  $x$  and  $y$  respectively. Assuming that the quantity is 5 kg, the shopkeeper will mix 3 kg of basmati with 2 kg of surti kolam. So, the selling price will be  $5x$  since he sells all quantity as basmati. But the actual cost price is less which is equal to 3kg of basmati and 2kg of surti kolam =  $3x+2y$ . Profit =  $5x - (3x+2y) = 2x-2y$  Hence, profit % =  $33.33\% = (2x-2y)/(3x+2y) \Rightarrow x=8y/3$ .

From, mixture 2, profit per kg = Rs 25. Hence profit for 5kg =  $25*5 = (5x-4x-y)=x-y$ . Hence  $x=200$  and  $y=75$ .

Let's assume for 100% profit, he is mixing them in the ratio of k:1.

In 100% profit case, the selling price will be double of the cost price.

$$S.P = 200(k+1) \text{ and } C.P = (200 \times k) + (75 \times 1)$$

$$\Rightarrow 200k+200 = 2 \times [200k + 75]$$

$$\Rightarrow k=1/4$$

So the ratio is 1:4

91. A

In the word ELEMENTARY, the word E is repeated thrice and the other letters are distinct. There are three types of four letter words that can be formed (WXYZ - all distinct letters, WWXY - Two Es and WWWX -Three Es). WXYZ can be formed in  ${}^8P_4$  ways. WWXY can be formed in  ${}^7C_2 * (4!/2!)$  ways. WWWX can be formed in  ${}^7C_1 * (4!/3!)$  ways. Total words =  ${}^8P_4 + {}^7C_2 * (4!/2!) + {}^7C_1 * (4!/3!) = 1960$

92. D

$$\log_a \frac{a^3}{b^2} + \log_b \frac{b^3}{a^2} = 3 - 2 \log_a b + 3 - 2 \log_b a \\ = 6 - 2(\log_b a + \log_a b) = 6 - 2(\log_b a + \frac{1}{\log_b a})$$

As  $a, b > 1, \log_b a > 0$  hence the minimum value of  $(\log_a b + \log_b a)$  is 2.

Therefore, the maximum value of  $6 - 2 * (\log_a b + \log_b a) = 2$ .

Therefore, the value 3 cannot be attained.

93. C

Let L be the length and S the speed of Duranto.

Using Statement 1,  $(L+100)/(S+5)=10$  or  $10S-L=50$ .

Using Statement 2,  $(L+150)/(S-10)=30$  or  $30S-L=450$ .

Using both the Statements together, we can solve for S and L

So, we can answer the question using both the Statements together, but not by using any of the two statements individually



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94. B

Let the number of natural numbers be N and the number deleted be P.

new average =  $\frac{(New\ Sum)}{N-1}$  because 1 number is erased, so total number left will be N-1.

Now new sum =  $\frac{N(N+1)}{2} - P$

The new average =  $\frac{(N^2+N-2P)}{2(N-1)} = \frac{(N^2-N+2N-2P)}{2(N-1)} = \frac{N(N-1)+2N-2P}{2(N-1)} = \frac{N(N-1)+2N-2+2-2P}{2(N-1)} = \frac{N}{2} + 1 - \frac{P-1}{N-1}$

So, new average =  $\frac{N}{2} + 1 - \frac{(P-1)}{(N-1)}$ . Notice that,  $\frac{(P-1)}{(N-1)}$  lies between 0 and 1.

$$\Rightarrow \frac{N}{2} + 1 - \frac{(P-1)}{(N-1)} = 25.375$$

$$\Rightarrow \frac{N}{2} = 24.375 + \frac{(P-1)}{(N-1)}$$

We know that  $0 \leq \frac{(P-1)}{(N-1)} \leq 1$

$$\Rightarrow 0+24.375 \leq 24.375 + \frac{(P-1)}{(N-1)} \leq 1+24.375 \quad (\text{Adding } 24.375 \text{ in the inequality})$$

$$\Rightarrow 24.375 \leq \frac{N}{2} \leq 25.375$$

But we know that N is an integer therefore  $\frac{N}{2}$  can take only two values in the given interval.

Where  $\frac{N}{2} = 24.5$  or 25

Case 1: when  $\frac{N}{2} = 25$  or  $N = 50$  then  $\frac{(P-1)}{(N-1)}$  will be equal to  $(25 - 24.375)$

$$\Rightarrow \frac{(P-1)}{(N-1)} = 0.625$$

$\Rightarrow P = 31.625$  Which is not possible.

Case 2: when  $\frac{N}{2} = 24.5$  or  $N = 49$  then  $\frac{(P-1)}{(N-1)}$  will be equal to  $(24.5 - 24.375)$

$$\Rightarrow \frac{(P-1)}{(N-1)} = 0.125$$

$$\Rightarrow P = 7$$

This is a correct solution hence we can say that P=7 is the missing number. Hence option B is the correct answer.

### 95. C

Let's assume that the weight of watermelon was 5 kg earlier and it got reduced to x kg. So, earlier the water content was 99% of 5 kg i.e. 4.95 kg which after evaporation became 90% of x kg or 0.9 kg. But, in both the cases the weight of dry watermelon is constant i.e. 1% of 5 kg=0.05 kg. So, after the evaporation happened, the water content becomes 90% of x. This means that 10% of x is dry watermelon.

$$\Rightarrow 0.1x = 0.05 \text{ kg}$$

$$\Rightarrow x = 0.5 \text{ kg}$$

### 96. E

Let the total work to be done be 12 units. Work done by tap X in one hour = 4, work done by tap Y in one hour = -3. Work done in two hours = 4-3 = 1 unit. After 16 hours, the work done = 8 units. In the 17th hour, tap X fills the remaining 4 units. Therefore, time required = 17 hours.

### 97. C

As A,B,C,D and E are in arithmetic progression,  $C = (A+E)/2$

Given that  $A > |E|$ , A is positive.

So, if E is positive, C is automatically positive.

If E is negative,  $A > -E$  or  $A + E > 0$  and hence C is positive.

So, the question can be answered using both the statements together, but not by using any of the two statements alone.

### 98. A

Sum of the ages of all players at present =  $11 \times 29 = 319$  years

Total age of the team two years ago just after K L Rahul's joining =  $319 - 2 \times 11 = 297$  years

Two years ago K L Rahul's age =  $27 - 2 = 25$  years.

Two years ago Sachin Tendulkar's age =  $38 - 2 = 36$  years

Total age of the team two years ago just before Sachin's retirement =  $297 - 25 + 36 = 308$  years.

Total age of the team one year prior to Sachin's retirement =  $308 - 1 \times 11 = 297$  years.

Therefore average age of the team one year prior to Sachin's retirement =  $\frac{297}{11} = 27$  years

Hence we can say that option A is the correct answer.

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### 99. C

The first statement alone is not sufficient to answer the question.

Using the second statement, we know  $b = 0$

So, the set is  $\{a, a+6, 2a, 0, 5\}$

Since this set has 4 distinct numbers, two of them are equal. If  $a = 0$ , there will be 3 zeroes in the set, which is not true. So, the possibilities are  $a = 5$  and  $a+6 = 2a \Rightarrow a = 6$ .

So, we cannot answer the question using statement 2 alone.

Using both the statements, since  $a$  is not 5, the only possibility is  $a = 6$ .

So, the question can be answered by using both the statements together.

### 100. C

Let us assume that she offered ' $n$ ' different type of flowers during the month. We know that there are 30 days in November month.

Therefore, we can say that  $nC4 \geq 30$ .

We know that  $6C4 = 15$  and  $7C4 = 35$ . Hence,  $n_{min} = 7$ .

Hence, option C is the correct answer.

### 101. D

The binomial expansion of  $(a + b)^n$  can be written as

$${}^nC_0 a^n * b^0 + {}^nC_1 a^{n-1} * b^1 + \dots + {}^nC_{n-1} a^1 * b^{n-1} + {}^nC_n a^0 * b^n$$

Expanding  $626^{300}$  as  $(625 + 1)^{300}$  and subtracting 1, we get the last term as  ${}^{300}C_1 * 625$ .

The maximum power of 5 that divides 625 is 4 and the maximum power of 5 that divides 300 is 2.

So, the maximum power of 5 that divides  $626^{300} - 1$  is 6

### 102. A

Consider the price to be 100 rs. After decreasing by 20% it became 80 and after increasing by 20% it became 96.

After decreasing and increasing by 20% the price becomes 92.16 Rs.

As we can see, after every 2 days, the price of the article decreases by 4%.

$$\Rightarrow 0.96^n$$

At  $n = 8$ , the value is 0.7211 and the next day the price of the article goes down by 20%  $\Rightarrow$  less than 60% of the initial price.

Hence  $8*2 + 1 = 17$ th day

### 103. B

It is given that two balls are drawn from the bag simultaneously and we have to find out the probability that at least one of these two balls is red. This can be also said that  $1 - (\text{probability of no ball being red})$ . As the above two mentioned event will be mutually exhaustive.

$P(\text{At least one of these two balls is red}) = 1 - P(\text{No ball red})$

$$\Rightarrow 1 - \frac{(9 + 8)C2}{(7 + 8 + 9)C2}$$

$$\Rightarrow 1 - \frac{17 * 16}{23 * 24}$$

$$\Rightarrow \frac{35}{69}$$

Therefore, option B is the correct answer.

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#### 104.C

Let the number of items bought by Amit be  $8x$ , Rohan be  $5y$  and Sanjay be  $8z$ .

Thus, the number of pens bought will be  $5x+3z$ , the number of erasers bought will be  $3x+2y$  and the number of rulers bought will be  $3y+5z$ .

We are given that,

$$5x+3z > 3y+5z \text{ and } 3y+5z > 3x+2y$$

$$\Rightarrow 5x+3z > 3y+5z$$

$\Rightarrow 5x > 3y+2z$  {Therefore, we can say that the value of  $x$  is greater than at least one of  $y$  and  $z$ }

We have to find out the minimum value of  $8x+5y+8z$ .  $x, y, z$  are positive natural numbers since these are used to represent the ratio equivalent.

Case 1: When  $x = 2, y = 1$  and  $z = 1$

Then, we can see that  $5x+3z > 3y+5z$ . But  $3y+5z = 3x+2y$  which is incorrect as we have to ensure that  $3y+5z > 3x+2y$ .

Case 2: When  $x = 2, y = 2$  and  $z = 1$

Then, we can see that  $5x+3z > 3y+5z$  and  $3y+5z > 3x+2y$ . Therefore, this is a possible solution.

We can find out the value of  $8x+5y+8z = 8*2+5*2+8*1 = 34$ .

Case 3: When  $x = 2, y = 1$  and  $z = 2$

Then, we can see that  $5x+3z > 3y+5z$  and  $3y+5z > 3x+2y$ . Therefore, this is also a possible solution.

We can find out the value of  $8x+5y+8z = 8*2+5*1+8*2 = 37$ .

Now if we increase the value of  $x$  then the value of ' $8x+5y+8z$ ' will increase further. Therefore, we can say that the minimum value of  $8x+5y+8z = 34$ .

Hence, option C is the correct answer.

#### 105.A

Given that  $a_1$  and  $a_2$  are the roots of the equation, we know that  $a_1 + a_2 = -\frac{q}{p}$  and  $a_1 * a_2 = \frac{r}{p}$

Therefore,  $p * a_1 + q = -p * a_2$  and  $p * a_2 + q = -p * a_1$

$$\text{Hence, } \left(\frac{1}{p*a_1+q}\right)^2 + \left(\frac{1}{p*a_2+q}\right)^2 = \frac{1}{p^2*a_1^2} + \frac{1}{p^2*a_2^2}$$

$$\text{This equals } \frac{a_1^2+a_2^2}{p^2*a_1^2*a_2^2} = \frac{\frac{q^2}{p^2}-2*\frac{r}{p}}{r^2}$$

$$\text{This equals } \frac{\frac{q^2}{p^2}-2pr}{p^2r^2}$$

$$\text{As } q^2 = pr, \text{ this is simplified to } \frac{-q^2}{q^4} = \frac{-1}{q^2}$$

#### 106.E

Let the initial earnings be  $2x$  and  $5x$  lakhs. Hence, the new earnings  $2x+2$  and  $5x+4$ . As  $x$  varies from 0 to infinity, the ratio  $(2x+2):(5x+4)$  varies from 1:2 to 2:5.

Hence, the final ratio will be in between 2:5 and 1:2. Of the given options, only 5:13 is not in between 2:5 and 1:2.

#### 107.D

5 friends take a test and each one of them marks a different response for each of the five questions. Also, it is known that no 2 friends mark the same response for a question.

Therefore, the total number of correct responses will be 5 and the total number of incorrect responses will be 20.

Irrespective of the distribution of the marks among the friends, the total marks scored by the 5 friends will be

$5*5 - 20 = 5$  marks.

Therefore, option D is the right answer.

108. **D**

For the number to be divisible by 45, it has to be divisible by 9 and 5

$$1+2+3+\dots+9 = 45 \text{ (divisible by 9)}$$

$$0+1+2+\dots+8 = 36 \text{ (divisible by 9)}$$

There is no other combination possible such that the sum of any 9 digits from 0 to 9 is divisible by 9.

In the first case, for the number to be divisible by 5, the last digit has to be 5. The others can be arranged in 8! ways.

In the second case, if 0 is at the end, the number of ways of arrangement = 8!

If 5 is at the end, the number of ways of arrangement =  $8! - 7! = 7*7!$

$$\text{Number of ways in which all the numbers can be arranged} = {}^{10}C_1(9!) - 9! = 10! - 9!$$

$$\text{So, required probability} = (8! + 8! + 7*7!)/(10! - 9!) = 7!*(23)/7!*(648) = 23/648$$

