

## Solutions of Mock CAT – 8 2017

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VRC	DILR		QA

### Sec 1

Directions for questions 1-6: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.

Throughout the history of biographical composition, a steady pattern of heroic, post-heroic, anti-heroic, and pre-heroic stages can be observed. Heroic biographies flourish in dictatorships. The kings, the rulers, the czars, the military commanders—all were and are fond of heroic biographies. During periods of conflict, when leaders are insecure, old heroes are reassessed.

In contrast to panegyrics, biographies of a post-heroic period discover weaknesses in the old heroes and search for new biographical subjects. However, the critique of the old heroes during the post-heroic cycle is cautious. Complete disillusionment with the old heroes begins an antiheroic discourse. This transition from panegyric to an open debunking of a hero is a lengthy process. The portrait changes from a revered figure to a grotesque image. The degree of debunking depends upon the nature of the hero and upon the tradition of describing heroes and the discursive freedom in a society at a given time.

The antiheroic cycle is usually followed by a pre-heroic period, with the anticipation of new heroes and new heroic biographies. The existing Greek and Roman examples indicate that poets, as biographical subjects, appear rather late in the history of biography. Heroes have to be created and legitimized before they can become biographical subjects. The life of a dancer, a musician, or a writer becomes a valuable biographical material much later than the life of a military commander, a king, or a philosopher. A biography is a shadow of a person, a delayed discourse which always lags behind biological time. Although biography helps to create heroes, it also requires the hero to be accepted as such and to complete the passage through life, so that the life story may be told. Biography is also a fact-dependent genre, which constructs its plot after the original model is completed; a real life serves as a matrix for the biography. The late appearance of a new heroic subject—the poet—therefore reflects the complex reality of the selection process of a hero. This lengthy—and perhaps universal—process required the recognition of a new poet-hero, which took place not only in Greece and Rome, but in England and Russia as well.

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#### Q.1

Which of the following is closest in meaning to the word 'panegyric' in the passage?

- 1 ☐ A piece of writing praising or applauding a person
- 2 ☐ People who favour writings that show other people in favourable light
- 3 ☐ Biographies that were written in times of dictators
- 4 ☐ People favouring biographies as a method to eulogise someone

Solution:

Correct Answer : 1

The word panegyric means a piece of writing or speech that praises a person. Also, refer to the line – "In contrast to panegyrics, biographies of". The word panegyric is being contrasted with biography of later times, which indicates that it is also a piece of writing rather than a person.

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Q.2

Why is the critique of the old heroes during the post-heroic cycle cautious?

- 1 ☐ The change in image is dependent on the acceptance by the society.
- 2 ☐ The society refuses to accept its hero's sudden grotesque face.
- 3 ☐ The change in image is gradual and it depends on several factors.
- 4 ☐ A sudden antiheroic discourse will be discarded by the society.

Solution:

Correct Answer : 3

The change in image is dependent on several factors (second paragraph). This makes option 3 correct. Option 1 can be eliminated as it isn't clearly stated in the second paragraph as a reason for the critics being cautious. There is no indication that a sudden image will definitely be rejected by the people. This makes options 2 and 4 incorrect.

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Q.3

Why does the author state that the biography is a shadow of a person?

- 1 ☐ Biography comes much after the recognition of the subject as a hero.
- 2 ☐ The subject must be first identified as a hero by the society for the biography to be written.
- 3 ☐ Biography is chronologically behind the subject and needs an affirmation of the subject's stature.
- 4 ☐ Biography must wait for the completion of the story of the subject to be plotted accurately and convincingly.

Solution:

Correct Answer : 3

Refer to the line- "...a delayed discourse which always lags behind biological time. Although biography helps to create heroes, it also requires the hero to be accepted as such..." Two reasons are given for the biography to be a 'shadow' of a person. One is that the biography has to be chronologically behind the person and the other is that the subject must be accepted as a hero. This makes option 3 correct. Options 1 and 2 are incomplete answers.

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Q.4

Which of the following is a probable reason for Christianity's influence over English and Russian Literature, especially biographies?

- 1 ☐ Most of the subjects of biographies being written came from hierarchy of the church.
- 2 ☐ Christianity provided the subjects as well as influenced creative expression.
- 3 ☐ The church exercised considerable control over the state as well as the writers.
- 4 ☐ The church controlled what is being written and approved subjects for writing.

Solution:

Correct Answer : 2

Option 2 is mentioned in the lines-".... Christianity not only supplied additional heroic models for biography, it also controlled artistic expression...." The two parts of option 4 talk about the same thing – the subject. This makes option 4 incorrect. Option 1 is incomplete as it talks only about the subject and not the Church.

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Q.5

Why is there a lag between the anti-heroic period and new heroic biographies?

- 1 ☐ There is a lag to accommodate the pre-heroic period where selection of heroes is done.
- 2 ☐ The writing of a biography must wait for a heroic figure to emerge after the antiheroic period.
- 3 ☐ New biographies being written often must look for new subjects as the existing have already been destroyed by the antiheroic periods.
- 4 ☐ The selection of a new heroic figure is a lengthy process and a biography can be conceived only after the life of the new heroic figure.

Solution:

Correct Answer : 2

Refer to the lines – "Heroes have to be created and legitimized before they can become biographical subjects. .... it also requires the hero to be accepted as such and to complete the passage through life, so that the life story may be told." This means that after the anti-heroic period, after the debunking of the existing heroic figures, there must be a wait when new heroic figures are created and accepted. This makes option 2 correct. Option 1 and 3 indicate a deliberate lag or waiting period. It is not so. The lag is merely incidental as no heroic figures exist for the story to be told.

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Q.6

Why do heroic biographies flourish in times of dictators?

- 1 ☐ The biographies of the heroes appeal to the dictators who are heroes themselves.
- 2 ☐ These biographies can act as motivation for leaders in times of insecurity and conflict.
- 3 ☐ The dictators can control the stories being written and biographies can be manipulated.
- 4 ☐ The dictators belong to the post-heroic period.

Solution:

Correct Answer : 2

It is mentioned in the first paragraph. Refer to the lines – "The kings, the rulers, the czars, the military commanders—all were and are fond of heroic biographies. During periods of conflict, when leaders are insecure, old heroes are reassessed." Only option 2 comes close to the point of discussion in this paragraph.

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Directions for question 7: The following question consists of a paragraph followed by four summaries. Choose the option that best captures the essence of the paragraph. Type in the option number in the space provided below the question.

Q.7

How can you protect what you don't love and haven't experienced? Greenpeace has been encouraging us to bear witness for more than 40 years. In the past this meant telexes sent from the ship Rainbow Warrior; now it means virtual reality. A rainforest-themed headset arrived through my letterbox and the cardboard innards popped up into a headset, then I downloaded the Greenpeace app and within minutes I was tramping across the Arctic viewing polar bears; then swinging across the canopy of the Brazilian rainforest. There is something thrilling about looking a polar bear in the eye. It made me want to kick back extra hard against Russian plans to drill the eastern Arctic, to take that next step, sign the petition or help fund further action.

1. Greenpeace uses methods to get people personally experience the environment and, as a result, get involved in the latter's protection.
2. One can only love and wish to protect what one experiences.
3. By making the experience personalised, Greenpeace is changing the ways people are made to initiate social welfare projects.
4. Greenpeace is going in the right direction when it comes to gathering support of the people for its projects.

Solution:

Correct Answer : 1

It is mentioned that Greenpeace has been using different methods to encourage people to experience and get involved and these methods and evolved over time. This makes option 1 correct. It is not clear if Greenpeace has been successful in enlisting help. After viewing through the headset, the author becomes enthusiastic about the project and his intention to get involved becomes clear, but it is not definite that this intention will endure and will result in action. This makes options 3 and 4 incorrect. 2 is vague and not a summary of this paragraph.

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Directions for questions 8-10: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.

From football to gardening and back via cookery, mountaineering, and population genetics, every subject has its own terminology. Philosophy certainly



does, most of it fortunately not nearly as frightening as it looks. Most philosophical 'ism' words are (like 'consequentialism') quite broad terms designating certain general type of doctrine. Their breadth makes them very flexible, and ensures that they are in constant use, but it also brings dangers, principally that of taking them to say more than they really do.

Never think that you have got a philosopher sorted out just because you can say what 'ism' he represents. The philosophy of George Berkeley (1685–1752) is a form of Idealism, and so is that of Hegel (1770–1831); but I have never heard it suggested that having read either would be any help in understanding the other – their thoughts are miles apart. Karl Marx (1818–83), on the other hand, certainly wasn't an Idealist (which is actually a term of abuse in the Marxist vocabulary), but he is in many respects extremely Hegelian, and that a student should get to know something of Hegel before reading Marx seems the most obvious advice imaginable.

With that warning uttered and illustrated, let us begin with dualism. It can be used of any view which recognizes (exactly) two contrasting forces or entities, so that a theology which posits two basic powers in conflict, one good and one evil, is said to be dualistic. But by far its most common meaning is a doctrine according to which reality consists of two very different kinds of thing or stuff, namely mind and matter; a human being consists of a bit of each.

Dualism certainly has its problems, especially if it is to be combined with modern scientific theory. One tricky question is: what does the dualist's mental stuff actually do? We naturally suppose that what we think, what we feel, what we are aware of, affects our behaviour. If I think that the train leaves in ten minutes, want to catch it, and see a signpost saying 'Railway Station', I will go in the direction I believe the signpost points. This means that my (physical) body goes somewhere it wouldn't otherwise have gone. But doesn't scientific theory suggest that all physical events have other physical events as their causes? In which case how can there be room for something else, of a non-physical kind, to cause my body to move?

Dualists may just have to grit their teeth and say that science is plain wrong about that. For if they agree that science is right on that point, and if they agree (and it would be weird not to) that what we think, feel, etc. affects what we do, then the consequence is that thinking, feeling, awareness, and so on must be physical processes. In which case the question comes around again: what does this non-physical stuff of theirs, this 'mind', actually do? But dualist can't just say that science is wrong about all physical events having physical causes. That won't convince anyone who wasn't convinced to start with. They will need some reason for saying that there is something about us which cannot be physical.

Q.8

Why does the author say that broad philosophical terms should be cautiously used?

- 1 ☐ We can never completely understand all that a philosophical term may be used for.
- 2 ☐ Philosophers are always misunderstood because of terms associated with their work.
- 3 ☐ Two philosophers having different ideas may be categorised under the same philosophical term.
- 4 ☐ Any philosophy is a fluid idea that cannot be boxed in the narrow scope of definitions.

Solution:

Correct Answer : 3

Refer to the lines- "The philosophy of George Berkeley (1685–1752) is a form of Idealism, and so is that of Hegel (1770–1831); but I have never heard it suggested that having read either would be any help in understanding the other – their thought is miles apart." This makes option 3 correct as the two philosophers have thoughts 'miles apart' but are categorised under same philosophical terms. The author does not comment on our ability or possibility to completely understand a philosopher. This makes option 1 incorrect. A philosopher is not always misunderstood making option 2 incorrect.

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With that warning uttered and illustrated, let us begin with dualism. It can be used of any view which recognizes (exactly) two contrasting forces or entities, so that a theology which posits two basic powers in conflict, one good and one evil, is said to be dualistic. But by far its most common meaning is a doctrine according to which reality consists of two very different kinds of thing or stuff, namely mind and matter; a human being consists of a bit of each.

Dualism certainly has its problems, especially if it is to be combined with modern scientific theory. One tricky question is: what does the dualist's mental stuff actually do? We naturally suppose that what we think, what we feel, what we are aware of, affects our behaviour. If I think that the train leaves in ten minutes, want to catch it, and see a signpost saying 'Railway Station', I will go in the direction I believe the signpost points. This means that my (physical) body goes somewhere it wouldn't otherwise have gone. But doesn't scientific theory suggest that all physical events have other physical events as their causes? In which case how can there be room for something else, of a non-physical kind, to cause my body to move?

Dualists may just have to grit their teeth and say that science is plain wrong about that. For if they agree that science is right on that point, and if they agree (and it would be weird not to) that what we think, feel, etc. affects what we do, then the consequence is that thinking, feeling, awareness, and so on

must be physical processes. In which case the question comes around again: what does this non-physical stuff of theirs, this 'mind', actually do? But dualist can't just say that science is wrong about all physical events having physical causes. That won't convince anyone who wasn't convinced to start with. They will need some reason for saying that there is something about us which cannot be physical.

**Q.9**

What is the problem with 'a person moving in the direction of the railway station' as described in paragraph four?

- 1 ☐ A physical action must be triggered by another physical action.
- 2 ☐ A physical action must be triggered by another identifiable action.
- 3 ☐ There is no dualism present in this person's action.
- 4 ☐ There is no trigger identifiable for this action.

**Solution:**

**Correct Answer : 1**

Option 2 and 4 are incorrect as the author is not saying that there is no trigger present. This trigger may not be of the physical kind. The scientific theories say that a physical action must be triggered by a physical action, which is the problem in this case. This makes option 1 correct.

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Answer key/Solution

**Directions for questions 8-10: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.**

From football to gardening and back via cookery, mountaineering, and population genetics, every subject has its own terminology. Philosophy certainly does, most of it fortunately not nearly as frightening as it looks. Most philosophical 'ism' words are (like 'consequentialism') quite broad terms designating certain general type of doctrine. Their breadth makes them very flexible, and ensures that they are in constant use, but it also brings dangers, principally that of taking them to say more than they really do.

Never think that you have got a philosopher sorted out just because you can say what 'ism' he represents. The philosophy of George Berkeley (1685–1752) is a form of Idealism, and so is that of Hegel (1770–1831); but I have never heard it suggested that having read either would be any help in understanding the other – their thoughts are miles apart. Karl Marx (1818–83), on the other hand, certainly wasn't an Idealist (which is actually a term of abuse in the Marxist vocabulary), but he is in many respects extremely Hegelian, and that a student should get to know something of Hegel before reading Marx seems the most obvious advice imaginable.

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**Q.10**

Why does the author use the example of Karl Marx?

- 1 ☐ To demonstrate the deliberate misuse of broad philosophical terms
- 2 ☐ To explain how different philosophies are often categorised under the same terms
- 3 ☐ To explain that one must study Hegel to correctly understand Karl Marx as Marx draws some of his philosophy from Hegel
- 4 ☐ To demonstrate why one must be cautious in the study of philosophical terms

**Solution:**

**Correct Answer : 4**

The author uses the example of Karl Marx to caution us. Option 2 although true is not the correct answer as it is the reason we must be cautious and Karl Marx is the example.

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**Directions for question 11: A paragraph is given below from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way. Type in that option as the answer in the space provided below the question.**

## Q.11

Four decades of assaults carried out by the capitalist ruling class globally seem to have forced the working class to repress its own radical past. How else could workers have forgotten the origin of May Day? Maybe its history has remained untold even in the labour movement during these difficult years. Labour's long repression of its radical past has been happening at a time when more than ever before we need to recover the cultures of resistance that working people developed in the course of the class struggles they engaged in from below. Even then—the late 19<sup>th</sup> century—“the only thing worse than being employed, was being unemployed.” And, for capital, as today, labour was simply a cost of production.

1. May Day has since gained significance in the life of every worker.
2. Yet, the workers continue in their struggle for recognition as an important part of the system.
3. But, the workers dared, fighting for their rights, including the eight-hour workday.
4. 19<sup>th</sup> century saw the rise of the working class.

Solution:

Correct Answer : 3

The paragraph begins by talking about how May Day has lost its significance. Option 1 is contrary to this idea and hence can be eliminated. Option 2 changes the tense of the narrative from past to present and thus, does not fit with the paragraph. Option 3 is correct as it highlights the continued struggle for rights by the workers.

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## Q.12

Directions for question 12: In this question, five sentences are given. Of these, four sentences can be logically sequenced to make a coherent paragraph. One of the sentences does not belong to the paragraph. Type in the sentence number that doesn't fit into the paragraph.

1. Artists and poets suffered from it, and soon a claim to ennui was a mark of spiritual depth and sensitivity.
2. As anyone who has experienced it can attest to, loneliness is an emotionally painful feeling; it even registers as physical pain in the brain.
3. This loneliness is not a result of social isolation, as you might think, but rather is due to the emotional exhaustion of workplace burnout.
4. Loneliness, whether it results from social isolation or exhaustion, has serious consequences for individuals.
5. More and more people are feeling tired and lonely at work.

Solution:

Correct Answer : 1

All the sentences except 1 talk about loneliness. 1 talks about ennui which is not the same. The correct sequence is 5342. 5 opens the discussion by giving a specific example. 3 continues it with the word "this loneliness". 42 take the topic forward.

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Directions for question 13: A paragraph is given below from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way. Type in that option as the answer in the space provided below the question.

## Q.13

The root of religion is imagination. We can imagine a world where there is no hunger and death and so we imagine heaven. We can imagine a being that is sensitive and kind and generous and unconditionally loving, and so we imagine god. Take away imagination, and there is no heaven or God. It is a world where there are no possibilities. Early tribal societies saw God in forces of Nature and its many rhythms. They mapped their lives to these rhythms. Religions celebrated the change of seasons, migrating, and breeding cycles of birds, fish, and animals, flowering of trees and movements of stars.

1. And so, from the depths of human imagination, came the legends and myths.
2. And so, came about rituals, songs and dance full of rhythm.
3. And so, began the worship of guardian gods who protected the village.
4. With the agricultural revolution, we had learnt how to control the rhythms of nature.

Solution:

Correct Answer : 2

The last line of the paragraph talks about the celebration of the change of seasons, migrating, and breeding cycles of birds, fish, and animals, flowering of trees and movements of stars etc. The celebration happened through rituals, songs etc. as in option 2. The other 3 options break the rhythm of the author's narrative by bringing in ideas only loosely connected with the last line.

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## Q.14

Directions for question 14: In this question, five sentences are given. Of these, four sentences can be logically sequenced to make a coherent paragraph. One of the sentences does not belong to the paragraph. Type in the sentence number that doesn't fit in the paragraph.

1. The four bills – Central GST, Integrated GST, Union Territories GST and GST Compensation bills – were passed one by one through voice vote after almost nine hours of intense debate.
2. The Goods and Services Tax (Compensation to States) provides for compensation to the states for the loss of revenue arising on account of implementation of the GST.



3. Countries that rolled out GST have witnessed higher economic growth.
4. The CGST and IGST bills will enable the Centre to levy and collect taxes across the country.
5. India moved yet another step closer for rolling out the country's biggest tax reform after the Lok Sabha on Wednesday approved four crucial bills required to implement Goods and Services Tax (GST).

**Solution:**

**Correct Answer : 3**

The correct sequence is 5124. 3 is the odd one out as this paragraph talks about the passage of GST in the Indian parliament.

The third sentence talks about the effect of GST in other countries. Hence, this is the odd one out.

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Answer key/Solution

**Directions for questions 15-20: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

Implied in the demand for more scientific education is the claim that if one has been scientifically trained one's approach to all subjects will be more intelligent than if one had had no such training. A scientist's political opinions, it is assumed, his opinions on sociological questions, on morals, on philosophy, perhaps even on the arts, will be more valuable than those of a layman. The world, in other words, would be a better place if the scientists were in control of it. But a 'scientist', means in practice a specialist in one of the exact sciences. It follows that a chemist or a physicist, as such, is politically more intelligent than a poet or a lawyer, as such. And, in fact, there are already millions of people who do believe this.

But is it true that a 'scientist', in this narrower sense, is any likelier than other people to approach non-scientific problems in an objective way? There is no much reason for thinking so. But does all this mean that the public should not be more scientifically educated? On the contrary! All it means is that scientific education for the masses will do little good, and probably a lot of harm, if it simply boils down to more physics, more chemistry, more biology, etc., to the detriment of literature and history. Its probable effect on the average human being would be to narrow the range of his thoughts and make him more than ever contemptuous of such knowledge as he did not possess: and his political reactions would probably be somewhat less intelligent than those of an illiterate peasant who retained a few historical memories and a sound aesthetic sense.

Clearly, scientific education ought to mean the implanting of a rational, sceptical, experimental habit of mind. It ought to mean acquiring a method — a method that can be used on any problem that one meets — and not simply piling up a lot of facts. Put it in those words, and the apologist of scientific education will usually agree. Press him further, ask him to particularize, and somehow it always turns out that scientific education means more attention to the sciences, in other words — more facts. The idea that science means a way of looking at the world, and not simply a body of knowledge, is in practice strongly resisted. I think sheer professional jealousy is part of the reason for this. For if science is simply a method or an attitude, so that anyone whose thought-processes are sufficiently rational can in some sense be described as a scientist — what then becomes of the enormous prestige now enjoyed by the chemist, the physicist, etc. and his claim to be somehow wiser than the rest of us?

A hundred years ago, Charles Kingsley described science as 'making nasty smell in a laboratory'. A year or two ago a young industrial chemist informed me smugly, that he 'could not see what was the use of poetry'. So, the pendulum swings back and forth, but it does not seem to me that one attitude is any better than the other. At the moment, science is on the upgrade, and so we hear, quite rightly, the claim that the masses should be scientifically educated: we do not hear, as we ought, the counter-claim that the scientists themselves would benefit by a little education. Just before writing this, I saw in an American magazine the statement that a number of British and American physicists refused from the start to do research on the atomic bomb, well knowing what use would be made of it. Here you have a group of same men in the middle of a world of lunatics. And though no names were published, I think it would be a safe guess that all of them were people with some kind of general cultural background, some acquaintance with history or literature or the arts — in short, people whose interests were not, in the current sense of the word, purely scientific.

**Q.15**

**What is implied in the demand for scientific training?**

- ☐ 1 People will be taught to think more rationally in all aspects of life.
- ☐ 2 Scientists are more intelligent in all aspects of life than ordinary people.
- ☐ 3 Only scientific education can change the way we approach different problems.
- ☐ 4 All aspects of life are somehow connected to science.

x

**Solution:**

**Correct Answer : 1**

**Your Answer : 2**

The author says that it is implied that if one has been scientifically trained one's approach to all subjects will be more intelligent than if one had had no such training. Option 2 is incorrect as author states that a scientist's opinion is valued more in all aspects on the assumption that his approach to problems might be more scientific, which is often not the case. This does not make a scientist more intelligent than a layman. True scientific education may change the way we see problems but it is not the only way to change our approach. This makes option 3 incorrect.

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Answer key/Solution

**Directions for questions 15-20: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

Implied in the demand for more scientific education is the claim that if one has been scientifically trained one's approach to all subjects will be more intelligent than if one had had no such training. A scientist's political opinions, it is assumed, his opinions on sociological questions, on morals, on philosophy, perhaps even on the arts, will be more valuable than those of a layman. The world, in other words, would be a better place if the scientists were

in control of it. But a 'scientist', means in practice a specialist in one of the exact sciences. It follows that a chemist or a physicist, as such, is politically more intelligent than a poet or a lawyer, as such. And, in fact, there are already millions of people who do believe this.

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Q.16

Why does the author state that study of science subjects would do more harm than good?

- 1 ☐ This kind of education would dull a person's political responses.
- 2 ☐ It would narrow the person's vision and make him less appreciative of other subjects.
- 3 ☐ It would narrow a person's vision and affect his political judgement.
- 4 ☐ It would make him contemptuous of literature and polity.



Solution:

Correct Answer : 2

Your Answer : 2

Author states that while true scientific education may change the way we see problems, study of merely science subjects will only teach us some facts. Also, this might create a tunnel vision which may lead us to not appreciate the value of other subjects. The author gives the example of a scientist who sees no value in poetry. Refer to the lines – "Its probable effect on the average human being would be to narrow the range of his thoughts and make him more than ever contemptuous of such knowledge as he did not possess: and his political reactions would probably be somewhat less intelligent than those of an illiterate peasant who retained a few historical memories and a sound aesthetic sense." The effect on political decisions is merely an example here of an important decision that will be affected.

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Answer key/Solution

Directions for questions 15-20: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.

Implied in the demand for more scientific education is the claim that if one has been scientifically trained one's approach to all subjects will be more intelligent than if one had had no such training. A scientist's political opinions, it is assumed, his opinions on sociological questions, on morals, on philosophy, perhaps even on the arts, will be more valuable than those of a layman. The world, in other words, would be a better place if the scientists were in control of it. But a 'scientist', means in practice a specialist in one of the exact sciences. It follows that a chemist or a physicist, as such, is politically more intelligent than a poet or a lawyer, as such. And, in fact, there are already millions of people who do believe this.

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Q.17

According to the author, scientific education ought to be:

- 1 ☐ education that makes a person more intelligent in his dealings with other people.
- 2 ☐ education that makes a person's approach to everyday life issues more intelligent.
- 3 ☐ education that advocates a more rational human being.
- 4 ☐ education that helps a person make better political decisions.



Solution:

Correct Answer : 2

Your Answer : 3

The author states that, scientific education ought to mean the implanting of a rational, sceptical, experimental habit of mind. It ought to mean acquiring a method — a method that can be used on any problem that one meets — and not simply piling up a lot of facts. This makes option 2 correct as author is talking about a change in approach in case of any problem a person encounters.




Directions for questions 15-20: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.

Implied in the demand for more scientific education is the claim that if one has been scientifically trained one's approach to all subjects will be more intelligent than if one had had no such training. A scientist's political opinions, it is assumed, his opinions on sociological questions, on morals, on philosophy, perhaps even on the arts, will be more valuable than those of a layman. The world, in other words, would be a better place if the scientists wer in control of it. But a 'scientist', means in practice a specialist in one of the exact sciences. It follows that a chemist or a physicist, as such, is politically mori intelligent than a poet or a lawyer, as such. And, in fact, there are already millions of people who do believe this.

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Q.18

What does the author assume about the scientists who refused to work on the atomic bomb?

- 1 ☐ They had studied literature or politics or art in addition to science subjects.
- 2 ☐ They had a morality that went beyond personal scientific gain.
- 3 ☐ They possessed ability to reason as befits a scientist.
- 4 ☐ They possessed a world view beyond the narrow scope of science subjects.



Solution:

Correct Answer : 4

Your Answer : 4

Refer to the lines- "were people with some kind of general cultural background, some acquaintance with history or literature or the arts — in short, people whose interests were not, in the current sense of the word, purely scientific." Although author talks about an acquaintance with literature or art, option 1 is narrow in its scope. What the author is trying to say is that these people understood the world holistically and not through the narrow lens of science subjects.

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But is it true that a 'scientist', in this narrower sense, is any likelier than other people to approach non-scientific problems in an objective way? There is no much reason for thinking so. But does all this mean that the public should not be more scientifically educated? On the contrary! All it means is that scientific education for the masses will do little good, and probably a lot of harm, if it simply boils down to more physics, more chemistry, more biology, etc., to the detriment of literature and history. Its probable effect on the average human being would be to narrow the range of his thoughts and make him more than ever contemptuous of such knowledge as he did not possess: and his political reactions would probably be somewhat less intelligent than those of an illiterate peasant who retained a few historical memories and a sound aesthetic sense.

Clearly, scientific education ought to mean the implanting of a rational, sceptical, experimental habit of mind. It ought to mean acquiring a method — a method that can be used on any problem that one meets — and not simply piling up a lot of facts. Put it in those words, and the apologist of scientific education will usually agree. Press him further, ask him to particularize, and somehow it always turns out that scientific education means more attention to the sciences, in other words — more facts. The idea that science means a way of looking at the world, and not simply a body of knowledge, is in practice strongly resisted. I think sheer professional jealousy is part of the reason for this. For if science is simply a method or an attitude, so that anyone whose thought-processes are sufficiently rational can in some sense be described as a scientist — what then becomes of the enormous prestige now enjoyed by the chemist, the physicist, etc. and his claim to be somehow wiser than the rest of us?

A hundred years ago, Charles Kingsley described science as 'making nasty smell in a laboratory'. A year or two ago a young industrial chemist informed me smugly, that he 'could not see what was the use of poetry'. So, the pendulum swings back and forth, but it does not seem to me that one attitude is any better than the other. At the moment, science is on the upgrade, and so we hear, quite rightly, the claim that the masses should be scientifically educated: we do not hear, as we ought, the counter-claim that the scientists themselves would benefit by a little education. Just before writing this, I saw in an American magazine the statement that a number of British and American physicists refused from the start to do research on the atomic bomb, well knowing what use would be made of it. Here you have a group of same men in the middle of a world of lunatics. And though no names were published, I think it would be a safe guess that all of them were people with some kind of general cultural background, some acquaintance with history or literature or the arts — in short, people whose interests were not, in the current sense of the word, purely scientific.

Q.19

Why is the definition that science is a way of looking at the world strongly resisted?

- 1 ☐ This definition allows for everyone to be called a scientist.
- 2 ☐ This definition takes away something from the privileged position of the scientists.
- 3 ☐ This definition does not coincide with the way scientific education is imparted at present.
- 4 ☐ This definition will allow anyone to think of themselves as a scientist.



Solution:

Correct Answer : 2

Your Answer : 2

Refer to the lines- ". For if science is simply a method or an attitude, so that anyone whose thought-processes are sufficiently rational can in some sense be described as a scientist — what then becomes of the enormous prestige now enjoyed by the chemist, the physicist, etc. and his claim to be somehow wiser than the rest of us? Option 1 is not the correct answer as not everyone will be called a scientist but only those that have that kind of thought process. Also, a layman being called a scientist is not frightening on its own but it becomes threatening as it takes away from the prestige of being called a scientist by an esoteric group. This makes option 2 correct.

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Directions for questions 15-20: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.

Implied in the demand for more scientific education is the claim that if one has been scientifically trained one's approach to all subjects will be more intelligent than if one had had no such training. A scientist's political opinions, it is assumed, his opinions on sociological questions, on morals, on

philosophy, perhaps even on the arts, will be more valuable than those of a layman. The world, in other words, would be a better place if the scientists were in control of it. But a 'scientist', means in practice a specialist in one of the exact sciences. It follows that a chemist or a physicist, as such, is politically more intelligent than a poet or a lawyer, as such. And, in fact, there are already millions of people who do believe this.

But is it true that a 'scientist', in this narrower sense, is any likelier than other people to approach non-scientific problems in an objective way? There is no much reason for thinking so. But does all this mean that the public should not be more scientifically educated? On the contrary! All it means is that scientific education for the masses will do little good, and probably a lot of harm, if it simply boils down to more physics, more chemistry, more biology, etc., to the detriment of literature and history. Its probable effect on the average human being would be to narrow the range of his thoughts and make him more than ever contemptuous of such knowledge as he did not possess: and his political reactions would probably be somewhat less intelligent than those of an illiterate peasant who retained a few historical memories and a sound aesthetic sense.

Clearly, scientific education ought to mean the implanting of a rational, sceptical, experimental habit of mind. It ought to mean acquiring a method — a method that can be used on any problem that one meets — and not simply piling up a lot of facts. Put it in those words, and the apologist of scientific education will usually agree. Press him further, ask him to particularize, and somehow it always turns out that scientific education means more attention to the sciences, in other words — more facts. The idea that science means a way of looking at the world, and not simply a body of knowledge, is in practice strongly resisted. I think sheer professional jealousy is part of the reason for this. For if science is simply a method or an attitude, so that anyone whose thought-processes are sufficiently rational can in some sense be described as a scientist — what then becomes of the enormous prestige now enjoyed by the chemist, the physicist, etc. and his claim to be somehow wiser than the rest of us?

A hundred years ago, Charles Kingsley described science as 'making nasty smell in a laboratory'. A year or two ago a young industrial chemist informed me smugly, that he 'could not see what was the use of poetry'. So, the pendulum swings back and forth, but it does not seem to me that one attitude is any better than the other. At the moment, science is on the upgrade, and so we hear, quite rightly, the claim that the masses should be scientifically educated: we do not hear, as we ought, the counter-claim that the scientists themselves would benefit by a little education. Just before writing this, I saw in an American magazine the statement that a number of British and American physicists refused from the start to do research on the atomic bomb, well knowing what use would be made of it. Here you have a group of same men in the middle of a world of lunatics. And though no names were published, I think it would be a safe guess that all of them were people with some kind of general cultural background, some acquaintance with history or literature or the arts — in short, people whose interests were not, in the current sense of the word, purely scientific.

Q.20

The author is likely to agree with which of the following?

- A. Scientists would benefit from studying literature or politics.
- B. Everyone must be taught all subjects for holistic development.
- C. Scientific education is important for all human beings.

1 ☐ A and B

2 ☐ B and C

3 ☐ A and C

4 ☐ A, B and C

Solution:

Correct Answer : 3

The author will agree with statements C and A. Author has given example of scientists refusing to work on atomic bomb and of the scientist rejecting the value of poetry to elucidate statement A. He also agrees with option C as scientific education will lead to better approach to situations in all human beings. Statement B is incorrect as author does not advocate study of all subjects, but approaches and philosophies. He clearly states that merely studying physics and chemistry as well as other subjects will do more harm than good.

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Answer key/Solution

Q.21

Directions for question 21: In this question, five sentences are given. Of these, four sentences can be logically sequenced to make a coherent paragraph. One of the sentences does not belong to the paragraph. Type in the sentence number that doesn't fit in the paragraph.

1. In journalism, there is a clear line between public and private figures.
2. Public figures are held to a higher standard — since they represent not just themselves but their offices, their industries, and so on.
3. But private figures are given a veil of privacy, since it's not really in the public interest to get some random person's private information.
4. The media seems to understand this to some extent.
5. But there is a difference between punishing people through a structured framework and putting their private information out there for the entire internet to decide the punishment.

Solution:

Correct Answer : 5

1234 is the correct sequence. 5 talks about punishing people which is not part of this paragraph.

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Answer key/Solution

Q.22

Directions for question 22: The question given below contains a set of six sentences. The first and the last sentences are in the correct order. The remaining four sentences need to be arranged in a logical order so as to make a coherent paragraph. Type the correct sequence as the answer in the space provided below the question.

1. Everything is aimed at persuading people to pick things up, trying to catch their eye, making bookshops a place where you discover beautiful things.
2. After the financial crash, he says, "there was some cost-cutting and short-sighted penny-pinching that went on, trying to boost profit margins by cutting back on production values, and I think publishers realised that consumers needed a reason to go to bookshops."
3. "We've seen a clear relationship between books that were successful and books that looked nice and had been made well."
4. Daunt doesn't feel that the current vogue for beautiful books is anything new, but, rather, a return to the values that existed in a previous publishing era.
5. "And that was to buy proper books with decent paper and decent design."
6. "So, it then became a commercial imperative to do it."

Solution:

Correct Answer : 4253

'he' in 2 refers to Daunt in 4. 'that was' in statement 5 refers to the 'reason' in statement 2. The relationship between successful books and beautiful books in 3 leads to action in statement 6.

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Answer key/Solution

Q.23

Directions for question 23: The question given below contains a set of six sentences. The first and the last sentences are in the correct order. The remaining four sentences need to be arranged in a logical order so as to make a coherent paragraph. Type the correct sequence as the answer in the space provided below the question.

1. There are two aspects which are pivotal while approaching a work of literature: form and matter.
2. In Janhavi Prasad's *Tales of Young Gandhi*, a graphic novel, the form is more complex: composite of the written word and artwork.
3. But, in literature they act as means of accessing the work so as to make it more comprehensive.
4. Matter is what the text constitutes and conveys, while form is the shape or medium it must use to convey meaning. In the case of most of literature, it is the written word that becomes the form, but in the case of some works the medium could differ from the usual.
5. These two were proposed by Aristotle for all physical reality.
6. The challenges of this form are multifarious, and can be easily neglected by most; a task that Prasad has taken on, quite bravely.

Solution:

Correct Answer : 5342

'this form' in 6 refers to the more complex form in 2. 'these two' in 5 refer to the two aspects mentioned in statement 1. 5 and 3 come together as they describe the aspects in all physical reality and in literature. 3 and 4 make a mandatory pair as 4 explains how these two aspects make literature more comprehensive.

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Answer key/Solution

Directions for question 24: The following question consists of a paragraph followed by four summaries. Choose the option that best captures the essence of the paragraph. Type in the option number in the space provided below the question.

Q.24

After a protracted legal battle that lasted 10 years and went from the Industrial Tribunal to the Bombay High Court, and ultimately to the Supreme Court, 2,700 sanitation workers in Mumbai will now have permanent jobs with the Brihan-Mumbai Municipal Corporation (BMC). At all three levels, the cases went in favour of the workers and it was the BMC that appealed—and lost—each time. While this is an undoubted triumph for the workers and the Kachra Vahatuk Shramik Sangh (KVSS) that has organised them, it is also an endorsement of the spirit of collective bargaining and unionising. It is an affirmation—in the face of the weakening of the trade union movement in India and the loud chorus that revels in chanting its death knell—that a union that strategises carefully and reaches out to civil society for solidarity can achieve results.

1. Success in legal battle of the workers against BMC is a result of effective strategizing and massive support from the society.
2. Success in legal battle of the workers against BMC is the perfect example of the strength of collective bargaining.
3. Success in legal battle of the workers against BMC has set an example in the country where unions have largely been ineffective.
4. Success in legal battle of the workers against BMC is a historic win that highlights power of unionising.

Solution:

Correct Answer : 4

Options 2 and 3 are true as per the paragraph given, but these are incomplete answers. The aim of the paragraph is to highlight the importance (historic win) of the case and how it is an example of effective unionizing (all that unions can achieve). Both the points are included in option 4.

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Answer key/Solution

Directions for questions 25-27: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.

Making histories involves guesswork of several kinds. There is the process of trying to 'fill in the blanks' within surviving evidence. Then there is a further process: how to synthesize larger amounts of material, and what to make of the contours presented by bigger stories. In doing this, historians are aware of



change over time, but also of continuities, and they try to explain these things. They are also aware, however, of those whose feet have trod the path before, of other historians' accounts and arguments. These must be dealt with too: agreed upon, demolished, or ignored. The process of creating a story is not simply that of placing one brick upon another, until a structure arises; it involves deciding the causes and effects of the things described, negotiating what has already been said by other historians, and arguing for what the story means.

Let us start with the English Civil War. Historians build up an account of the war through surviving evidence, just as one recreates an account of Burdett from the Assembly Book. But this involves, of course, very much more work. The kind of evidence one focuses upon will undoubtedly affect the story told. If, for example, one looks mainly to narrative accounts, royal documents and parliamentary papers, the story that appears is overtly political: of how the monarch Charles I was involved in a web of political, economic, and religious tensions during the second quarter of the seventeenth century, leading to an outbreak of war in 1642 between crown and parliament. Charles was executed in 1649, and for a short while England was governed by parliament, until Oliver Cromwell assumed the position of 'Lord protector' (a curiously regal position for a republican leader). In 1660, Charles II regained the English throne. This is a story primarily of events: the execution of a king, the battles fought between the sides, the internal politics of the Commonwealth, the victory of the new monarch. Political historians must explain, to some degree, what caused these events, and the answers they provide vary somewhat, according to their interests. Nonetheless, most agree that Charles I was a rather incompetent monarch, unable to hold together the support of his lords; that there were tensions between different ideas of 'government', notably between a monarch who had sovereign control of his polity, and a more mediate system where parliament had greater say; and that events abroad (particularly in Catholic Ireland, but also on the continent) affected what happened in England. In this 'political' story, what are the causes of change, and what does it mean? It is unfair and inaccurate to lump all political historians into one camp. However, it might be reasonable to say that within the 'political' story, change comes about through human competence or incompetence (an incompetent Charles I, a competent – in the beginning – Cromwell); it is affected by the strength of ideologies (monarchy vs. republicanism), and is subject to a degree of chance (when battles are surprisingly lost). It may well also form part of a 'Grand Narrative' (that is, a very large story, running over several centuries), such as the development of parliamentary democracy. The 'meaning' claimed for such a grand narrative is the 'superiority' of English political culture. This kind of meaning may be stated explicitly, or may lurk within the structure and commentary on the story told. For some political historians, the causes and meanings of things do not need explicit statement: simply relating the course of events is enough. Narrative, they feel, makes 'what happened' sufficiently clear in itself.

Q.25

Through this passage, the author aims to

- 1 ☐ explain the difficulties faced by historians while writing historical accounts
- 2 ☐ explain the tasks involved in writing a historical account or story
- 3 ☐ clarify some of the historical account of English civil war
- 4 ☐ explain why some historical accounts of the same event do not agree with each other

Solution:

Correct Answer : 1

The author's aim is to describe the hardships in the path of an historian. He describes the task involved and the result of these hardships but describing these is not the main purpose. This makes option 2 and 4 true, but not the correct answers to this question.

 Bookmark

 Answer key/Solution

Feedback

Directions for questions 25-27: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.

Making histories involves guesswork of several kinds. There is the process of trying to 'fill in the blanks' within surviving evidence. Then there is a further process: how to synthesize larger amounts of material, and what to make of the contours presented by bigger stories. In doing this, historians are aware of change over time, but also of continuities, and they try to explain these things. They are also aware, however, of those whose feet have trod the path before, of other historians' accounts and arguments. These must be dealt with too: agreed upon, demolished, or ignored. The process of creating a story is not simply that of placing one brick upon another, until a structure arises; it involves deciding the causes and effects of the things described, negotiating what has already been said by other historians, and arguing for what the story means.

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## Q.26

Why does the author say that writing history involves guesswork?

- 1 ☐ Historians never get complete and accurate accounts of what happened.
- 2 ☐ Historians must work with surviving evidence which might have gaps.
- 3 ☐ Historians' personal viewpoint alters the narrative of the story being told.
- 4 ☐ Writing historical stories is more than just reporting the incident.

Solution:

Correct Answer : 2

We know, from the passage, that historians often have to 'fill the gaps' in the accounts but we do not know that historians 'never' get complete accounts. This makes option 1 incorrect. Option 3 and 4 do not answer the question asked.

Bookmark

Answer key/Solution

FeedBack

Directions for questions 25-27: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.

Making histories involves guesswork of several kinds. There is the process of trying to 'fill in the blanks' within surviving evidence. Then there is a further process: how to synthesize larger amounts of material, and what to make of the contours presented by bigger stories. In doing this, historians are aware of change over time, but also of continuities, and they try to explain these things. They are also aware, however, of those whose feet have trod the path before, of other historians' accounts and arguments. These must be dealt with too: agreed upon, demolished, or ignored. The process of creating a story is not simply that of placing one brick upon another, until a structure arises; it involves deciding the causes and effects of the things described, negotiating what has already been said by other historians, and arguing for what the story means.

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## Q.27

Why, according to some historians, do the causes and meanings of things do not need explicit statement?

- 1 ☐ Reporting facts accurately will always lead to the same conclusion.
- 2 ☐ The historians' job is to report facts and not to draw conclusions.
- 3 ☐ Every story has two sides and it is not for the historian to decide which side to represent.
- 4 ☐ The narrative implicitly leads the reader to the intended conclusion.

Solution:

Correct Answer : 4

Refer to the lines- "simply relating the course of events is enough. Narrative, they feel, makes 'what happened' sufficiently clear in itself." This means that these historians believe that the narrative will lead to the intended conclusion.

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Answer key/Solution

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Directions for question 28: A paragraph is given below from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way. Type in that option as the answer in the space provided below the question.

## Q.28

Feminism has many definitions and interpretations. While exploring many kinds of Indian Feminism in the twentieth century, scholars have established that there is a rapidly growing critical body of thought on the matter. These ideas range from 'feminist nationalists' of the Indian national movement to the "Gandhian Feminism", "Eco-Feminism" and the idea of "new women" as viewed through the rise of the of the Hindi Right. From the 1920s Indian women wh

were active in the national movement ardently opposed the use of the term 'feminism' as understood in Europe and America on the grounds that it projected an "anti-male" ideology.

1. Often, husbands did not want their wives participating in movements because men believed the woman's job was to stay home.
2. This relationship between western and Indian feminism continues to be debated intensely within the women's movement in India.
3. As a result, in many parts of Europe women gained more rights in the family.
4. Many women opposed and formed anti-suffrage organizations.

Solution:

Correct Answer : 2

The paragraph talks about Indian idea of feminism and in the last lines its relationship and differences with the European idea of feminism. This is continued in option 2.

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Answer key/Solution

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Directions for questions 29-34: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.

Though it is impossible to trace the historical origins and evolution of fairy tales to a particular time and place, we do know that humans began telling tale as soon as they developed the capacity of speech. They may have even used sign language before speech originated to communicate vital information for adapting to their environment. Units of this information gradually formed the basis of narratives that enabled humans to learn about themselves and the worlds that they inhabited. Informative tales were not given titles. They were simply told to mark an occasion, set an example, warn about danger, procure food, or explain what seemed inexplicable.

People told stories to communicate knowledge and experience in social contexts. Though many ancient tales might seem magical, miraculous, fanciful, superstitious, or unreal to us, people believed them, and these people were and are not much different from people today who believe in religions, miracle cults, nations, and notions such as "free" democracies that have little basis. In fact, religious and patriotic stories have more in common with fairy tales than we realize, except that fairy tales tend to be secular and are not based on a prescriptive belief system or religious codes. Fairy tales are informed by a human disposition to action—to transform the world and make it more adaptable to human needs, while we also try to change and make ourselves fit for the world. Therefore, the focus of fairy tales, whether oral, written, or cinematic, has always been on finding magical instruments, extraordinary technologies, or powerful people and animals that will enable protagonists to transform themselves along with their environment, making it more suitable for living in peace and contentment. Fairy tales begin with conflict because we all begin our lives with conflict. We are all misfit for the world, and somehow, we must fit in, fit in with other people, and thus we must invent or find the means through communication to satisfy as well as resolve conflicting desires and instincts. Fairy tales are rooted in oral traditions and, as I mentioned above, were never given titles, nor did they exist in the forms in which they are told, printed, painted, recorded, performed, filmed, and manufactured today. Folklorists generally make a distinction between wonder folk tales, which originated in oral traditions throughout the world and still exist, and literary fairy tales, which emanated from the oral traditions through the mediation of manuscripts and print, and continue to be created today in various irresistible mediated forms around the world. In both the oral and literary traditions, the tale types influenced by cultural patterns are so numerous and diverse that it is almost impossible to define a wonder folk or fairy tale, or explain the relationship between the two modes of communication. There are helpful catalogues of tale types along with encyclopaedias of fairy tales. Yet, despite the value of these books, the intricate relationship and evolution of folk and fairy tales are difficult to comprehend and define. In fact, together, oral, and literary tales form one immense and complex genre because they are inextricably dependent on one another.

It is for this reason that I use the modern term "fairy tale" in my book to encompass the oral tradition as the genre's vital progenitor and try to explain the inexplicable fairy tale, including its evolution and dissemination. In other words, my use of the term fairy tale here refers to the symbiotic relationship of oral and literary currents, even if I occasionally make historical distinctions concerning the mediation and reception of different tale types. In focusing on the interaction between various mediations of the fairy tale, I want to refute the useless dichotomies such as print versus oral that some scholars are still promoting to paint a misinformed history of the fairy tale. I also want to explore the more sophisticated and innovative theories of storytelling, cultural evolution, human communication, and mimetics to see how they might enable us to understand why we are disposed toward fairy tales, and how they breathe life into our daily undertakings.

Q.29

The main idea of the passage is

- 1 ☐ to explain the origin of the various types of fairy tales.
- 2 ☐ to comment on the origin and nature of fairy tales.
- 3 ☐ to correct a few misconceptions about the types of fairy tales.
- 4 ☐ To elucidate on the modern idea of fairy tales.

Solution:

Correct Answer : 2

In the first two paragraphs, the author talks about the origin of fairy tales. In the third paragraph, he talks about the intricate relationship between folk and fairy tales. This makes option 2 correct. It is only in the last paragraph that he talks about his intention of clarifying misconceptions. If the author writes further, he would talk about this, but it is not the main idea of the passage as given. This makes option 3 incorrect.

Bookmark

Answer key/Solution

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Though it is impossible to trace the historical origins and evolution of fairy tales to a particular time and place, we do know that humans began telling tale as soon as they developed the capacity of speech. They may have even used sign language before speech originated to communicate vital information for adapting to their environment. Units of this information gradually formed the basis of narratives that enabled humans to learn about themselves and the worlds that they inhabited. Informative tales were not given titles. They were simply told to mark an occasion, set an example, warn about danger, procure food, or explain what seemed inexplicable.

People told stories to communicate knowledge and experience in social contexts. Though many ancient tales might seem magical, miraculous, fanciful, superstitious, or unreal to us, people believed them, and these people were and are not much different from people today who believe in religions, miracle cults, nations, and notions such as "free" democracies that have little basis. In fact, religious and patriotic stories have more in common with fairy tales than we realize, except that fairy tales tend to be secular and are not based on a prescriptive belief system or religious codes. Fairy tales are informed by a human disposition to action—to transform the world and make it more adaptable to human needs, while we also try to change and make ourselves fit for the world. Therefore, the focus of fairy tales, whether oral, written, or cinematic, has always been on finding magical instruments, extraordinary technologies, or powerful people and animals that will enable protagonists to transform themselves along with their environment, making it more suitable for living in peace and contentment. Fairy tales begin with conflict because we all begin our lives with conflict. We are all misfit for the world, and somehow, we must fit in, fit in with other people, and thus we must invent or find the means through communication to satisfy as well as resolve conflicting desires and instincts. Fairy tales are rooted in oral traditions and, as I mentioned above, were never given titles, nor did they exist in the forms in which they are told, printed, painted, recorded, performed, filmed, and manufactured today. Folklorists generally make a distinction between wonder folk tales, which originated in oral traditions throughout the world and still exist, and literary fairy tales, which emanated from the oral traditions through the mediation of manuscripts and print, and continue to be created today in various irresistible mediated forms around the world. In both the oral and literary traditions, the tale types influenced by cultural patterns are so numerous and diverse that it is almost impossible to define a wonder folk or fairy tale, or explain the relationship between the two modes of communication. There are helpful catalogues of tale types along with encyclopaedias of fairy tales. Yet, despite the value of these books, the intricate relationship and evolution of folk and fairy tales are difficult to comprehend and define. In fact, together, oral, and literary tales form one immense and complex genre because they are inextricably dependent on one another.

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Q.30

How do fairy tales help us in reconciling with the world around us?

1 ☐ They let us imagine a changed world which is in line with our desires.2 ☐ They let us have the power to transform the world as we see fit.3 ☐ They change our environment to suit our most basic wants.4 ☐ They are a means to create a utopian world where all ends well.

✕

Solution:

Correct Answer : 1

Your Answer : 2

Options 2 and 3 talk about an actually changed world. Fairy tales let us imagine a world so transformed that it reconciles with our desires. This is an imagined world and an imagined power to transform. Hence option 1 is correct.

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Answer key/Solution

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People told stories to communicate knowledge and experience in social contexts. Though many ancient tales might seem magical, miraculous, fanciful, superstitious, or unreal to us, people believed them, and these people were and are not much different from people today who believe in religions, miracle cults, nations, and notions such as "free" democracies that have little basis. In fact, religious and patriotic stories have more in common with fairy tales than we realize, except that fairy tales tend to be secular and are not based on a prescriptive belief system or religious codes. Fairy tales are informed by a human disposition to action—to transform the world and make it more adaptable to human needs, while we also try to change and make ourselves fit for the world. Therefore, the focus of fairy tales, whether oral, written, or cinematic, has always been on finding magical instruments, extraordinary technologies, or powerful people and animals that will enable protagonists to transform themselves along with their environment, making it more suitable for living in peace and contentment. Fairy tales begin with conflict because we all begin our lives with conflict. We are all misfit for the world, and somehow, we must fit in, fit in with other people, and thus we must invent or find the means through communication to satisfy as well as resolve conflicting desires and instincts. Fairy tales are rooted in oral traditions and, as I mentioned above, were never given titles, nor did they exist in the forms in which they are told, printed, painted, recorded, performed, filmed, and manufactured today. Folklorists generally make a distinction between wonder folk tales, which originated in oral traditions throughout the world and still exist, and literary fairy tales, which emanated from the oral traditions through the mediation of manuscripts and print, and continue to be created today in various irresistible mediated forms around the world. In both the oral and literary traditions, the tale types influenced by cultural patterns are so numerous and diverse that it is almost impossible to define a wonder folk or fairy tale, or explain the relationship between the two modes of communication. There are helpful catalogues of tale types along with encyclopaedias of fairy tales. Yet, despite the value of these books, the intricate relationship and evolution of folk and fairy tales are difficult to comprehend and define. In fact, together, oral, and literary tales form one immense and complex genre because they are inextricably dependent on one another.

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Q.31

Which of the following describes a similarity that author draws between people of ancient times and people today?

1 ☐ Both believe in fairy tales.

2 ☐ Both believe in unrealistic ideas.

3 ☐ Both like to tell stories to exchange experiences.

4 ☐ Both told stories that dealt with conflict.



Solution:

Correct Answer : 2

Your Answer : 2

The author says that the idea of people in earlier times believing in fairy tales might seem fantastical today to people, but people today also similarly believe in unrealistic ideas like nations and free democracies.

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Q.32

What does the author mean by "we all begin our lives with conflict"?



- 1 ☐ We are not able to reconcile with our wants and the world around us.
- 2 ☐ We keep looking for ways to communicate with the world around us.
- 3 ☐ Communication helps to reconcile us with other people and resolve our conflicts.
- 4 ☐ Fairy tales act as a means of expressing and resolving our conflicts.



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

Refer to the lines- ".... We are all misfit for the world, and somehow, we must fit in, fit in with other people, and thus we must invent or find the means through communication to satisfy as well as resolve conflicting desires and instincts...." This makes option 1 correct. Option 2 is what we keep doing because of the conflict; it is not the reason for the conflict. Option 3 and 4 are ways to resolve our conflict; it also not the reason for the conflict. This makes options 3 and 4 incorrect.

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Answer key/Solution

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**Q.33**

**Why are some scholarly works called the 'misinformed history of the fairy tale'?**

- 1 ☐ They try to create a distinction where none exists.
- 2 ☐ They focus on the wrong aspect of distinction between different types of tales.
- 3 ☐ It is not possible to create a clear distinction between the oral and print tradition of the tales.
- 4 ☐ The types of tales are so intricately dependent on each other that it is impossible to distinguish between them.



**Solution:**

**Correct Answer : 2**

**Your Answer : 4**

The author does not say that there is no difference between the types of tales. He says that people often focus on useless

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Answer key/Solution



dichotomies such as print versus oral etc. This means that they focus on the wrong aspect of difference between the tale types.

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Though it is impossible to trace the historical origins and evolution of fairy tales to a particular time and place, we do know that humans began telling tale as soon as they developed the capacity of speech. They may have even used sign language before speech originated to communicate vital information for adapting to their environment. Units of this information gradually formed the basis of narratives that enabled humans to learn about themselves and the worlds that they inhabited. Informative tales were not given titles. They were simply told to mark an occasion, set an example, warn about danger, procure food, or explain what seemed inexplicable.

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Q.34

The tone of the passage is:

1 ☐ preaching.

2 ☐ discursive.

3 ☐ cautious.

4 ☐ explanatory.

Solution:

Correct Answer : 4

The author is not preaching, nor is he writing a discourse. He is trying to explain certain things about nature and origin of the fairy tales. This makes option 4 correct.

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Answer key/Solution

## Sec 2

Directions for questions 35 to 38: Answer the questions on the basis of the information given below.

The following pie charts give the number of employees at UltraTech at the end of the year for the period 2012 to 2015. The charts also capture the education qualification of the employees. UltraTech does not employ people who are not at least matriculates and once a person gets recruited, he cannot pursue further education. It is also known that no employee of the company left the job during the given period.



**NOTE:** It is necessary for a doctorate to be a post graduate, for a post graduate to be a graduate and for a graduate to be a matriculate. This means that the number of matriculates also include those who went on to do their graduation, post graduation, doctorates. Similar is the case for the numbers of graduate and post graduates.

**Q.35**

How many graduates joined UltraTech in the year 2014?

- 1 ☐ 38
- 2 ☐ 56
- 3 ☐ 62
- 4 ☐ Cannot be determined



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

**Bookmark**

**Answer key/Solution**

Since the figures are cumulative (both row wise and column wise), it would have been better to construct the following table:

	Existing in 2012	Joined in 2013	Joined in 2014	Joined in 2015
Doctorates	5	11	8	4
Post Graduates but not Doctorates	12	a	b	
Graduates but not Post Graduate or Doctorates	35	c	d	
Matriculates but not Graduate, Post Graduate or Doctors	12			

The values given in the above table can easily be deduced as in any cumulative series (the value minus the preceding value).

Identifying the further values is the difficult part. Now the post graduates (including doctorates) in 2013 (including those in 2012) is 37 as given in original table. Thus  $5 + 11 + 12 + a = 37$  i.e.  $a = 9$ .

Similarly,  $5 + 11 + 8 + 12 + a + b = 50$ . Since we already know  $a = 9$ , we can find  $b = 5$ .

Also,  $5 + 12 + 35 + 11 + a + c = 112$ . Thus  $c = 40$ .

Having found a, b and c, one could have found d because  $5 + 11 + 8 + 12 + a + b + 35 + c + d = 150 \Rightarrow d = 25$ .

Now, one can populate the entire table in a similar manner. The final table will be:

	Existing in 2012	Joined in 2013	Joined in 2014	Joined in 2015
Doctorates	5	11	8	4
Post Graduates but not Doctorates	12	9	5	8
Graduates but not Post Graduates or Doctorates	35	40	25	50
Matriculates but not Graduates, Post Graduate or Doctorates	12	8	16	20

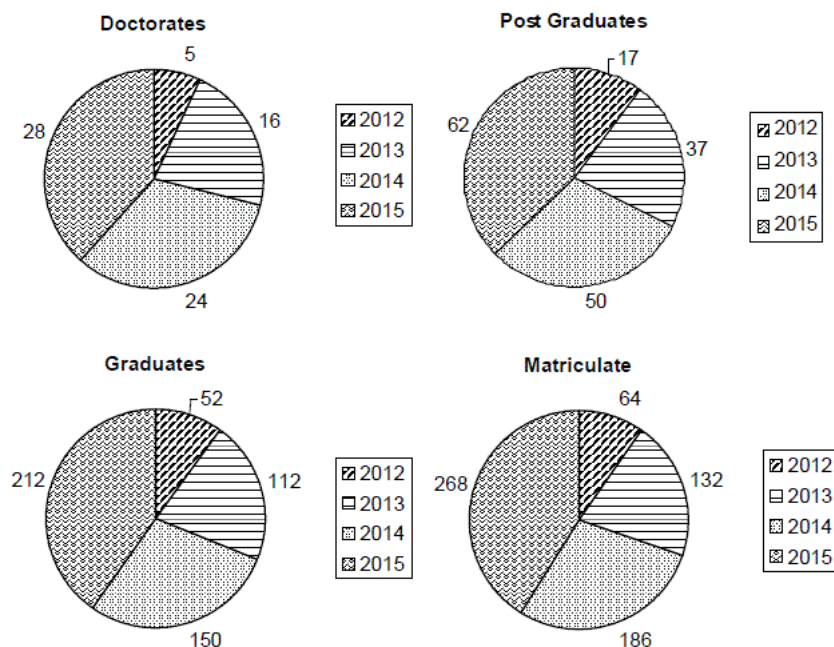
The number of graduates who joined UltraTech in the year 2014 =  $25 + 5 + 8 = 38$ .

FeedBack

Directions for questions 35 to 38: Answer the questions on the basis of the information given below.

The following pie charts give the number of employees at UltraTech at the end of the year for the period 2012 to 2015. The charts also capture the education qualification of the employees. UltraTech does not employ people who are not at least matriculates and once a person gets recruited, he cannot pursue further education. It is also known that no employee of the company left the job during the given period.

Number of Employees at the end of the year.



**NOTE:** It is necessary for a doctorate to be a post graduate, for a post graduate to be a graduate and for a graduate to be a matriculate. This means that the number of matriculates also include those who went on to do their graduation, post graduation, doctorates. Similar is the case for the numbers of graduate and post graduates.

**Q.36**

How many post graduates who were not doctorates joined UltraTech in 2014 and 2015 put together?

- 1 ☐ 14
- 2 ☐ 13
- 3 ☐ 12
- 4 ☐ Cannot be determined



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

Since the figures are cumulative (both row wise and column wise), it would have been better to construct the following table:

	Existing in 2012	Joined in 2013	Joined in 2014	Joined in 2015
Doctorates	5	11	8	4
Post Graduates but not Doctorates	12	a	b	
Graduates but not Post Graduate or Doctorates	35	c	d	
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Matriculates but not Graduates, Post Graduate or Doctorates	12	8	16	20

The number of post graduates who were not doctorates, that joined UltraTech in 2014 and 2015 put together =  $5 + 8 = 13$ .

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Answer key/Solution

**Directions for questions 35 to 38: Answer the questions on the basis of the information given below.**

The following pie charts give the number of employees at UltraTech at the end of the year for the period 2012 to 2015. The charts also capture the education qualification of the employees. UltraTech does not employ people who are not at least matriculates and once a person gets recruited, he cannot pursue further education. It is also known that no employee of the company left the job during the given period.



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**Q.37**

How many employees joined UltraTech in the year 2013?

- 1 ☐ 68
- 2 ☐ 91
- 3 ☐ 84
- 4 ☐ Cannot be determined



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

**Bookmark**

**Answer key/Solution**

Since the figures are cumulative (both row wise and column wise), it would have been better to construct the following table:

	Existing in 2012	Joined in 2013	Joined in 2014	Joined in 2015
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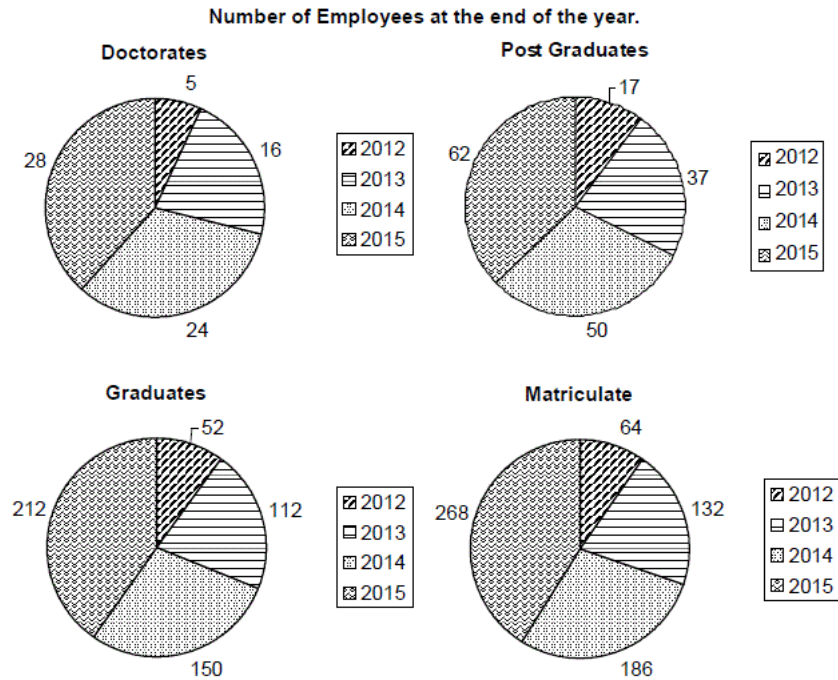
The number of employees that joined UltraTech in the year 2013 =  $132 - 64 = 68$ .

FeedBack

**Directions for questions 35 to 38: Answer the questions on the basis of the information given below.**

The following pie charts give the number of employees at UltraTech at the end of the year for the period 2012 to 2015. The charts also capture the education qualification of the employees. UltraTech does not employ people who are not at least matriculates and once a person gets recruited, he cannot pursue further education. It is also known that no employee of the company left the job during the given period.





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**Q.38**

What was the absolute difference between the number of doctorates who joined Ultra Tech in the year 2013 and 2015?

1 ☐ 2

2 ☐ 5

3 ☐ 7

4 ☐ 9



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

**Bookmark**

**Answer key/Solution**

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Identifying the further values is the difficult part. Now the post graduates (including doctorates) in 2013 (including those in 2012) is 37 as given in original table. Thus  $5 + 11 + 12 + a = 37$  i.e.  $a = 9$ .

Similarly,  $5 + 11 + 8 + 12 + a + b = 50$ . Since we already know  $a = 9$ , we can find  $b = 5$ .

Also,  $5 + 12 + 35 + 11 + a + c = 112$ . Thus  $c = 40$ .

Having found a, b and c, one could have found d because  $5 + 11 + 8 + 12 + a + b + 35 + c + d = 150 \Rightarrow d = 25$ .

Now, one can populate the entire table in a similar manner. The final table will be:

	Existing in 2012	Joined in 2013	Joined in 2014	Joined in 2015
Doctorates	5	11	8	4
Post Graduates but not Doctorates	12	9	5	8
Graduates but not Post Graduates or Doctorates	35	40	25	50
Matriculates but not Graduates, Post Graduate or Doctorates	12	8	16	20

The required difference =  $11 - 4 = 7$ .

FeedBack

Directions for questions 39 to 42: Answer the questions on the basis of the information given below.

In a face-off between India and Pakistan, 5 soldiers from each side are facing each other, with one Indian soldier facing exactly one Pakistani soldier. Two of the Pakistani soldiers are terrorists and one of the Indian soldiers is a traitor who has planted landmines on which two other Indian soldiers are standing. One soldier on each side is carrying a Bazooka. It is also known that:

- I. Neither of those Pakistani soldiers who are terrorists is facing the Indian traitor.
- II. Exactly one Indian soldier is standing between the two Indian soldiers who are standing on the landmine. The same is true for the two Pakistani soldiers who are terrorists.
- III. The Pakistani soldier standing between the soldiers who are terrorists is facing one of the Indian soldiers standing on landmines.
- IV. The Indian soldier who is carrying the Bazooka and is not the traitor, is the neighbor of only one soldier who is standing on the landmine.
- V. One of the soldiers carrying the Bazooka is standing in the middle of its defense line and the other on the extreme end.

Q.39

Which of the following statements is definitely true?

- 1 ☐ One of the soldiers carrying the Bazooka is a terrorist and is standing in the middle of the defense line of Pakistan.
- 2 ☐ One of the soldiers carrying the Bazooka is a terrorist and is standing at one of the extreme ends of the defense line of Pakistan.
- 3 ☐ The Indian soldier carrying the Bazooka is standing in the middle of its defense line.
- 4 ☐ The Indian soldier carrying the Bazooka is standing in the middle of the soldiers standing on landmine.



Solution:

Correct Answer : 1

Your Answer : 1

Bookmark

Answer key/Solution

Using statements II and III, we have the following two possibilities

Pakistan	Terrorist	_____	Terrorist	_____	_____
India	_____	Mine	_____	Mine	_____

Pakistan	_____	Terrorist	_____	Terrorist	_____
India	Mine	_____	Mine	_____	_____

Pakistan	_____	_____	Terrorist	_____	Terrorist
India	_____	Mine	_____	Mine	_____

Using statements IV and V, we get the following tables:

Pakistan	Terrorist	_____	Terrorist (Bazooka)	_____	_____
India	Bazooka	Mine	_____	Mine	Traitor

Pakistan	_____	_____	Terrorist (Bazooka)	_____	Terrorist
India	Traitor	Mine	_____	Mine	Bazooka

Now, the Pakistani soldier carrying the Bazooka will be the terrorist who is standing in the middle of the defense line.

From the arrangement, we can say that option (1) true.

FeedBack

Directions for questions 39 to 42: Answer the questions on the basis of the information given below.

In a face-off between India and Pakistan, 5 soldiers from each side are facing each other, with one Indian soldier facing exactly one Pakistani soldier. Two of the Pakistani soldiers are terrorists and one of the Indian soldiers is a traitor who has planted landmines on which two other Indian soldiers are standing. One soldier on each side is carrying a Bazooka. It is also known that:

I. Neither of those Pakistani soldiers who are terrorists is facing the Indian traitor.

II. Exactly one Indian soldier is standing between the two Indian soldiers who are standing on the landmine. The same is true for the two Pakistani soldiers who are terrorists.

III. The Pakistani soldier standing between the soldiers who are terrorists is facing one of the Indian soldiers standing on landmines.

IV. The Indian soldier who is carrying the Bazooka and is not the traitor, is the neighbor of only one soldier who is standing on the landmine.

V. One of the soldiers carrying the Bazooka is standing in the middle of its defense line and the other on the extreme end.

Q.40

Which of the following is not a neighbor of the soldiers standing on landmine?

- 1 ☐ Indian traitor
- 2 ☐ Soldier with the Bazooka
- 3 ☐ A soldier who is neither an Indian traitor nor carrying the Bazooka
- 4 ☐ None of these



Solution:

Correct Answer : 4

Your Answer : 4

Bookmark

Answer key/Solution

Using statements II and III, we have the following two possibilities

Pakistan	Terrorist	_____	Terrorist	_____	_____
India	_____	Mine	_____	Mine	_____

Pakistan	_____	Terrorist	_____	Terrorist	_____
India	Mine	_____	Mine	_____	_____

Pakistan	_____	_____	Terrorist	_____	Terrorist
India	_____	Mine	_____	Mine	_____

Using statements IV and V, we get the following tables:

Pakistan	Terrorist	_____	Terrorist (Bazooka)	_____	_____
India	Bazooka	Mine	_____	Mine	Traitor

Pakistan	_____	_____	Terrorist (Bazooka)	_____	Terrorist
India	Traitor	Mine	_____	Mine	Bazooka

Now, the Pakistani soldier carrying the Bazooka will be the terrorist who is standing in the middle of the defense line.

The traitor, the soldier with Bazooka, and the soldier who is neither a traitor nor carrying the Bazooka are all neighbours of either of the soldier standing on the mine.

FeedBack

Directions for questions 39 to 42: Answer the questions on the basis of the information given below.

In a face-off between India and Pakistan, 5 soldiers from each side are facing each other, with one Indian soldier facing exactly one Pakistani soldier. Two of the Pakistani soldiers are terrorists and one of the Indian soldiers is a traitor who has planted landmines on which two other Indian soldiers are standing. One soldier on each side is carrying a Bazooka. It is also known that:

I. Neither of those Pakistani soldiers who are terrorists is facing the Indian traitor.

II. Exactly one Indian soldier is standing between the two Indian soldiers who are standing on the landmine. The same is true for the two Pakistani soldiers who are terrorists.

III. The Pakistani soldier standing between the soldiers who are terrorists is facing one of the Indian soldiers standing on landmines.

IV. The Indian soldier who is carrying the Bazooka and is not the traitor, is the neighbor of only one soldier who is standing on the landmine.

V. One of the soldiers carrying the Bazooka is standing in the middle of its defense line and the other on the extreme end.

**Q.41**

Which of the following pairs of soldiers are facing each other?

- 1 ☐ Terrorist with Bazooka and the Indian traitor.
- 2 ☐ One of the Indian soldiers standing on landmine and a Pakistani soldier with Bazooka.
- 3 ☐ Terrorist without Bazooka and the Indian soldier with Bazooka.
- 4 ☐ Indian soldier with Bazooka and a Pakistani soldier who is neither a terrorist nor carrying the Bazooka.



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

Bookmark

Answer key/Solution

Using statements II and III, we have the following two possibilities

Pakistan	Terrorist	_____	Terrorist	_____	_____
India	_____	Mine	_____	Mine	_____

Pakistan	_____	Terrorist	_____	Terrorist	_____
India	Mine	_____	Mine	_____	_____

Pakistan	_____	_____	Terrorist	_____	Terrorist
India	_____	Mine	_____	Mine	_____

Using statements IV and V, we get the following tables:

Pakistan	Terrorist	_____	Terrorist (Bazooka)	_____	_____
India	Bazooka	Mine	_____	Mine	Traitor

Pakistan	_____	_____	Terrorist (Bazooka)	_____	Terrorist
India	Traitor	Mine	_____	Mine	Bazooka

Now, the Pakistani soldier carrying the Bazooka will be the terrorist who is standing in the middle of the defense line.

Terrorist without Bazooka and the Indian soldier with Bazooka are facing each other.

FeedBack

Directions for questions 39 to 42: Answer the questions on the basis of the information given below.

In a face-off between India and Pakistan, 5 soldiers from each side are facing each other, with one Indian soldier facing exactly one Pakistani soldier. Two of the Pakistani soldiers are terrorists and one of the Indian soldiers is a traitor who has planted landmines on which two other Indian soldiers are standing. One soldier on each side is carrying a Bazooka. It is also known that:

I. Neither of those Pakistani soldiers who are terrorists is facing the Indian traitor.

II. Exactly one Indian soldier is standing between the two Indian soldiers who are standing on the landmine. The same is true for the two Pakistani soldiers who are terrorists.

III. The Pakistani soldier standing between the soldiers who are terrorists is facing one of the Indian soldiers standing on landmines.

IV. The Indian soldier who is carrying the Bazooka and is not the traitor, is the neighbor of only one soldier who is standing on the landmine.

V. One of the soldiers carrying the Bazooka is standing in the middle of its defense line and the other on the extreme end.

Q.42

Who among the following is standing opposite the terrorist with Bazooka?

1 ☐ Indian soldier with Bazooka

2 ☐ Indian soldier standing on the landmine

3 ☐ The Indian traitor

4 ☐ None of these



Solution:

Correct Answer : 4

Your Answer : 4

Using statements II and III, we have the following two possibilities

Pakistan	Terrorist	_____	Terrorist	_____	_____
India	_____	Mine	_____	Mine	_____

Pakistan	_____	Terrorist	_____	Terrorist	_____
India	Mine	_____	Mine	_____	_____

Pakistan	_____	_____	Terrorist	_____	Terrorist
India	_____	Mine	_____	Mine	_____

Using statements IV and V, we get the following tables:

Pakistan	Terrorist	_____	Terrorist (Bazooka)	_____	_____
India	Bazooka	Mine	_____	Mine	Traitor

Pakistan	_____	_____	Terrorist (Bazooka)	_____	Terrorist
India	Traitor	Mine	_____	Mine	Bazooka

Now, the Pakistani soldier carrying the Bazooka will be the terrorist who is standing in the middle of the defense line.

Bookmark

Answer key/Solution

[FeedBack](#)

Directions for questions 43 to 46: Answer the questions on the basis of the information given below.

Seven students – Jagan, Kamal, Lakhan, Manoj, Nipun, Parul and Rahul – of a leading B-school joined three different clubs from among Marketing, Finance and Placement. Each student joined exactly one out of the three clubs. Further, it is known that:

I. Kamal Joined the Placement club.

II. Lakhan and Manoj joined the same club.

III. Rahul Joined either the Marketing club or the Finance club.

IV. The number of students who joined the Placement club is twice of the number of students who joined the Marketing club.

V. Nipun and Rahul joined different clubs. The same is true for Jagan and Parul.

VI. Exactly one student Joined the Finance club.

**Q.43**

If Jagan Joined the Finance club, then which club did Nipun join?

1 ☐ Placement

2 ☐ Marketing

3 ☐ Finance

4 ☐ Either (1) or (2)



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

By using the given information, we can arrive at the following six cases:

Case I:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Finance	Placement	Placement	Placement	Placement	Marketing	Marketing

Case II:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Placement	Finance	Marketing

Case III:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Finance	Placement	Marketing

Case IV:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Placement	Placement	Placement	Placement	Finance	Marketing	Marketing

Case V:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Marketing	Placement	Finance

Case VI:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Placement	Placement	Placement	Placement	Marketing	Marketing	Finance

Given that Jagan joined the Finance club, which implies that it is Case I.

Therefore, Nipun joined the Placement club.

[FeedBack](#)

**Bookmark**

**Answer key/Solution**

Directions for questions 43 to 46: Answer the questions on the basis of the information given below.

Seven students – Jagan, Kamal, Lakhan, Manoj, Nipun, Parul and Rahul – of a leading B-school joined three different clubs from among Marketing, Finance and Placement. Each student joined exactly one out of the three clubs. Further, it is known that:

I. Kamal Joined the Placement club.

II. Lakhan and Manoj joined the same club.

III. Rahul Joined either the Marketing club or the Finance club.

IV. The number of students who joined the Placement club is twice of the number of students who joined the Marketing club.

V. Nipun and Rahul joined different clubs. The same is true for Jagan and Parul.

VI. Exactly one student Joined the Finance club.



## Q.44

Each of the following options contains a list of students who could join the same club EXCEPT:

- 1 ☐ Jagan, Kamal and Manoj
- 2 ☐ Jagan, Lakhan and Manoj
- 3 ☐ Kamal, Lakhan and Parul
- 4 ☐ Kamal, Parul and Rahul



**Solution:**

**Correct Answer : 4**

**Your Answer : 4**

By using the given information, we can arrive at the following six cases:

Case I:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Finance	Placement	Placement	Placement	Placement	Marketing	Marketing

Case II:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Placement	Finance	Marketing

Case III:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Finance	Placement	Marketing

Case IV:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Placement	Placement	Placement	Placement	Finance	Marketing	Marketing

Case V:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Marketing	Placement	Finance

Case VI:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Placement	Placement	Placement	Placement	Marketing	Marketing	Finance

From the given six cases, it can be observed that the students given in option (4) cannot join the same club.

FeedBack

Bookmark

Answer key/Solution

**Directions for questions 43 to 46: Answer the questions on the basis of the information given below.**

Seven students – Jagan, Kamal, Lakhan, Manoj, Nipun, Parul and Rahul – of a leading B-school joined three different clubs from among Marketing, Finance and Placement. Each student joined exactly one out of the three clubs. Further, it is known that:

I. Kamal Joined the Placement club.

II. Lakhan and Manoj joined the same club.

III. Rahul Joined either the Marketing club or the Finance club.

IV. The number of students who joined the Placement club is twice of the number of students who joined the Marketing club.

V. Nipun and Rahul joined different clubs. The same is true for Jagan and Parul.

VI. Exactly one student Joined the Finance club.

## Q.45

Which club did Manoj join?

- 1 ☐ Finance
- 2 ☐ Marketing
- 3 ☐ Placement
- 4 ☐ Cannot be determined



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

Bookmark

Answer key/Solution

By using the given information, we can arrive at the following six cases:

Case I:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Finance	Placement	Placement	Placement	Placement	Marketing	Marketing

Case II:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Placement	Finance	Marketing

Case III:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Finance	Placement	Marketing

Case IV:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Placement	Placement	Placement	Placement	Finance	Marketing	Marketing

Case V:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Marketing	Placement	Finance

Case VI:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Placement	Placement	Placement	Placement	Marketing	Marketing	Finance

In all the 6 cases, Manoj joined the Placement club.

FeedBack

Directions for questions 43 to 46: Answer the questions on the basis of the information given below.

Seven students – Jagan, Kamal, Lakhan, Manoj, Nipun, Parul and Rahul – of a leading B-school joined three different clubs from among Marketing, Finance and Placement. Each student joined exactly one out of the three clubs. Further, it is known that:

I. Kamal Joined the Placement club.

II. Lakhan and Manoj joined the same club.

III. Rahul Joined either the Marketing club or the Finance club.

IV. The number of students who joined the Placement club is twice of the number of students who joined the Marketing club.

V. Nipun and Rahul joined different clubs. The same is true for Jagan and Parul.

VI. Exactly one student Joined the Finance club.

Q.46

If Rahul Joined the Finance club, who among the following did definitely not join the Placement club?

1 ☐ Jagan

2 ☐ Kamal

3 ☐ Nipun

4 ☐ None of these



Solution:

Correct Answer : 3

Your Answer : 3

Bookmark

Answer key/Solution

By using the given information, we can arrive at the following six cases:

Case I:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Finance	Placement	Placement	Placement	Placement	Marketing	Marketing

Case II:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Placement	Finance	Marketing

Case III:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Finance	Placement	Marketing

Case IV:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Placement	Placement	Placement	Placement	Finance	Marketing	Marketing

Case V:

Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Marketing	Placement	Placement	Placement	Marketing	Placement	Finance

Case VI:

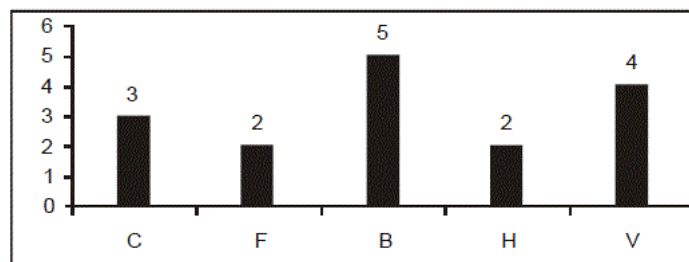
Jagan	Kamal	Lakhan	Manoj	Nipun	Parul	Rahul
Placement	Placement	Placement	Placement	Marketing	Marketing	Finance

From cases V and VI, it can be seen that when Rahul Joined in Finance club, Nipun could not join the Placement club.

FeedBack

Directions for questions 47 to 50: Answer the question on the basis of the information given below.

Each of the six siblings namely Azhar, Atif, Aslam, Aaqib, Armaan and Ahmad are asked to choose three sports out of six different sports namely Cricket, Football, Hockey, Basketball, Swimming and Volleyball. The number of siblings who chose Cricket, Football, Hockey, Basketball, Swimming and Volleyball is denoted by C, F, H, B, S and V respectively. The following bar graph gives the values of C, F, H, B and V.



Additional Information:

- I. Atif has chosen exactly one sport, which Armaan did not choose.
- II. Exactly two sports chosen by Azhar and Aslam were the same. The three sports chosen by Aslam and Ahmad were the same.
- III. Ahmad chose Cricket as well as Swimming, and Armaan did not choose Basketball.

Q.47

Which of the following sports was definitely chosen by Azhar?

Fill "1 if your answer is Swimming"

Fill "2 if your answer is Cricket"

Fill "3 if your answer is Basketball"

Fill "4 if your answer is Both (2) and (3)"

Solution:

Correct Answer : 4

Bookmark

Answer key/Solution

It is clear that  $C + F + H + B + S + V = 18$

Also, from the bar graph, the value of C, F, B, H and V is 3, 2, 5, 2 and 4 respectively.

Therefore,  $S = 18 - (3 + 2 + 5 + 2 + 4) = 2$ .

Since the number of siblings who chose Basketball is 5 and there are exactly three sports that were not chosen by Aslam as well as Ahmad (additional information II) and Aslam as well as Ahmad chose Basketball. Also, from additional information II, Aslam and Azhar chose Cricket and Swimming. Since the number of siblings who chose Volleyball is 4, except for Ahmad and Azhar, every other sibling chose Volleyball. Armaan did not choose Basketball and there was one sport that was not chosen by Armaan but was chosen by Atif, therefore, that sport was Basketball. Also, the three sports chosen by Armaan are Football, Hockey and Volleyball. Further analysis leads to the following table:

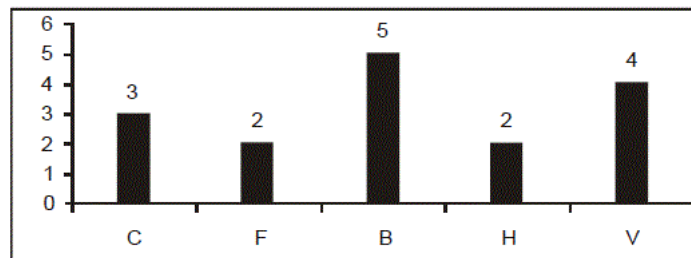
	Azhar	Atif	Aslam	Aaqib	Armaan	Ahmad
Cricket	Yes	No	Yes	No	No	Yes
Football	No		No		Yes	No
Hockey	No		No		Yes	No
Basketball	Yes	Yes	Yes	Yes	No	Yes
Swimming	No	No	Yes	No	No	Yes
Volleyball	Yes	Yes	No	Yes	Yes	No

From additional information (III), Ahmad chose Cricket and Swimming. In additional information (II), it is given that there are exactly two sports that were chosen by Azhar as well as Aslam. Since the number of siblings who chose Swimming is 2, Azhar must have chosen Cricket and Basketball.

FeedBack

Directions for questions 47 to 50: Answer the question on the basis of the information given below.

Each of the six siblings namely Azhar, Atif, Aslam, Aaqib, Armaan and Ahmad are asked to choose three sports out of six different sports namely Cricket, Football, Hockey, Basketball, Swimming and Volleyball. The number of siblings who chose Cricket, Football, Hockey, Basketball, Swimming and Volleyball is denoted by C, F, H, B, S and V respectively. The following bar graph gives the values of C, F, H, B and V.



Additional Information:

- I. Atif has chosen exactly one sport, which Armaan did not choose.
- II. Exactly two sports chosen by Azhar and Aslam were the same. The three sports chosen by Aslam and Ahmad were the same.
- III. Ahmad chose Cricket as well as Swimming, and Armaan did not choose Basketball.

Q.48

For how many siblings, the three sports chosen by them can be uniquely determined?

Fill "1 if your answer is Six"

Fill "2 if your answer is Two"

Fill "3 if your answer is Four"

Fill "4 if your answer is Three"

Solution:

Correct Answer : 3

Bookmark

Answer key/Solution

It is clear that  $C + F + H + B + S + V = 18$

Also, from the bar graph, the value of C, F, B, H and V is 3, 2, 5, 2 and 4 respectively.

Therefore,  $S = 18 - (3 + 2 + 5 + 2 + 4) = 2$ .

Since the number of siblings who chose Basketball is 5 and there are exactly three sports that were not chosen by Aslam as well as Ahmad (additional information II) and Aslam as well as Ahmad chose Basketball. Also, from additional information II, Aslam and Azhar chose Cricket and Swimming. Since the number of siblings who chose Volleyball is 4, except for Ahmad and Azhar, every other sibling chose Volleyball. Armaan did not choose Basketball and there was one sport that was not chosen by Armaan but was chosen by Atif, therefore, that sport was Basketball. Also, the three sports chosen by Armaan are Football, Hockey and Volleyball. Further analysis leads to the following table:

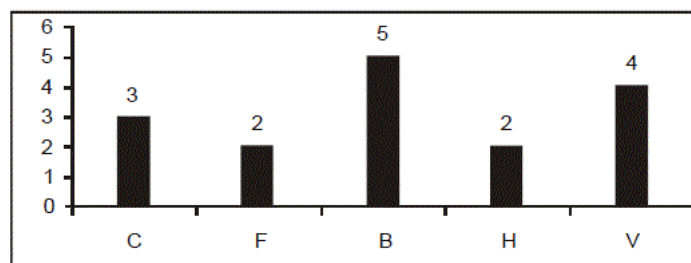
	Azhar	Atif	Aslam	Aaqib	Armaan	Ahmad
Cricket	Yes	No	Yes	No	No	Yes
Football	No		No		Yes	No
Hockey	No		No		Yes	No
Basketball	Yes	Yes	Yes	Yes	No	Yes
Swimming	No	No	Yes	No	No	Yes
Volleyball	Yes	Yes	No	Yes	Yes	No

Except for Atif and Aaqib, for every other sibling the sports chosen by them can be uniquely determined. Hence, the required answer is 4.

FeedBack

Directions for questions 47 to 50: Answer the question on the basis of the information given below.

Each of the six siblings namely Azhar, Atif, Aslam, Aaqib, Armaan and Ahmad are asked to choose three sports out of six different sports namely Cricket, Football, Hockey, Basketball, Swimming and Volleyball. The number of siblings who chose Cricket, Football, Hockey, Basketball, Swimming and Volleyball is denoted by C, F, H, B, S and V respectively. The following bar graph gives the values of C, F, H, B and V.



Additional Information:

- I. Atif has chosen exactly one sport, which Armaan did not choose.
- II. Exactly two sports chosen by Azhar and Aslam were the same. The three sports chosen by Aslam and Ahmad were the same.
- III. Ahmad chose Cricket as well as Swimming, and Armaan did not choose Basketball.

Q.49

Which of the following two siblings chose Hockey?

Fill "1 if your answer is Armaan and Aaqib"

Fill "2 if your answer is Aaqib and Atif"

Fill "3 if your answer is Atif and Armaan"

Fill "4 if your answer is Cannot be determined"

Solution:

Correct Answer : 4

Bookmark

Answer key/Solution

It is clear that  $C + F + H + B + S + V = 18$

Also, from the bar graph, the value of C, F, B, H and V is 3, 2, 5, 2 and 4 respectively.

Therefore,  $S = 18 - (3 + 2 + 5 + 2 + 4) = 2$ .

Since the number of siblings who chose Basketball is 5 and there are exactly three sports that were not chosen by Aslam as well as Ahmad (additional information II) and Aslam as well as Ahmad chose Basketball. Also, from additional information II, Aslam and Azhar chose Cricket and Swimming. Since the number of siblings who chose Volleyball is 4, except for Ahmad and Azhar, every other sibling chose Volleyball. Armaan did not choose Basketball and there was one sport that was not chosen by Armaan but was chosen by Atif, therefore, that sport was Basketball. Also, the three sports chosen by Armaan are Football, Hockey and Volleyball. Further analysis leads to the following table:

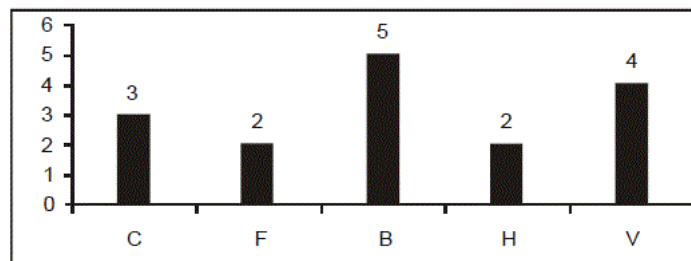
	Azhar	Atif	Aslam	Aaqib	Armaan	Ahmad
Cricket	Yes	No	Yes	No	No	Yes
Football	No		No		Yes	No
Hockey	No		No		Yes	No
Basketball	Yes	Yes	Yes	Yes	No	Yes
Swimming	No	No	Yes	No	No	Yes
Volleyball	Yes	Yes	No	Yes	Yes	No

It cannot be uniquely determined.

FeedBack

Directions for questions 47 to 50: Answer the question on the basis of the information given below.

Each of the six siblings namely Azhar, Atif, Aslam, Aaqib, Armaan and Ahmad are asked to choose three sports out of six different sports namely Cricket, Football, Hockey, Basketball, Swimming and Volleyball. The number of siblings who chose Cricket, Football, Hockey, Basketball, Swimming and Volleyball is denoted by C, F, H, B, S and V respectively. The following bar graph gives the values of C, F, H, B and V.



Additional Information:

I. Atif has chosen exactly one sport, which Armaan did not choose.

II. Exactly two sports chosen by Azhar and Aslam were the same. The three sports chosen by Aslam and Ahmad were the same.

III. Ahmad chose Cricket as well as Swimming, and Armaan did not choose Basketball.

Q.50

The three sports chosen by Armaan were

Fill "1 if your answer is Football, Hockey and Volleyball"

Fill "2 if your answer is Football, Hockey and Swimming"

Fill "3 if your answer is Cricket, Hockey and Volleyball"

Fill "4 if your answer is Football, Cricket and Swimming"

Solution:

Correct Answer : 1

Bookmark

Answer key/Solution



It is clear that  $C + F + H + B + S + V = 18$

Also, from the bar graph, the value of C, F, B, H and V is 3, 2, 5, 2 and 4 respectively.

Therefore,  $S = 18 - (3 + 2 + 5 + 2 + 4) = 2$ .

Since the number of siblings who chose Basketball is 5 and there are exactly three sports that were not chosen by Aslam as well as Ahmad (additional information I) and Aslam as well as Ahmad chose Basketball. Also, from additional information II, Aslam and Azhar chose Cricket and Swimming. Since the number of siblings who chose Volleyball is 4, except for Ahmad and Azhar, every other sibling chose Volleyball. Armaan did not choose Basketball and there was one sport that was not chosen by Armaan but was chosen by Atif, therefore, that sport was Basketball. Also, the three sports chosen by Armaan are Football, Hockey and Volleyball. Further analysis leads to the following table:

	Azhar	Atif	Aslam	Aaqib	Armaan	Ahmad
Cricket	Yes	No	Yes	No	No	Yes
Football	No		No		Yes	No
Hockey	No		No		Yes	No
Basketball	Yes	Yes	Yes	Yes	No	Yes
Swimming	No	No	Yes	No	No	Yes
Volleyball	Yes	Yes	No	Yes	Yes	No

Armaan chose Football, Hockey and Volleyball.

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Directions for questions 51 to 54: Answer the questions on the basis of the information given below.

Exactly three out of the six persons namely Sam, Jane, Manohar, Harish, Carl and Austin had one coin each with them. Each of those three persons had a coin of denomination different from the other two. The coins were of denominations Rs. 5, Rs. 2 and Re. 1. Assume that other than these coins, no person had money in any other form. Five persons namely P, Q, R, S and T were asked to predict the names of the people having the coins of different denomination. The following table lists down the predictions made by P, Q, R, S and T.

	Rs. 5	Rs. 2	Re. 1
P	Sam	Manohar	Austin
Q	Austin	Jane	Harish
R	Manohar	Sam	Carl
S	Carl	Austin	Sam
T	Manohar	Sam	Harish

Further, it is known that:

- I. Only one person predicted by P had a coin but did not have the coin of the same denomination as predicted by P.
- II. Only one person predicted by Q had a coin but did not have the coin of the same denomination as predicted by Q.
- III. Exactly two people predicted by S had a coin each with them but none had the coin of the same denomination as predicted by S.

Q.51

What was the sum of amount with Manohar, Sam and Carl?

1 ☐ Rs. 3

2 ☐ Rs. 6

3 ☐ Rs. 7

4 ☐ Cannot be determined



Solution:

Correct Answer : 1

Your Answer : 1

From statement (III), it is clear that two of Carl, Austin and Sam had coins. Austin could not have any coin because if he had one, from (III) it should have been either Rs.5 or Re. 1, but from (I) he could not have Re. 1 and from II he could not have Rs. 5. Hence, Carl and Sam had coins with them.

From (I) and (III), it can be concluded that Sam had a Rs. 2 coin with him. So, Carl had either Re. 1 or Rs. 5, but Carl could not have a Rs. 5 coin (from III). Thus, he had a Re. 1 coin. Now,

from (I) we can say that Manohar didn't have any coin and from (II) we can say that one of Jane and Harish had Rs. 5 coin whereas the other had nothing.

The sum of amount with Manohar, Sam and Carl was  
Rs. 2 + Re. 1 = Rs. 3

Bookmark

Answer key/Solution

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Directions for questions 51 to 54: Answer the questions on the basis of the information given below.

Exactly three out of the six persons namely Sam, Jane, Manohar, Harish, Carl and Austin had one coin each with them. Each of those three persons had a coin of denomination different from the other two. The coins were of denominations Rs. 5, Rs. 2 and Re. 1. Assume that other than these coins, no person had money in any other form. Five persons namely P, Q, R, S and T were asked to predict the names of the people having the coins of different denomination. The following table lists down the predictions made by P, Q, R, S and T.

	Rs. 5	Rs. 2	Re. 1
P	Sam	Manohar	Austin
Q	Austin	Jane	Harish
R	Manohar	Sam	Carl
S	Carl	Austin	Sam
T	Manohar	Sam	Harish

Further, it is known that:

- I. Only one person predicted by P had a coin but did not have the coin of the same denomination as predicted by P.
- II. Only one person predicted by Q had a coin but did not have the coin of the same denomination as predicted by Q.
- III. Exactly two people predicted by S had a coin each with them but none had the coin of the same denomination as predicted by S.

Q.52

What was the sum of amount with Austin, Jane and Harish?

- 1 ☐ Re. 1
- 2 ☐ Rs. 2
- 3 ☐ Rs. 5
- 4 ☐ Either (2) or (3)



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

From statement (III), it is clear that two of Carl, Austin and Sam had coins. Austin could not have any coin because if he had one, from (III) it should have been either Rs.5 or Re. 1, but from (I) he could not have Re. 1 and from II he could not have Rs. 5. Hence, Carl and Sam had coins with them.

From (I) and (III), it can be concluded that Sam had a Rs. 2 coin with him. So, Carl had either Re. 1 or Rs. 5, but Carl could not have a Rs. 5 coin (from III). Thus, he had a Re. 1 coin. Now,

from (I) we can say that Manohar didn't have any coin and from (II) we can say that one of Jane and Harish had Rs. 5 coin whereas the other had nothing.

Either Jane or Harish had a Rs. 5 coin.  
So, the sum of amount with Austin, Jane and Harish was Rs. 5.

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Directions for questions 51 to 54: Answer the questions on the basis of the information given below.

Exactly three out of the six persons namely Sam, Jane, Manohar, Harish, Carl and Austin had one coin each with them. Each of those three persons had a coin of denomination different from the other two. The coins were of denominations Rs. 5, Rs. 2 and Re. 1. Assume that other than these coins, no person had money in any other form. Five persons namely P, Q, R, S and T were asked to predict the names of the people having the coins of different

denomination. The following table lists down the predictions made by P, Q, R, S and T.

	Rs. 5	Rs. 2	Re. 1
P	Sam	Manohar	Austin
Q	Austin	Jane	Harish
R	Manohar	Sam	Carl
S	Carl	Austin	Sam
T	Manohar	Sam	Harish

Further, it is known that:

- I. Only one person predicted by P had a coin but did not have the coin of the same denomination as predicted by P.
- II. Only one person predicted by Q had a coin but did not have the coin of the same denomination as predicted by Q.
- III. Exactly two people predicted by S had a coin each with them but none had the coin of the same denomination as predicted by S.

Q.53

Which of the following statements, if given would be sufficient to determine the sum of amount with Manohar, Sam and Harish?

- 1 ☐ The amount of money with Sam was more than that with Carl.
- 2 ☐ The amount of money with Carl was more than that with Manohar.
- 3 ☐ The amount of money with Manohar was same as that with Austin.
- 4 ☐ The amount of money with Austin was less than that with Jane.



**Solution:**

**Correct Answer : 4**

**Your Answer : 4**

From statement (III), it is clear that two of Carl, Austin and Sam had coins. Austin could not have any coin because if he had one, from (III) it should have been either Rs.5 or Re. 1, but from (I) he could not have Re. 1 and from II he could not have Rs. 5. Hence, Carl and Sam had coins with them.

From (I) and (III), it can be concluded that Sam had a Rs. 2 coin with him. So, Carl had either Re. 1 or Rs. 5, but Carl could not have a Rs. 5 coin (from III). Thus, he had a Re. 1 coin. Now,

from (I) we can say that Manohar didn't have any coin and from (II) we can say that one of Jane and Harish had Rs. 5 coin whereas the other had nothing.

Only statement (4) provides us with the information that Jane had a Rs. 5 coin.

So, statement (4) is sufficient to calculate the sum of amount with Manohar, Sam and Harish.

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Answer key/Solution

Directions for questions 51 to 54: Answer the questions on the basis of the information given below.

Exactly three out of the six persons namely Sam, Jane, Manohar, Harish, Carl and Austin had one coin each with them. Each of those three persons had a coin of denomination different from the other two. The coins were of denominations Rs. 5, Rs. 2 and Re. 1. Assume that other than these coins, no person had money in any other form. Five persons namely P, Q, R, S and T were asked to predict the names of the people having the coins of different denomination. The following table lists down the predictions made by P, Q, R, S and T.

	Rs. 5	Rs. 2	Re. 1
P	Sam	Manohar	Austin
Q	Austin	Jane	Harish
R	Manohar	Sam	Carl
S	Carl	Austin	Sam
T	Manohar	Sam	Harish

Further, it is known that:

- I. Only one person predicted by P had a coin but did not have the coin of the same denomination as predicted by P.
- II. Only one person predicted by Q had a coin but did not have the coin of the same denomination as predicted by Q.
- III. Exactly two people predicted by S had a coin each with them but none had the coin of the same denomination as predicted by S.

Q.54

If the sum of amount (in Rs.) with Manohar, Sam and Harish was x, then which of the following could be a possible value of x?

- A. 2
- B. 0
- C. 7

D. 8

1 ☐ A or C2 ☐ A or D3 ☐ A or B or C4 ☐ B or D**Solution:****Correct Answer : 1****Your Answer : 1**

From statement (III), it is clear that two of Carl, Austin and Sam had coins. Austin could not have any coin because if he had one, from (III) it should have been either Rs.5 or Re. 1, but from (I) he could not have Re. 1 and from II he could not have Rs. 5. Hence, Carl and Sam had coins with them.

From (I) and (III), it can be concluded that Sam had a Rs. 2 coin with him. So, Carl had either Re. 1 or Rs. 5, but Carl could not have a Rs. 5 coin (from III). Thus, he had a Re. 1 coin. Now,

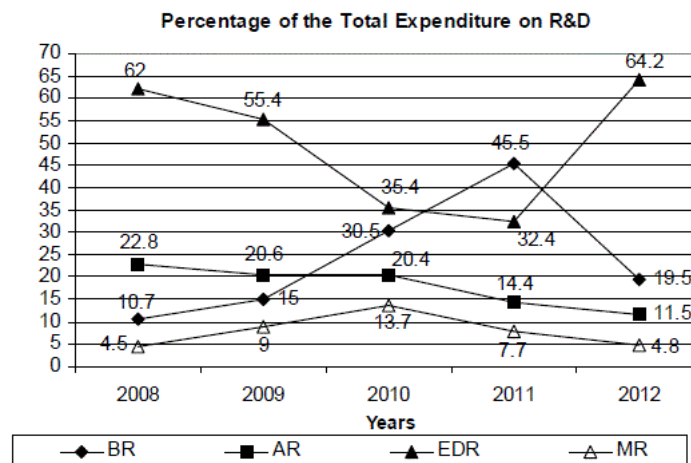
from (I) we can say that Manohar didn't have any coin and from (II) we can say that one of Jane and Harish had Rs. 5 coin whereas the other had nothing.

Sum of amount with Manohar, Sam and Harish is either Rs. 2 or Rs. (2 + 5), i.e, Rs. 7.




Directions for questions 55 to 58: Answer the questions on the basis of the information given below.

The line graph given below shows the percentage break-up of the Gross Domestic Expenditure on four areas - Basic Research (BR), Applied Research (AR), Experimental Development Research (EDR) and Miscellaneous Research (MR) - of Research and Development (R&D) activity by a country in the period 2008-12.

**Q.55**

If the expenditure on AR in 2011 was 20% more than that in 2010, then by what percent was the expenditure on EDR in 2011 more than that in 2010?

1 ☐ 55.62 ☐ 50.43 ☐ 66.54 ☐ 45.8**Solution:****Correct Answer : 1****Your Answer : 1**

Let the total expenditure on R&D in 2010 and 2011 be 100x and 100y respectively.

$$\therefore 14.4y = 1.2 \times 20.4x \Rightarrow y = 1.7x.$$

Hence, the required percentage

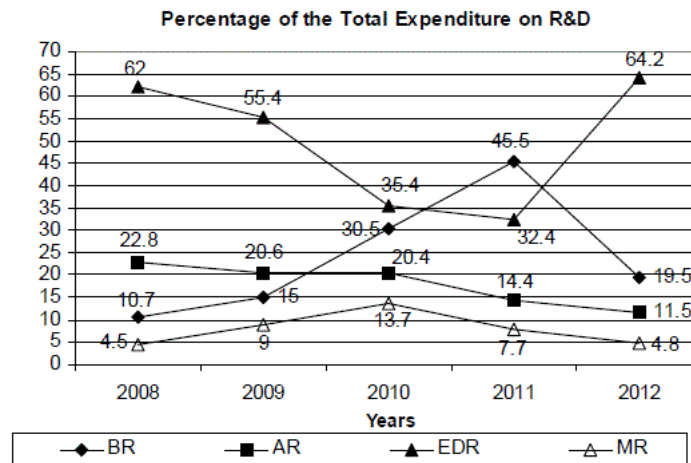
$$= \frac{32.4y - 35.4x}{35.4x} \times 100 = \frac{32.4 \times 1.7x - 35.4x}{35.4x} \times 100$$

$$= 55.6\%.$$

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Directions for questions 55 to 58: Answer the questions on the basis of the information given below.

The line graph given below shows the percentage break-up of the Gross Domestic Expenditure on four areas - Basic Research (BR), Applied Research (AR), Experimental Development Research (EDR) and Miscellaneous Research (MR) - of Research and Development (R&D) activity by a country in the period 2008-12.



**Q.56**  
If the expenditure on R&D was equal in all the years during the given period, then how many areas witnessed a continual increase in expenditure during the given period?

1 ☐ 3

2 ☐ 1

3 ☐ 2

4 ☐ 0



**Solution:**

**Correct Answer : 4**

**Your Answer : 4**

It is clear from the graph that none of the four areas of R&D witnessed a continual increase in the expenditure during the given period.

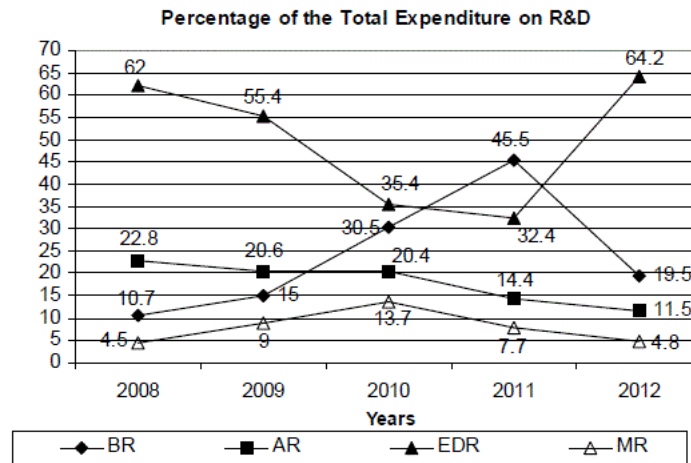
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Answer key/Solution

Directions for questions 55 to 58: Answer the questions on the basis of the information given below.

The line graph given below shows the percentage break-up of the Gross Domestic Expenditure on four areas - Basic Research (BR), Applied Research (AR), Experimental Development Research (EDR) and Miscellaneous Research (MR) - of Research and Development (R&D) activity by a country in the period 2008-12.



Q.57

If the absolute difference between the expenditures on BR and AR in 2011 was \$46.65 mn and that in 2012 was \$16 mn, then the total expenditure on R&D in 2012 was what percent more than that in 2011?

1 ☐ 25.002 ☐ 33.333 ☐ 66.674 ☐ 35.00**Solution:****Correct Answer : 2****Your Answer : 2**

Let the total expenditure on R&D in 2011 and 2012 be \$100x mn and \$100y mn.

$$\therefore 45.5x - 14.4x = 46.65 \Rightarrow x = 1.5$$

$$\text{and } 19.5y - 11.5y = 16 \Rightarrow y = 2$$

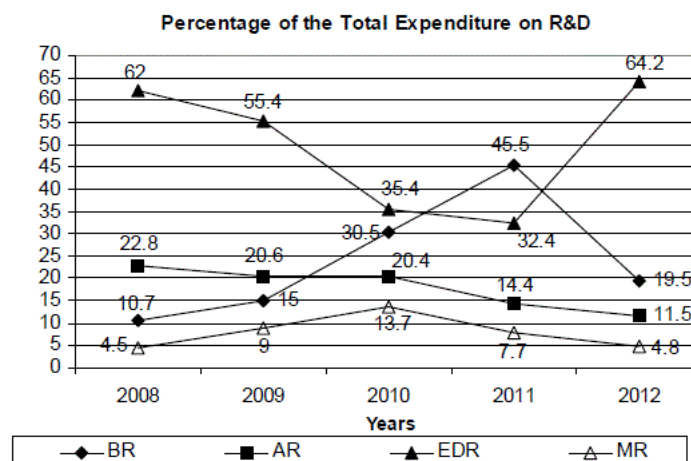
Hence, the required percentage

$$= \frac{2 - 1.5}{1.5} \times 100 = 33.33.$$




**Directions for questions 55 to 58: Answer the questions on the basis of the information given below.**

The line graph given below shows the percentage break-up of the Gross Domestic Expenditure on four areas - Basic Research (BR), Applied Research (AR), Experimental Development Research (EDR) and Miscellaneous Research (MR) - of Research and Development (R&D) activity by a country in the period 2008-12.



Q.58



If the expenditure on EDR in 2010 and 2011 was equal, then by what percent was the gross domestic expenditure on the four areas in 2011 more than that in 2010?

1 ☐ 9.25

2 ☐ 6.50

3 ☐ 7.75

4 ☐ 8.50



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

Let the gross domestic expenditure in 2010 and 2011 be  $x$  and  $y$  respectively.

$$\Rightarrow \frac{35.4}{100}x = \frac{32.4}{100}y$$

$$\Rightarrow \frac{y}{x} = 1.0925$$

$\therefore$  The required percentage = 9.25.

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Answer key/Solution

**Directions for questions 59 to 62: Answer the questions on the basis of the information given below.**

Five friends – A, B, C, D and E – participated in a race, comprising two rounds, conducted around a circular track. Before the race, each of the friend had a distinct rank out of 1, 2, 3, 4, and 5. After each round of the race, ranks of the five friends were revised based on the position the secured in these rounds. each round, the one who secured first position was given rank 1, the one who secured second position was given rank 2 and so on. The following observations were made:

**After round 1:**

- The sum of absolute differences between the rank before the race and after round 1 of the five friends is 8.
- For two pair of friends, the absolute difference between the ranks before the race and after round 1 was the same.
- The difference between the ranks after round 1 of D and E is the same as that of E and C. D finished round 1 of the race before E and C.
- The rank of A after round 1 was better than that of B and the ranks of both of them after round 1 were even numbers.

**After round 2:**

- The sum of absolute differences between the rank after round 1 and after round 2 of the five friends is 10.
- The absolute difference between ranks after round 1 and round 2 of the three friends was the same and it was 1.
- B did not get rank 1 after round 2.

**Q.59**

**What was the rank of E after round 1?**

1 ☐ 1

2 ☐ 2

3 ☐ 3

4 ☐ 4

**Solution:**

**Correct Answer : 3**

Bookmark

Answer key/Solution

**After round 1:**

A's rank is higher than B's rank with both of them having even numbered rank. So A's rank is 2 and B's rank is 4.  
C, D and E can occupy ranks 1, 3 and 5 not necessarily in that order. The difference between the ranks of D & E; and E & C is same, with D having highest rank among the given three. So, after round 1, D's rank is 1, E's rank is 3 and C's rank is 5.  
The sum of absolute differences between the ranks of friends after round 1 and the initial ranks is 8 and two different pairs of friends has same absolute difference in ranks. So the possible combinations of differences can be (0, 0, 4, 2, 2), (0, 0, 3, 3, 2) and (1, 1, 3, 3, 0)

Some of the possible initial ranks can be as tabulated below:

		Differences				Rank after Round 1
		(0,0,2,2,4)		(1,1,3,3,0)		
		Case I	Case II	Case I	Case II	
Names	A	2	2	5	1	2
	B	4	4	1	5	4
	C	3	1	4	2	5
	D	5	3	2	4	1
	E	1	5	3	3	3
		Initial Rank				

There is no combination of initial ranks possible with difference in rank as (0,0,3,3,2)

**After round 2:**

After round 2, the sum of absolute differences in ranks of friends after round 1 and present ranks is 10 and three friends have same absolute difference of 1 in ranks. So the possible combinations of differences can only be (1,1,1,4,3).  
With combination (1,1,1,4,3) the possible ranks can be as follows:

	Rank After	Rank after Round 2		
		Differences (1,1,1,4,3)		
		Case I	Case II	Case III
A	2	1	3	5
B	4	3	5	3
C	5	2	1	1
D	1	5	4	2
E	3	4	2	4

Rank of E after round 1 is 3.

FeedBack

**Directions for questions 59 to 62: Answer the questions on the basis of the information given below.**

Five friends – A, B, C, D and E – participated in a race, comprising two rounds, conducted around a circular track. Before the race, each of the friend had a distinct rank out of 1, 2, 3, 4, and 5. After each round of the race, ranks of the five friends were revised based on the position the secured in these rounds. each round, the one who secured first position was given rank 1, the one who secured second position was given rank 2 and so on. The following observations were made:

**After round 1:**

- The sum of absolute differences between the rank before the race and after round 1 of the five friends is 8.
- For two pair of friends, the absolute difference between the ranks before the race and after round 1 was the same.
- The difference between the ranks after round 1 of D and E is the same as that of E and C. D finished round 1 of the race before E and C.
- The rank of A after round 1 was better than that of B and the ranks of both of them after round 1 were even numbers.

**After round 2:**

- The sum of absolute differences between the rank after round 1 and after round 2 of the five friends is 10.
- The absolute difference between ranks after round 1 and round 2 of the three friends was the same and it was 1.
- B did not get rank 1 after round 2.

**Q.60**

The sum of ranks of C before the race, after round 1 and after round 2 cannot be more than

1 ☐ 12

2 ☐ 9

3 ☐ 13

4 ☐ 11

**Solution:**

Correct Answer : 4

Bookmark

Answer key/Solution

**After round 1:**

A's rank is higher than B's rank with both of them having even numbered rank. So A's rank is 2 and B's rank is 4.  
C, D and E can occupy ranks 1, 3 and 5 not necessarily in that order. The difference between the ranks of D & E; and E & C is same, with D having highest rank among the given three. So, after round 1, D's rank is 1, E's rank is 3 and C's rank is 5.  
The sum of absolute differences between the ranks of friends after round 1 and the initial ranks is 8 and two different pairs of friends has same absolute difference in ranks. So the possible combinations of differences can be (0, 0, 4, 2, 2), (0, 0, 3, 3, 2) and (1, 1, 3, 3, 0)

Some of the possible initial ranks can be as tabulated below:

		Differences				Rank after Round 1
		(0,0,2,2,4)		(1,1,3,3,0)		
		Case I	Case II	Case I	Case II	
Names	A	2	2	5	1	2
	B	4	4	1	5	4
	C	3	1	4	2	5
	D	5	3	2	4	1
	E	1	5	3	3	3
		Initial Rank				

There is no combination of initial ranks possible with difference in rank as (0,0,3,3,2)

**After round 2:**

After round 2, the sum of absolute differences in ranks of friends after round 1 and present ranks is 10 and three friends have same absolute difference of 1 in ranks. So the possible combinations of differences can only be (1,1,1,4,3).

With combination (1,1,1,4,3) the possible ranks can be as follows:

	Rank After	Rank after Round 2		
		Differences (1,1,1,4,3)		
		Case I	Case II	Case III
A	2	1	3	5
B	4	3	5	3
C	5	2	1	1
D	1	5	4	2
E	3	4	2	4

Maximum sum of initial rank of C and rank secured after each of the 2 rounds can be = 4 + 5 + 2 = 11

FeedBack

Directions for questions 59 to 62: Answer the questions on the basis of the information given below.

Five friends – A, B, C, D and E – participated in a race, comprising two rounds, conducted around a circular track. Before the race, each of the friend had a distinct rank out of 1, 2, 3, 4, and 5. After each round of the race, ranks of the five friends were revised based on the position the secured in these rounds. each round, the one who secured first position was given rank 1, the one who secured second position was given rank 2 and so on. The following observations were made:

**After round 1:**

- The sum of absolute differences between the rank before the race and after round 1 of the five friends is 8.
- For two pair of friends, the absolute difference between the ranks before the race and after round 1 was the same.
- The difference between the ranks after round 1 of D and E is the same as that of E and C. D finished round 1 of the race before E and C.
- The rank of A after round 1 was better than that of B and the ranks of both of them after round 1 were even numbers.

**After round 2:**

- The sum of absolute differences between the rank after round 1 and after round 2 of the five friends is 10.
- The absolute difference between ranks after round 1 and round 2 of the three friends was the same and it was 1.
- B did not get rank 1 after round 2.

**Q.61**

Who among the following did not have rank 4 either before the race, after round 1 and after round 2?

1 ☐ A

2 ☐ B

3 ☐ C

4 ☐ D

**Solution:**

**Correct Answer : 1**

Bookmark

Answer key/Solution

**After round 1:**

A's rank is higher than B's rank with both of them having even numbered rank. So A's rank is 2 and B's rank is 4.  
C, D and E can occupy ranks 1, 3 and 5 not necessarily in that order. The difference between the ranks of D & E; and E & C is same, with D having highest rank among the given three. So, after round 1, D's rank is 1, E's rank is 3 and C's rank is 5.  
The sum of absolute differences between the ranks of friends after round 1 and the initial ranks is 8 and two different pairs of friends has same absolute difference in ranks. So the possible combinations of differences can be (0, 0, 4, 2, 2), (0, 0, 3, 3, 2) and (1, 1, 3, 3, 0)

Some of the possible initial ranks can be as tabulated below:

		Differences				Rank after Round 1
		(0,0,2,2,4)		(1,1,3,3,0)		
		Case I	Case II	Case I	Case II	
Names	A	2	2	5	1	2
	B	4	4	1	5	4
	C	3	1	4	2	5
	D	5	3	2	4	1
	E	1	5	3	3	3
		Initial Rank				

There is no combination of initial ranks possible with difference in rank as (0,0,3,3,2)

**After round 2:**

After round 2, the sum of absolute differences in ranks of friends after round 1 and present ranks is 10 and three friends have same absolute difference of 1 in ranks. So the possible combinations of differences can only be (1,1,1,4,3).

With combination (1,1,1,4,3) the possible ranks can be as follows:

	Rank After	Rank after Round 2		
		Differences (1,1,1,4,3)		
		Case I	Case II	Case III
A	2	1	3	5
B	4	3	5	3
C	5	2	1	1
D	1	5	4	2
E	3	4	2	4

A cannot have 4 as initial rank or rank after any round.

FeedBack

**Directions for questions 59 to 62: Answer the questions on the basis of the information given below.**

Five friends – A, B, C, D and E – participated in a race, comprising two rounds, conducted around a circular track. Before the race, each of the friend had a distinct rank out of 1, 2, 3, 4, and 5. After each round of the race, ranks of the five friends were revised based on the position the secured in these rounds. Each round, the one who secured first position was given rank 1, the one who secured second position was given rank 2 and so on. The following observations were made:

**After round 1:**

- The sum of absolute differences between the rank before the race and after round 1 of the five friends is 8.
- For two pair of friends, the absolute difference between the ranks before the race and after round 1 was the same.
- The difference between the ranks after round 1 of D and E is the same as that of E and C. D finished round 1 of the race before E and C.
- The rank of A after round 1 was better than that of B and the ranks of both of them after round 1 were even numbers.

**After round 2:**

- The sum of absolute differences between the rank after round 1 and after round 2 of the five friends is 10.
- The absolute difference between ranks after round 1 and round 2 of the three friends was the same and it was 1.
- B did not get rank 1 after round 2.

**Q.62**

Which of the following options contains friends who could have secured rank 5 after round 2?

- 1 ☐ A, D and E
- 2 ☐ B, D and E
- 3 ☐ A, B and E
- 4 ☐ A, B and D

**Solution:**

Correct Answer : 4

Bookmark

Answer key/Solution

**After round 1:**

A's rank is higher than B's rank with both of them having even numbered rank. So A's rank is 2 and B's rank is 4.  
C, D and E can occupy ranks 1, 3 and 5 not necessarily in that order. The difference between the ranks of D & E; and E & C is same, with D having highest rank among the given three. So, after round 1, D's rank is 1, E's rank is 3 and C's rank is 5.  
The sum of absolute differences between the ranks of friends after round 1 and the initial ranks is 8 and two different pairs of friends has same absolute difference in ranks. So the possible combinations of differences can be (0, 0, 4, 2, 2), (0, 0, 3, 3, 2) and (1, 1, 3, 3, 0)

Some of the possible initial ranks can be as tabulated below:

		Differences				Rank after Round 1
		(0,0,2,2,4)		(1,1,3,3,0)		
		Case I	Case II	Case I	Case II	
Names	A	2	2	5	1	2
	B	4	4	1	5	4
	C	3	1	4	2	5
	D	5	3	2	4	1
	E	1	5	3	3	3
		Initial Rank				

There is no combination of initial ranks possible with difference in rank as (0,0,3,3,2)

**After round 2:**

After round 2, the sum of absolute differences in ranks of friends after round 1 and present ranks is 10 and three friends have same absolute difference of 1 in ranks. So the possible combinations of differences can only be (1,1,1,4,3).

With combination (1,1,1,4,3) the possible ranks can be as follows:

Rank After		Rank after Round 2		
		Differences (1,1,1,4,3)		
		Case I	Case II	Case III
A	2	1	3	5
B	4	3	5	3
C	5	2	1	1
D	1	5	4	2
E	3	4	2	4

Only A, B and D can possibly secure rank 5 after round 2.

FeedBack

**Directions for questions 63 to 66: Answer the questions on the basis of the information given below.**

Nine friends – A, B, C, D, E, F, H, I and J – joined a fitness center. The fitness center is closed on Monday. At the fitness center, a week starts from Tuesday and ends on Sunday. On each of the six days of a particular week, exactly three persons, out of the nine, visited the fitness center such that each person visited the fitness center on at least one day of that week. There are exactly four persons who visited the fitness center on more than two days. It is also known that:

- (I) Both D and E visited the fitness center on three of the first four days of the week.
- (II) H visits the fitness center only on those days when both A and B visit the fitness center.
- (III) Each of B, I and J visited the fitness centre only once and on different days of the week.
- (IV) C and F always visit the fitness center on the same day of the week.
- (V) None of the persons visited the fitness center on three consecutive days of the week.

**Q.63**

Which of the following persons visited the fitness center on exactly three days?

Fill "1 if your answer is H"

Fill "2 if your answer is A"

Fill "3 if your answer is C"

Fill "4 if your answer is Cannot be determined"

**Solution:**

**Correct Answer : 3**

Bookmark

Answer key/Solution

From statement (I) and (II), A, B, D, E and H could have attended the fitness center in one of the following ways:

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Tue	DE_	DE_	DE_	DE_	DE_	DE_	DE_	DE_
Wed	DE_		D__	E__	DE_		D__	E__
Thu		DE_	E__	D__		DE_	E__	D__
Fri	DE_	DE_	DE_	DE_	DE_	DE_	DE_	DE_
Sat	ABH	ABH	ABH	ABH				
Sun					ABH	ABH	ABH	ABH

Case (i), (ii), (v) and (vi) would violate the condition that exactly four persons visit the fitness center on more than two days. Hence, the final possible scenarios are as follows:

	(i)	(ii)	(iii)	(iv)
Tue	DE_	DE_	DE_	DE_
Wed	DCF	ECF	DCF	ECF
Thu	ECF	DCF	ECF	DCF
Fri	DE_	DE_	DE_	DE_
Sat	ABH	ABH	CF_	CF_
Sun	CF_	CF_	ABH	ABH

Since, B, I and J visit the center only once and on different days of the week, one of the remaining spots in each of the four cases will be filled by one of A, D and E.

C, F, D and E are the only people who could have visited the center on exactly three days. Out of these, C and F definitely visited the center on exactly three days.

FeedBack

Directions for questions 63 to 66: Answer the questions on the basis of the information given below.

Nine friends – A, B, C, D, E, F, H, I and J – joined a fitness center. The fitness center is closed on Monday. At the fitness center, a week starts from Tuesday and ends on Sunday. On each of the six days of a particular week, exactly three persons, out of the nine, visited the fitness center such that each person visited the fitness center on at least one day of that week. There are exactly four persons who visited the fitness center on more than two days. It is also known that:

- (I) Both D and E visited the fitness center on three of the first four days of the week.
- (II) H visits the fitness center only on those days when both A and B visit the fitness center.
- (III) Each of B, I and J visited the fitness centre only once and on different days of the week.
- (IV) C and F always visit the fitness center on the same day of the week.
- (V) None of the persons visited the fitness center on three consecutive days of the week.

Q.64

If A did not visit the fitness center on Sunday and J visited the fitness center only on Friday, which of the following could be the day on which I visited the fitness center?

- Fill "1 if your answer is Wednesday"
- Fill "2 if your answer is Thursday"
- Fill "3 if your answer is Saturday"
- Fill "4 if your answer is Sunday"

Solution:

Correct Answer : 4

Bookmark

Answer key/Solution



From statement (I) and (II), A, B, D, E and H could have attended the fitness center in one of the following ways:

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Tue	DE_	DE_	DE_	DE_	DE_	DE_	DE_	DE_
Wed	DE_		D__	E__	DE_		D__	E__
Thu		DE_	E__	D__		DE_	E__	D__
Fri	DE_	DE_	DE_	DE_	DE_	DE_	DE_	DE_
Sat	ABH	ABH	ABH	ABH				
Sun					ABH	ABH	ABH	ABH

Case (i), (ii), (v) and (vi) would violate the condition that exactly four persons visit the fitness center on more than two days. Hence, the final possible scenarios are as follows:

	(i)	(ii)	(iii)	(iv)
Tue	DE_	DE_	DE_	DE_
Wed	DCF	ECF	DCF	ECF
Thu	ECF	DCF	ECF	DCF
Fri	DE_	DE_	DE_	DE_
Sat	ABH	ABH	CF_	CF_
Sun	CF_	CF_	ABH	ABH

Since, B, I and J visit the center only once and on different days of the week, one of the remaining spots in each of the four cases will be filled by one of A, D and E.

In the second table above cases (ii) and (iv) are no longer possible. It can also be seen that A would visit the center on Monday. Thus, I visits the center on Sunday.

FeedBack

**Directions for questions 63 to 66: Answer the questions on the basis of the information given below.**

Nine friends – A, B, C, D, E, F, H, I and J – joined a fitness center. The fitness center is closed on Monday. At the fitness center, a week starts from Tuesday and ends on Sunday. On each of the six days of a particular week, exactly three persons, out of the nine, visited the fitness center such that each person visited the fitness center on at least one day of that week. There are exactly four persons who visited the fitness center on more than two days. It is also known that:

- (I) Both D and E visited the fitness center on three of the first four days of the week.
- (II) H visits the fitness center only on those days when both A and B visit the fitness center.
- (III) Each of B, I and J visited the fitness centre only once and on different days of the week.
- (IV) C and F always visit the fitness center on the same day of the week.
- (V) None of the persons visited the fitness center on three consecutive days of the week.

**Q.65**

If E and I visited the fitness center on Sunday and Friday respectively, on which day did J visit the fitness center?

Fill "1 if your answer is Tuesday"

Fill "2 if your answer is Wednesday"

Fill "3 if your answer is Thursday"

Fill "4 if your answer is Saturday"

**Solution:**

**Correct Answer : 1**

Bookmark

Answer key/Solution

From statement (I) and (II), A, B, D, E and H could have attended the fitness center in one of the following ways:

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Tue	DE_	DE_	DE_	DE_	DE_	DE_	DE_	DE_
Wed	DE_		D__	E__	DE_		D__	E__
Thu		DE_	E__	D__		DE_	E__	D__
Fri	DE_	DE_	DE_	DE_	DE_	DE_	DE_	DE_
Sat	ABH	ABH	ABH	ABH				
Sun					ABH	ABH	ABH	ABH

Case (i), (ii), (v) and (vi) would violate the condition that exactly four persons visit the fitness center on more than two days. Hence, the final possible scenarios are as follows:

	(i)	(ii)	(iii)	(iv)
Tue	DE_	DE_	DE_	DE_
Wed	DCF	ECF	DCF	ECF
Thu	ECF	DCF	ECF	DCF
Fri	DE_	DE_	DE_	DE_
Sat	ABH	ABH	CF_	CF_
Sun	CF_	CF_	ABH	ABH

Since, B, I and J visit the center only once and on different days of the week, one of the remaining spots in each of the four cases will be filled by one of A, D and E.

If E and I visit the fitness center on Sunday and Friday respectively then, J visits the center on Tuesday.

FeedBack

Directions for questions 63 to 66: Answer the questions on the basis of the information given below.

Nine friends – A, B, C, D, E, F, H, I and J – joined a fitness center. The fitness center is closed on Monday. At the fitness center, a week starts from Tuesday and ends on Sunday. On each of the six days of a particular week, exactly three persons, out of the nine, visited the fitness center such that each person visited the fitness center on at least one day of that week. There are exactly four persons who visited the fitness center on more than two days. It is also known that:

- (I) Both D and E visited the fitness center on three of the first four days of the week.
- (II) H visits the fitness center only on those days when both A and B visit the fitness center.
- (III) Each of B, I and J visited the fitness centre only once and on different days of the week.
- (IV) C and F always visit the fitness center on the same day of the week.
- (V) None of the persons visited the fitness center on three consecutive days of the week.

Q.66

Which of the following can visit the fitness center on four days?

Fill "1" if your answer is A"

Fill "2" if your answer is E"

Fill "3" if your answer is F"

Fill "4" if your answer is C"

Solution:

Correct Answer : 2

Bookmark

Answer key/Solution

From statement (I) and (II), A, B, D, E and H could have attended the fitness center in one of the following ways:

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Tue	DE_	DE_	DE_	DE_	DE_	DE_	DE_	DE_
Wed	DE_		D__	E__	DE_		D__	E__
Thu		DE_	E__	D__		DE_	E__	D__
Fri	DE_	DE_	DE_	DE_	DE_	DE_	DE_	DE_
Sat	ABH	ABH	ABH	ABH				
Sun					ABH	ABH	ABH	ABH

Case (i), (ii), (v) and (vi) would violate the condition that exactly four persons visit the fitness center on more than two days. Hence, the final possible scenarios are as follows:

	(i)	(ii)	(iii)	(iv)
Tue	DE_	DE_	DE_	DE_
Wed	DCF	ECF	DCF	ECF
Thu	ECF	DCF	ECF	DCF
Fri	DE_	DE_	DE_	DE_
Sat	ABH	ABH	CF_	CF_
Sun	CF_	CF_	ABH	ABH

Since, B, I and J visit the center only once and on different days of the week, one of the remaining spots in each of the four cases will be filled by one of A, D and E.

D and E are the only ones who can visit the center on four days.

FeedBack

## Sec 3

**Q.67**  
Consider a square ABCD with midpoints E, F, G, H of AB, BC, CD and DA respectively. Let L denote the line passing through F and H. Consider points P and Q, on L and inside ABCD such that both angles APD and BQC are equal to  $120^\circ$ . What is the ratio of the area of ABQCDP to the remaining area inside ABCD?

1 ☐  $4\sqrt{2} : 3$

2 ☐  $(2 + \sqrt{3}) : 1$

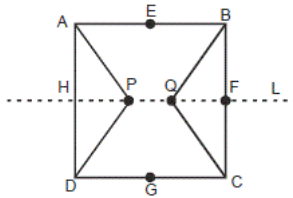
3 ☐  $(10 - 3\sqrt{3}) : 9$

4 ☐  $(2\sqrt{3} - 1) : 1$

**Solution:**  
**Correct Answer : 4**

Bookmark

Answer key/Solution



Let, the length of AH = 'x' cm  
 By symmetry of the figure given above, we can conclude that  $\triangle APD$  and  $\triangle BQC$  will have the same area.  
 $\therefore \angle APD = 120^\circ$  and line 'L' divides the square ABCD in 2 equal halves, therefore,  
 $\angle APH = \angle HPD = 60^\circ$

In  $\triangle AHP$ ,  $\frac{AH}{HP} = \tan 60^\circ = \sqrt{3} \Rightarrow HP = \frac{x}{\sqrt{3}} \text{ cm}$

Area of  $\triangle APD = 2 \times \text{area} (\triangle AHP)$

$$= 2 \times \frac{1}{2} \times x \times \frac{x}{\sqrt{3}} = \frac{x^2}{\sqrt{3}} \text{ cm}$$

Area of ABQCDP = area (ABCD) – 2 area ( $\triangle APD$ )

$$= 4x^2 - \frac{2x^2}{\sqrt{3}} = \frac{2x^2(2\sqrt{3} - 1)}{\sqrt{3}}$$

$$\text{Required Ratio} = \frac{\frac{2x^2(2\sqrt{3} - 1)}{\sqrt{3}}}{\frac{2x^2}{\sqrt{3}}} = (2\sqrt{3} - 1) : 1.$$

FeedBack

**Q.68**  
 Three friends Amrit, Bilal and Chandan are playing a game namely Marble Fenko. Each of them has a certain number of marble balls. The total number of marble balls with all the three friends is 100. Six times the number of marble balls with Amrit is 384 more than the sum of the number of balls with Chandan and two times the number of balls with Bilal. The number of marble balls with Bilal cannot be less than

- 1 ☐ 24  
 2 ☐ 12  
 3 ☐ 6  
 4 ☐ 15

✖

**Solution:**

**Correct Answer : 3**

**Your Answer : 1**

Let the number of marble balls with Amrit, Bilal and Chandan be x, y and z respectively.  
 Thus,  $x + y + z = 100$  ... (i)  
 and  
 $6x - 2y - z = 384$  ... (ii)  
 Adding the two equations we get,

$$7x - y = 484 \text{ or } x = \frac{484 + y}{7} = 69 + \frac{1 + y}{7}$$

Since x and y are both integers, the minimum value that y can have is 6.

FeedBack

Bookmark

Answer key/Solution

**Q.69**  
 A civil engineer was assigned to calculate the total number of largest possible square tiles that will be required to fit in a rectangular floor of dimensions 1065 cm × 923 cm without any wastage of the tiles. What is the number of tiles required to cover the floor?

✓

**Solution:**

**Correct Answer : 195**

**Your Answer : 195**

Bookmark

The dimension of the square tile will be the largest common factor of 1065 and 923.  
i.e, 71

Hence, the number of tiles required =  $\frac{1065 \times 923}{71 \times 71}$   
=  $15 \times 13 = 195$ .

FeedBack

[Answer key/Solution](#)

### Q.70

If the value of  $\log_2(2) + \log_2\left(\frac{2^2}{3}\right) + \log_2\left(\frac{2^3}{3^2}\right) + \log_2\left(\frac{2^4}{3^3}\right) + \dots$  20 terms is equal to  $X + 20\log_2(Y)$ , where X and Y are positive integers, find the value of X + Y.

1 ☐ 182

2 ☐ 148

3 ☐ 196

4 ☐ 192

**Solution:**

**Correct Answer : 4**

$$\log 2 + \log\left(\frac{2^2}{3}\right) + \log\left(\frac{2^3}{3^2}\right) + \dots 20 \text{ terms}$$

$$\log\left(\frac{2^{1+2+3+\dots+20}}{3^{1+2+3+\dots+19}}\right) = \log\left(\frac{2^{210}}{3^{190}}\right)$$

$$\log_2\left(\frac{2^{210}}{3^{190}}\right) = 190 + 20\log_2(2)$$

Hence  $X + Y = 192$ .

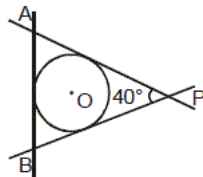
FeedBack

[Bookmark](#)

[Answer key/Solution](#)

### Q.71

In the figure given below, three tangents on the circle with centre O form  $\triangle APB$ . If the measure of  $\angle APB = 40^\circ$ , then find the measure of  $\angle AOB$ .



1 ☐  $60^\circ$

2 ☐  $110^\circ$

3 ☐  $75^\circ$

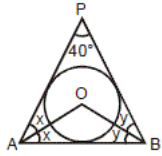
4 ☐  $140^\circ$

**Solution:**

**Correct Answer : 2**

[Bookmark](#)

[Answer key/Solution](#)



AO and BO are bisector of  $\angle PAB$  and  $\angle PBA$  respectively.

$$\therefore \angle OAB = \angle OAP = x$$

$$\text{and } \angle OBA = \angle OBP = y$$

$$\therefore 2x + 2y + 40 = 180^\circ$$

$$\Rightarrow x + y = 70^\circ$$

$$\therefore \angle AOB = 180^\circ - 70^\circ = 110^\circ$$

FeedBack

### Q.72

A certain number of students were standing in front of a gate in a single row at a distance of 20 meter each. Virat started distributing chocolates one by one to the students. The student standing first in the row is also 20 meters away from the gate. Virat carried only one chocolate at a time and returned to the gate after giving chocolate to each student including the last student. If he travelled 2.2 km, find the number of students in the row?

**Solution:**

**Correct Answer : 10**

To give the first chocolate and return, Vivek has to travel 40 m. To give the second chocolate and return, Vivek has to travel 80m. Hence, until he gives the final chocolate ( $n^{\text{th}}$  chocolate), he will have to travel  $40(1 + 2 + 3 + \dots + n) = 2200$ .

$$\Rightarrow \frac{n(n+1)}{2} = 55$$

$$\Rightarrow n^2 + n - 110 = 0$$

$$\Rightarrow n = 10 \text{ or } -11$$

Therefore,  $n = 10$ , as  $n > 0$ .

FeedBack

Bookmark

Answer key/Solution

### Q.73

There are two vessels — one is in the shape of a cylinder and the other in the shape of a right circular cone. Both the vessels have the same height and the same base radius. The cylindrical vessel and the conical vessel are filled with milk to half their heights. The cone is standing on its vertex. Now, water is added to the conical vessel up to the brim and emptied into the cylinder. What is the ratio of milk and water in the cylinder now?

1 ☐ 17 : 9

2 ☐ 3 : 1

3 ☐ 13 : 7

4 ☐ 3 : 2



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

Volume of cylinder filled with milk =  $\frac{\pi r^2 h}{2}$  and maximum

volume of milk in the cone =  $\frac{\pi r^2 h}{24}$ .

Now, the cone is filled completely with water.

$$\text{Volume of water} = \frac{7}{8} \times \frac{\pi r^2 h}{3} = \frac{7\pi r^2 h}{24}$$

$$\therefore \text{The required ratio} = \left( \frac{\pi r^2 h}{2} + \frac{\pi r^2 h}{24} \right) : \frac{7\pi r^2 h}{24} = 13 : 7$$

FeedBack

Bookmark

Answer key/Solution

### Q.74



What is the sum of the squares of the roots of the equation  $x^3 + ax^2 + bx = c$ ?

1 ☐  $a^2 - b$

2 ☐  $a^2 - 2b$

3 ☐  $a^2 + 2b$

4 ☐  $a^2 + 4b$

**Solution:**

**Correct Answer : 2**

Let  $\alpha, \beta$  and  $\gamma$  be the roots of the equation.

$\therefore \alpha + \beta + \gamma = -a$  and  $\alpha\beta + \beta\gamma + \gamma\alpha = b$

$\therefore (\alpha + \beta + \gamma)^2 = \alpha^2 + \beta^2 + \gamma^2 + 2(\alpha\beta + \beta\gamma + \gamma\alpha) = a^2$

$\Rightarrow \alpha^2 + \beta^2 + \gamma^2 + 2b = a^2$

$\Rightarrow \alpha^2 + \beta^2 + \gamma^2 = a^2 - 2b$ .

FeedBack

Bookmark

Answer key/Solution

**Q.75**

If  $f(x) = (x^2 + [x]^2 - 2x[x])^{1/4}$ , where  $x$  is real and  $[x]$  denotes the greatest integer less than or equal to  $x$ , find the value of  $f(10.64) \times f(100.64)$ .

1 ☐ 0.8

2 ☐ 0.64

3 ☐  $10\sqrt{10}$

4 ☐ 1000

**Solution:**

**Correct Answer : 2**

$f(x) = (x - [x])^{1/2}$

$f(10.64) = (0.64)^{1/2} = 0.8$

$f(100.64) = (0.64)^{1/2} = 0.8$

$\therefore f(10.64).f(100.64) = 0.64$ .

FeedBack

Bookmark

Answer key/Solution

**Q.76**

Find the number of composite odd natural numbers less than 100 and relative prime to 63.

**Solution:**

**Correct Answer : 5**

Since the number is composite and relative prime to 63

$(7 \times 9)$ , we cannot use 2, 3, 7 and 9 as factors.

The number can be of form

$5^p \times 11^q \times 13^r \times 17^s \dots$

On substituting different values of  $p, q, r, s$ , we can

get following numbers less than 100,

25, 55, 65, 85 and 95

So, there are 5 such numbers.

FeedBack

Bookmark

Answer key/Solution

**Q.77**

The Indian Cricket Council has called a meeting of all its 15 members. They sit around a circular table to discuss the team selection for India's tour of West India. Sharad Pawar does not want to sit next to Jagmohan Dalmiya and Ravi Pushkaran wants to sit next to Shashi Tharoor. In how many ways can they be seated satisfying the above conditions?

1 ☐  $264 \times 11!$

2 ☐  $264 \times 15!$

3 ☐  $296 \times 13!$

4 ☐  $312 \times 13!$

**Solution:**

**Correct Answer : 1**

Let Ravi's position be fixed and the other positions be considered with respect to his position.

Shashi can sit in 2 ways (Left or Right). If Jagmohan sits next to Ravi or Shashi (2 ways), then Sharad can sit in 11 ways.

For any other position of Jagmohan (11 ways), Sharad can sit in 10 ways.

So, total number of ways

$$= 2 \times [(2 \times 11) + (11 \times 10)] \times 11!$$

$$= 2 \times 132 \times 11! = 264 \times 11!$$

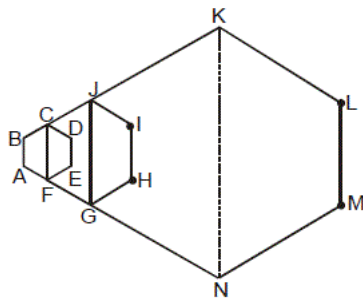
FeedBack

Bookmark

Answer key/Solution

**Q.78**

AB CDEF is a regular hexagon of side 1 unit. Two regular hexagons namely C F G H I J and J G N M L K are drawn as shown in the figure given below. Find the area (in square units) of the hexagon A B K L M N.



1 ☐  $20\sqrt{3}$

2 ☐  $\frac{95\sqrt{3}}{4}$

3 ☐  $30\sqrt{3}$

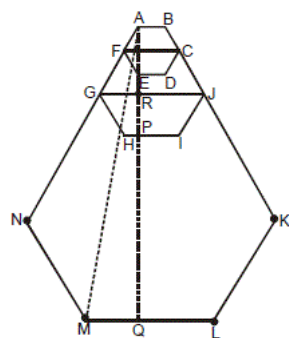
4 ☐  $\frac{111\sqrt{3}}{4}$



**Solution:**

**Correct Answer : 4**

**Your Answer : 4**



Drop a perpendicular from A to HI and ML cutting at P and Q respectively.

$$GJ = 2CF = 4AB = 4 \text{ units}$$

Area of required hexagon

$$= \frac{6\sqrt{3}}{4} \times 4^2 + \frac{1}{2} (4+1) \times \frac{3\sqrt{3}}{2}$$

$$= 24\sqrt{3} + \frac{15\sqrt{3}}{4} = \frac{111\sqrt{3}}{4} \text{ sq. units.}$$

FeedBack

Bookmark

Answer key/Solution

## Q.79

'x', which is a factor of 'p', and  $\frac{p}{x}$ , which is an integer, have 1 as the only common factor. If 'p' is always divisible by  $\left(x + \frac{p}{x} - 1\right)$ , for  $2 < x < p$ , which of the following is a possible value of 'p'?

1 ☐ 242 ☐ 283 ☐ 364 ☐ 48**Solution:****Correct Answer : 3**

The best way to approach this question would be through the options.

Option (1): 3 and 8 are co-prime factors of 24.

But  $(3 + 8 - 1)$  i.e. 10 is not a divisor of 24.

Option (2): 4 and 7 are co-prime factors of 28.

But  $(4 + 7 - 1)$  i.e. 10 is not a divisor of 28.

option (3): 4 and 9 are co-prime factors of 36.

And  $(4 + 9 - 1)$  i.e. 12 is a divisor of 36.

Option (4): 3 and 16 are co-prime factors for 48.

But  $(3 + 16 - 1)$  i.e. 18 is not a divisor of 48.

**Bookmark** **Answer key/Solution**

FeedBack

## Q.80

P is a set of positive integers, such that each of its elements is of the form  $(3m - 2n)$ , where m and n are distinct natural numbers less than 6. Which element of P can be expressed in the form  $(3m - 2n)$  for two distinct sets of values of m and n?

1 ☐ 12 ☐ 33 ☐ 74 ☐ 10**Solution:****Correct Answer : 3****Your Answer : 3**

All possible values of  $(3m - 2n)$  along with acceptable values of m and n are tabulated below.

m	n	$3m - 2n$
2	1	4
3	1	7
4	1	10
5	1	13
3	2	5
4	2	8
5	2	11
4	3	6
5	3	9
3	4	1
5	4	7
4	5	2

From the above table it is clear that 7 can be obtained from two different sets of values of m and n.  
(for  $m = 3, n = 1$  and  $m = 5, n = 4$ )

FeedBack

**Bookmark** **Answer key/Solution**

## Q.81

If  $\frac{50!}{10!}$  is completely divisible by  $12^x$ , where x is a natural number, what is the maximum possible value of 'x'?



**Solution:**

**Correct Answer : 18**

**Your Answer : 18**

$$12 = 2^2 \times 3^1 \Rightarrow 12^x = 2^{2x} \times 3^x$$

Hence we will find the highest power of 2 and 3 in both 50! and 10!

$50! = 2^{47} \times 3^{22} \times P$  (where P is a natural number that does not contain any power of 2 or 3)

Similarly,  $10! = 2^8 \times 3^4 \times Q$  (where Q is a natural number that does not contain any power of 2 or 3)

$$\frac{50!}{10!} = 2^{39} \times 3^{18} \times \frac{P}{Q}$$

We know that 50! is perfectly divisible by 10!.

So,  $\frac{P}{Q}$  is again a natural number.

Now,  $\frac{50!}{10!}$  should be divisible by  $2^{2x} \times 3^x$

Hence, the largest value of x is 18.

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Answer key/Solution

**Q.82**

Find the number of solutions for positive integers a, b and c such that  $a + b + c = 38$  and  $a^2 + b^2 + c^2 = 722$ .

**Solution:**

**Correct Answer : 6**

Given that  $a + b + c = 38$  and  $a^2 + b^2 + c^2 = 722$

Here  $(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$

$$\Rightarrow 1444 = 722 + 2(ab + bc + ca)$$

$$\Rightarrow ab + bc + ca = 361$$

$$\Rightarrow ab + (a + b)c = 361$$

$$\Rightarrow ab + (a + b)(-a - b + 38) = 361$$

$$\Rightarrow (a + b)^2 - 38(a + b) + 19^2 = ab$$

$$\Rightarrow (a + b - 19)^2 = ab$$

$$\Rightarrow (19 - c)^2 = ab$$

$$\Rightarrow 361 + c^2 - 38c = ab$$

$$\Rightarrow 361 = (ab - c^2 + 38c)$$

$$\text{or } a^2 + b^2 + c^2 = 2(ab - c^2 + 38c)$$

$$\Rightarrow a^2 + b^2 - 2ab = c(76 - 3c)$$

$$\Rightarrow (a - b)^2 = c(76 - 3c)$$

But  $c(76 - 3c)$  has to be perfect square.

So 'c' can take values 4, 9 or 25 only.

The same is true for 'a' and 'b' also.

So, a, b and c can take any value from 9, 16 and 25.

Hence, there are six solutions possible.

**Alternate Method:**

Assume  $a \geq b \geq c$

Here,  $a^2 + b^2 + c^2 = 2(ab + bc + ca)$

$$\Rightarrow c^2 - 2c(a + b) + (a - b)^2 = 0$$

$$\Rightarrow c = (a + b) \pm \sqrt{ab}$$

$$\Rightarrow c = (\sqrt{a} \pm \sqrt{b})^2$$

But 'c' is the smallest.

So,  $c = (\sqrt{a} - \sqrt{b})^2$ , which is a perfect square.

So, a, b and c can take any value from 9, 16 and 25.

Hence, six solutions are possible.

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Answer key/Solution

**Q.83**

Each of A, B and C, working alone, can complete a piece of work in 10 days, 20 days and 30 days respectively. They work in such a manner that on 1st day A and B work, on 2nd day B and C work and on 3rd day C and A work. If the work is to be continued in the same sequence, then on which day will the work be completed and who will complete it?

1 ☐ 9th day, B and C

2 ☐ 9th day, C and A

3 ☐ 10th day, A and B

4 ☐ 8th day, B and C



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

Let the total work be 60 units (LCM of 10, 20 and 30).  
Units completed by A and B, B and C, and C and A in 1 day are 9, 5 and 8 respectively.  
Units completed in 6 days = 44  
Units completed in 8 days = 44 + 14 = 58.  
Hence, remaining 2 units will be completed by C and A on 9th day.

FeedBack

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Answer key/Solution

**Q.84**

The Indian Olympic boxing team comprises 5 men and 4 women. They are made to sit in a row for a photograph. In how many ways can they be seated such that no 2 men sit next to each other?

1 ☐  $\frac{(4! \times 5!)}{2!}$

2 ☐  $\frac{(6! \times 5!)}{2!}$

3 ☐  $4! \times 5!$

4 ☐  $\frac{(2! \times 5!)}{4!}$



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

5 men can sit in  $5!$  ways, with 4 gaps in between.  
The 2 positions at the ends cannot be considered since in that case 1 or 2 of the 4 gaps in between will be left empty and thus the condition of no 2 men being together will not be satisfied.  
The 4 women can sit in any of the 4 positions (gaps) and thus can be done in  $4!$  ways.  
In all, they can sit in  $5! \times 4!$  ways.

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Answer key/Solution

**Q.85**

$g(P)$  represents the product of all the digits of P, e.g.  $g(45) = 4 \times 5$ . What is the value of  $g(67) + g(68) + g(69) + \dots + g(122) + g(123)$ ?

1 ☐ 1381

2 ☐ 1281

3 ☐ 1481

4 ☐ 1581



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

Bookmark

Answer key/Solution

$$S = g(67) + g(68) + \dots + g(123)$$

$$\Rightarrow S = [g(67) + g(68) + g(69)] +$$

$$[g(70) + g(71) + \dots + g(99)] +$$

$$[g(100) + g(101) + \dots + g(123)]$$

$$\Rightarrow S = [6 \times (7 + 8 + 9)] +$$

$$[(7 + 8 + 9) \times (1 + 2 + 3 + \dots + 9)] +$$

$$[1 \times 1 \times (1 + 2 + 3 + \dots + 9) + 1 \times 2 \times (1 + 2 + 3)]$$

$$\Rightarrow S = 6 \times 24 + 24 \times 45 + 45 + 2 \times 6$$

$$\therefore S = 1281.$$

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### Q.86

A function 'f' is defined for all natural numbers  $n \geq 2$  as  $f(n) = \left(1 - \frac{1}{n}\right) f(n-1)$ . If  $f(1) = 1$ , then what

is the value of  $\frac{1}{f(1)} + \frac{1}{f(2)} + \frac{1}{f(3)} + \dots + \frac{1}{f(9)}$ ?

1 ☐ 45

2 ☐ 54

3 ☐ 36

4 ☐ None of these

**Solution:**

**Correct Answer : 1**

$$f(n) = \left(1 - \frac{1}{n}\right) f(n-1)$$

$$\Rightarrow f(n) = \left(\frac{n-1}{n}\right) f(n-1)$$

$$\Rightarrow f(n) = \left(\frac{n-1}{n}\right) \times \left(\frac{n-2}{n-1}\right) f(n-2)$$

$$\Rightarrow f(n) = \left(\frac{n-1}{n}\right) \times \left(\frac{n-2}{n-1}\right) \times \left(\frac{n-3}{n-2}\right) \times \dots \times f(1)$$

$$\Rightarrow f(n) = \frac{1}{n} \times f(1) = \frac{1}{n}$$

$$\therefore \frac{1}{f(1)} + \frac{1}{f(2)} + \dots + \frac{1}{f(9)} = 1 + 2 + 3 + \dots + 9 = 45$$

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 **Answer key/Solution**

### Q.87

What is the remainder when  $(12^{91} + 14^{91})$  is divided by 169?

1 ☐ 0

2 ☐ 1

3 ☐ 2

4 ☐ 13



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

 **Bookmark**

 **Answer key/Solution**

$$\begin{aligned} \text{Rem}\left(\frac{12^{91} + 14^{91}}{169}\right) &= \text{Rem}\left(\frac{(13-1)^{91} + (13+1)^{91}}{169}\right) \\ &= \text{Rem}\left(\frac{(169k + 13 \times 91 - 1) + (169k + 13 \times 91 + 1)}{169}\right) = 0. \end{aligned}$$

FeedBack

**Q.88**

The distance between Melbourne and Sydney is 600km. Mark leaves by car at 1:00 AM and travels at a speed of 50km/hr for the 1st 6 hours. He completes the remaining journey at 100 km/hr. Mark returns at an average speed of 80 km/hr. The return journey takes

- 1 ☐ 1 hour more
- 2 ☐ 1.5 hours more
- 3 ☐ 1.5 hours less
- 4 ☐ 1 hour less



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

Distance travelled in first 6 hours at 50 km/hr = 300 km.  
The remaining distance travelled at 100 km/hr = 3 hrs.  
Hence, total time taken = 9 hrs.  
Journey from Melbourne to Sydney takes 9hrs.

Time taken on return journey =  $\frac{600}{80}$  hrs.

The return journey at 80 km/hr takes 7.5 hrs.  
Therefore, the return journey takes 1.5 hrs less.

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Answer key/Solution

**Q.89**

Three vessels having volumes in the ratio of 1 : 2 : 3 are full with a mixture of coke and soda. In the first vessel, ratio of coke to soda is 2 : 3, in second 3 : 7 and in third 1 : 4. If the mixture in all the three vessels were mixed in a bigger container, then what is the ratio of coke and soda in the resulting mixture?

- 1 ☐ 4 : 11
- 2 ☐ 5 : 7
- 3 ☐ 7 : 11
- 4 ☐ None of these



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

Let the quantity of mixtures in the three vessels be 10 L, 20 L and 30 L respectively.

Quantity of coke in first vessel =  $\frac{2}{3} \times 10 = 4\text{L}$

Quantity of soda in first vessel =  $10 - 4 = 6\text{L}$

Quantity of coke in second vessel =  $\frac{3}{10} \times 20 = 6\text{L}$

Quantity of soda in second vessel =  $20 - 6 = 14\text{L}$

Similarly, the quantity of coke and soda in third vessel is 6L and 24L respectively.

Thus, the quantity of coke in bigger container =  $4\text{L} + 6\text{L} + 6\text{L} = 16\text{L}$

Similarly, the quantity of soda in bigger container =  $6\text{L} + 14\text{L} + 24\text{L} = 44\text{L}$

Required ratio =  $16 : 44 = 4 : 11$ .

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Answer key/Solution



Q.90

Pipes A and B can completely fill a water tank independently in 4 hrs and 5 hrs respectively. A pipe C can empty the completely filled tank in 3 hrs. Initially the tank is empty and all the pipes are closed. Pipe A is opened first at time  $t = 0$  hrs and pipe C is opened at the instant when the tank is exactly half filled with water. Pipe B is opened after pipe C and at the instant when the tank is exactly one-fourth filled with water. Find the total time taken to fill the tank completely counting from  $t = 0$  hrs.

1 ☐  $11\frac{3}{7}$  hrs.

2 ☐ 11 hrs.

3 ☐  $13\frac{3}{7}$  hrs.

4 ☐ 13 hrs.



Solution:

Correct Answer : 1

Your Answer : 1

Time taken by pipe A to fill the half tank = 2 hrs.  
Time taken by pipe C to fill the remaining half of the

tank till pipe B is opened =  $\frac{(4 \times 3)}{4(4-3)} = 3$  hrs.

Now, time taken by pipe B to fill the remaining volume

of the tank =  $\frac{(3 \times 5 \times 4 \times 3)}{4(12+15-20)} = \frac{45}{7}$  hrs.

Total time taken to completely fill the tank

=  $2 + 3 + \frac{45}{7} = \frac{80}{7} = 11\frac{3}{7}$  hrs.




Q.91

Rahim plans to drive from city A to station C, at the speed of 70 km per hour, to catch a train arriving at C from B. He must reach C at least 15 minutes before the arrival of the train. The train leaves B, located 500 km south of A, at 8:00 am and travels at a speed of 50 km per hour. It is known that C is located at a position such that angle ABC is  $60^\circ$  and angle CAB is  $30^\circ$ . The latest time by which Rahim must leave A and still catch the train is closest to

1 ☐ 6 : 15 am

2 ☐ 6 : 30 am

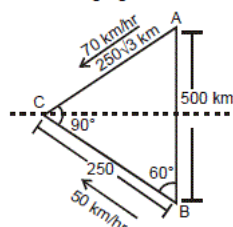
3 ☐ 6 : 45 am

4 ☐ 7 : 00 am

Solution:

Correct Answer : 2

As per the conditions given in the questions, we get the following figure.



The train leaving from B reaches C at 1:00 p.m. taking a total time of 5 hours, which means that Rahim should reach C by 12:45 p.m.

Let the total time taken by Rahim, moving with a speed of 70 km/hr, be 't'.

$$\Rightarrow t = \frac{250\sqrt{3}}{70} = 6.18 \text{ hrs.}$$

Therefore, the latest time by which Rahim must leave A and still catch the train is closest to 6:30 a.m.

Hence, option (2) is the correct choice.

## Q.92

Ramesh has a special set of cards for new game he invented. He has two packs of 6 cards each with their value ranging from 1 to 6. In the game, Ramesh mixes cards of two packs and shuffle them. He picks up 4 cards. What is probability that at least one pair of cards will have the same value?

1 ☐ 18/352 ☐ 17/333 ☐ 14/374 ☐ 16/33**Solution:****Correct Answer : 2**

Let us first find the probability of having no pairs in the opened cards.

The first card is picked at random.

The next card can be picked from the remaining 11 with the exception of 1 card which is of the same value as the first card.

The third card can be picked from the remaining 10 cards with the exception of the cards with the same value as the first 2 picked cards

The fourth card can be picked from the remaining 9 cards with the exception of the cards with the same value as the first 3 picked cards

So, the probability of the above event

$$= \frac{10}{11} \times \frac{8}{10} \times \frac{6}{9} = \frac{16}{33}$$

So, the probability of picking at least one pair

$$= 1 - \frac{16}{33} = \frac{17}{33}$$




## Q.93

A ball is dropped from a height of 50 m. After striking the ground, it rebounds  $\frac{1}{2}$  of the height from which it was dropped. After rebounding several times, the ball comes to rest. What is the total distance (in m) covered by the ball before coming to rest from the point it was dropped?

**Solution:****Correct Answer : 150**

Total distance travelled by ball

$$= 50 + 2 \left[ \frac{1}{2} \times 50 + \left( \frac{1}{2} \right)^2 \times 50 + \left( \frac{1}{2} \right)^3 \times 50 + \dots \right]$$

$$= 50 + 2 \times \frac{\frac{1}{2} \times 50}{1 - \left( \frac{1}{2} \right)} = 50 + 100 = 150 \text{ m.}$$




## Q.94

Find the number of 3 digit numbers which are divisible by 5 and the sum of the digits is divisible by 3.

1 ☐ 302 ☐ 903 ☐ 604 ☐ 300**Solution:****Correct Answer : 3**

Since the sum is divisible by 3 and 5, it has to be divisible by 15.

There are total 900 three-digit numbers ranging from 100 to 999.

Out of all three-digit numbers, numbers that are divisible

$$\text{by } 15 = \frac{999}{15} - \frac{99}{15} = 66 - 6 = 60.$$

FeedBack

**Q.95**

\$112,500 are divided among three bands Eagles, Doors and UB40 such that Eagles receives half as much as Doors and UB40 together received, and Doors receives  $\frac{1}{4}$ th of what Eagles and UB40 receive together. The share of Eagles is more than that of Doors by

1 ☐ \$15,000

2 ☐ \$30,000

3 ☐ \$32,000

4 ☐ \$15,500



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

$$\text{Eagles} = \frac{1}{2}(\text{Doors} + \text{UB40}) \quad \dots(i)$$

$$\text{Doors} = \frac{1}{4}(\text{Eagles} + \text{UB40}) \quad \dots(ii)$$

$$\Rightarrow \text{Doors} + \text{Eagles} + \text{UB40} = 112,500 \quad \dots(iii)$$

Using (i) and (iii), we get

$$3 \text{ Eagles} = \$112,500$$

$$\Rightarrow \text{Eagles} = \$37,500$$

Subtracting (i) from (ii)

$$3(\text{Eagles}) = 5(\text{Doors}) = 1,12,500$$

$$\Rightarrow \text{Doors} = \$22,500$$

$$\text{Eagles} - \text{Doors} = \$37,500 - \$22,500 = \$15,000$$

FeedBack

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Answer key/Solution

**Q.96**

What will be the 20<sup>th</sup> digit from the left in the number  $60003^4$ ?



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

$$\text{The number } (60000)^4 = 6^4 \times (10)^4 = 1296 \times 10^{16}$$

The number 1296 is followed by 16 zeroes and hence the 20<sup>th</sup> digit is 0.

In case of  $(60003)^4$ , the 20<sup>th</sup> digit will be the last digit of the number itself.

i.e. last digit of  $3^4 = 1$ .

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Answer key/Solution

**Q.97**

Rohan and Rinku start moving from a point A at the speed of 10 km/hr and 15 km/hr respectively. Rinku moves in the northward direction for 2 hours, then he takes a right turn and then after travelling 3 hours he reaches his destination point C. Rohan moves in the eastward direction for 2 hours, then he takes left turn and travels for 1 hour, then he takes a right turn and travels for 1 hour, then he starts moving in the south-east direction for 1 hour and reaches his destination point B. What is the distance between points B and C?

1 ☐  $25 + 2\sqrt{2}$  km

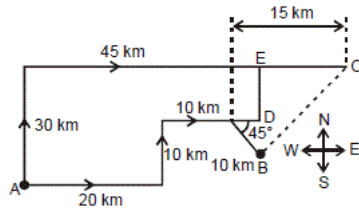
☐  $5\sqrt{25+3\sqrt{2}}$  km

☐  $5\sqrt{(27+2\sqrt{2})}$  km

☐  $5\sqrt{(29+2\sqrt{2})}$  km

**Solution:**

**Correct Answer : 4**



Here  $x^2 + x^2 = 10^2$

$\Rightarrow 2x^2 = 10^2 \Rightarrow x = 5\sqrt{2}$  km

$BE = (20 + 5\sqrt{2})$  km and  $EC = 15 - 5\sqrt{2}$

So,  $BC^2 = BE^2 + CE^2$

$\Rightarrow BC^2 = 400 + 50 + 200\sqrt{2} + 225 + 50 - 150\sqrt{2}$

$= 725 + 50\sqrt{2} = 25(29 + 2\sqrt{2})$  or  $BC$

$= 5\sqrt{(29 + 2\sqrt{2})}$  km .

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Answer key/Solution

**Q.98**

Of the students at a certain school, 30% of the students are in class A, 30% of the students are in class B, and 40% of the students are in class C. Of the students in class A, 80% have a passing grade. Of the students in class B, 70% have a passing grade. Of the students in class C, 90% are making a passing grade. If a student is selected at random, what is the probability that the student has a passing grade?

☐ 93%

☐ 75%

☐ 36%

☐ 81%

**Solution:**

**Correct Answer : 4**

The law of total probability can be used to solve this problem. Applying the law of total probability to this problem:

$P(P)$  = probability that the student chosen has a passing grade

$P(P|X)$  = probability that the student has a passing grade given that the student is in class X

$P(P) = P(A)P(G|A) + P(B)P(G|B) + P(C)P(G|C)$

$P(P) = (0.3)(0.8) + (0.3)(0.7) + (0.4)(0.9)$

$P(P) = 0.24 + 0.21 + 0.36$

$P(P) = 0.81$ .

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Answer key/Solution

**Q.99**

Mr. David manufactures and sells a single product at a fixed price in a niche market. The selling price of each unit is Rs. 30. On the other hand, the cost, in rupees, of producing 'x' units is  $240 + bx + cx^2$ , where 'b' and 'c' are some constants. Mr. David noticed that doubling the daily production

from 20 to 40 units increases the daily production cost by  $66\frac{2}{3}\%$ . However, an increase in daily

production from 40 to 60 units results in an increase of only 50% in the daily production cost. Assume that demand is unlimited and Mr. David can sell as much as he can produce. His objective is to maximize the profit. How many units should Mr. David produce daily?

**Solution:**

**Correct Answer : 100**

Bookmark

Using the given data –

$$\frac{(240 + 40b + 40^2c) - (240 + 20b + 20^2c)}{240 + 20b + 20^2c} = \frac{2}{3}$$

$$\text{and } \frac{(240 + 60b + 60^2c) - (240 + 40b + 40^2c)}{240 + 40b + 40^2c} = \frac{1}{2}$$

Solving the above equation,  $c = \frac{1}{10}$  and  $b = 10$

So, cost for producing  $x$  units  $= 240 + 10x + \frac{x^2}{10}$

Profit earned from  $x$  units

$$= 30x - \left( 240 + 10x + \frac{x^2}{10} \right)$$

$$= 20x - \frac{x^2}{10} - 240$$

$$= \frac{1}{10} [-x^2 + 200x - 2400]$$

$$= \frac{1}{10} [12400 - (x - 100)^2]$$

For maximum profit,  $x = 100$ .

FeedBack

Answer key/Solution

### Q.100

ABCD is the upper face of a solid cube of side  $a$  units. Two points  $P$  and  $Q$  are chosen on  $AB$  and  $BC$  respectively, such that  $PB = BQ = \frac{a}{4}$ . A plane perpendicular to the upper face and passing through  $PQ$  cuts the cube. Find the volume of the solid that has been cut out from the cube.

1 ☐  $\frac{a^3}{16}$

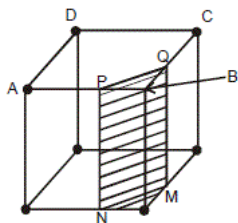
2 ☐  $\frac{a^3}{32}$

3 ☐  $\frac{a^3}{48}$

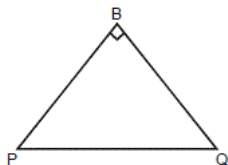
4 ☐  $\frac{5a^3}{64}$

**Solution:**

**Correct Answer : 2**



It is clear that the solid cut out is a prism with a triangular base  $PBQ$ , where height of the prism is ' $a$ ' units.



$$\text{Area of } \triangle PBQ = \frac{1}{2} \times BP \times BQ = \frac{1}{2} \times \frac{a}{4} \times \frac{a}{4} = \frac{a^2}{32}$$

$$\therefore \text{Volume of the prism} = \left( \frac{a^2}{32} \right) \times (a) = \frac{a^3}{32}$$

(Volume of the prism = Area of base  $\times$  height)

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Answer key/Solution

