Solutions of Mock CAT – 6 2017

Scorecard (procreview.jsp?qsetId=QzEOs9Hp03w=&qsetName=Mock CAT – 6 2017)	Accuracy (AccSelectGraph.jsp?qsetId=QzEOs9Hp03w=&qsetName=Mock CAT – 6 2017)	Time Analysis (TimeAnalysis.jsp?qsetId=QzEOs9Hp03w=&qsetName=Mock CAT – 6 2017)	Qs Analysis (QsAnaly qsetId=QzEOs9Hp03w=&qs CAT – 6 2017)
VRC	DILR	QA	

Sec 1

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Q.1
Which of the following is a consequence of the novel holding a low prestige nowadays?

1. People take pride in belittling the novel as an art form.

2. Critics have stopped taking the novel a serious form of art.

3. Authors have stopped trying to furnish genuine works of fiction.

4. An average novel is given less importance than an average verse or critical piece.

✔

Solution:
Correct Answer : 4
Your Answer : 4
Refer to the lines – "which even a dozen years ago were generally uttered with a hint of apology, are now *always* uttered in a tone of conscious pride." The author states that because of the low prestige of the novel, people have stopped picking it up as their reading of choice. The first paragraph also mentions other forms of writing still being given respect.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

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Q.2
How are reviewers contributing to the falling image of the novel?

1 ◯ The reviewers regard each novel in the same light and this confuses the readers.

2 ◯ The reviewers write great reviews of each novel regardless of its actual merit.

3 ◯ The disingenuous reviews generate contempt that affects the image of the novel.

4 ◯ The novels are not valued on the merit of their artistic expression but on the merit of their review in the newspapers.

[✖]

Solution:
Correct Answer : 3
Your Answer : 2
Refer to the lines – "Question any thinking person as to why he 'never reads novels', and you will usually find that, at bottom, it is because of the disgusting tripe that is written by the blurb-reviewers....". The author states that a badly written review reflects badly on the image of the novel.

[FeedBack]

🔖 **Bookmark**

⚲ **Answer key/Solution**

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Q.3
Which of the following is the primary purpose of the passage?

1 ◯ **To comment on the state of appalling reviews which are written for contemporary novels.**

2 ◯ **To criticize the reasons for which the reviews to deliberately write ghastly reviews.**

3 ◯ **To elucidate the reasons for the gradual fall of the image of the novel.**

4 ◯ **To expose the role that publishers and reviewers have played in bringing down the image of the novel.**

[✖]

Solution:
Correct Answer : 3
Your Answer : 4
The author aims to discuss the reasons because of which the prestige of the novel is low. He starts by discussing the image that a novel command and goes on to discuss how reviews, publishers' agenda and other factors contribute to this image. This makes option 3 the correct answer.

🔖 **Bookmark**

🔍 **Answer key/Solution**

[FeedBack]

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Q.4
Why do authors not enjoy the reviews of their novels?

1 ⚪ **The repeated nature of the reviews dilutes their standing in the literary world.**

2 ⚪ **The author is aware that the review is a propaganda set by the publisher.**

3 ⚪ **The authors are aware of the insincere and exaggerated nature of the review.**

4 ⚪ **The review often reflects poorly on the image of the novel.**

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Solution:
Correct Answer : 3
Your Answer : 3
Refer to the lines- "Nobody *likes* being told that he has written a palpitating take of passion which will last as long as the English language." The author states that writers do not enjoy the reviews as they are aware of the flattering and insincere words of the reviewers. Option 1is the effect that a review has on the novel but not the reason behind the authors' lack of appreciation for these reviews.

🔖 **Bookmark**

⚡ **Answer key/Solution**

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Q.5
Why does a novel automatically command a less intelligent audience than any other form of writing?

1 ⚪ **The subject matter of the novel prevents the more intelligent public from reading it.**

2 ⚪ **The badly written reviews kill the novel before it can reach the right kind of readers.**

3 ⚪ **The novel is not the popular form of writing in the current times.**

4 ◯ **Intelligent people have always looked towards non-fiction for their reading interests.**

Solution:
Correct Answer : 3
Your Answer : 2
The author states that intelligentsia does not prefer novel as a piece of reading. Refer to the lines – "which even a dozen years ago were generally uttered with a hint of apology, are now *always* uttered in a tone of conscious pride." The author states that because of the low prestige of the novel, people have stopped picking it up as their reading of choice. They prefer other forms of writing over the novel. This means that if one writes a novel, it will not be read by the intelligentsia and hence will automatically command a less intelligent audience.

🔖 **Bookmark**

🔍 **Answer key/Solution**

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Q.6
The attitude of the author of the passage towards today's reviewers is:

1 ◯ **resigned.**

2 ◯ **sardonic.**

3 ◯ **censuring.**

4 ◯ **condescending.**

Solution:
Correct Answer : 3
The author criticizes the reviewers for writing insincere reviews that contribute negatively to the image of the novel. Censuring is the closest option.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Q.7
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.

Darkness is important enough conceptually to be part of the book's title. However, it is difficult to discern exactly what it might mean, given that absolutel everything in the book is cloaked in darkness. Africa, England, and Brussels are all described as gloomy and somehow dark, even if the sun is shining brightly. Darkness thus seems to operate metaphorically and existentially rather than specifically. Darkness is the inability to see: this may sound simple, but as a description of the human condition it has profound implications. Failing to see another human being means failing to understand that individual and failing to establish any sort of sympathetic communion with him or her.

1. Darkness being present even in the name of the book is itself sufficient to show how important a part of the book it is.
2. Darkness, though apparently unfathomable, dominates the spirit of the work in its figurative presence and metaphorical significance
3. Darkness permeates every tiny corner of the book. Thus, darkness operates both metaphorically and speculatively.
4. Darkness is extremely crucial because it shows man's inability to develop healthy relationships with others.

Solution:
Correct Answer : 2
2 is the correct answer. 3 is factually incorrect. The given passage states that darkness "operates metaphorically and existentially" and not "speculatively". 4 is incorrect because it is too narrow in scope. 1 presents a twisted cause-effect relationship. According to the passage, the concept of the book influences the title and not the vice –versa. 2 is the most appropriate option as it properly conveys the gist of the passage and covers all the important aspects.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Q.8
Directions for question 8: 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.

Although no longer a recognized illness, hysteria (specifically female hysteria) was until the mid-twentieth century a common medical diagnosis for extrem emotional excess. Since its earliest diagnoses in ancient Greece, it was deemed an exclusively female condition, which manifested itself in a wide range of symptoms. Freud believed that hysteria stemmed from psychologically traumatic sexual experiences in the patient's past, or from problems in the patient's sexual life; thus, it was to be treated typically, although not exclusively, with some sort of sexual therapy. By the twentieth century, however, both men and children had been diagnosed with hysteria, leading many physicians to consider it a hereditary or psychological disorder. Despite these new findings, treatment methods typically remained unchanged.

1. Over the years, the diagnosis pertaining to hysteria has significantly altered, and it is no longer considered an illness.
2. Associated mostly with women's emotional state in the past, in the recent times hysteria is associated with all.
3. In the past, thought of only as a state of women's emotions, hysteria is now connected with genetics, expanding its base.
4. Freud's beliefs converted the ever existing limitations pertaining to hysteria.

Solution:
Correct Answer : 3
3 is the correct answer. 1 and 4 are too narrow. 4 is also a generic opinion not supported by the paragraph. 2 is partially correct but misses out on an important point in the paragraph – the hereditary aspect. 3 is the most appropriate option as it covers all the important points mentioned in the passage- women, illness, emotional excess, past, present, genetics, men and children.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Directions for questions 9-11: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.

Historical criticism nowhere occurs as an isolated fact in the civilisation or literature of any people. It is part of that complex working towards freedom which may be described as the revolt against authority. It is merely one facet of that speculative spirit of an innovation, which in the sphere of action produces democracy and revolution, and in that of thought is the parent of philosophy and physical science; and its importance as a factor of progress is based not so much on the results it attains, as on the tone of thought which it represents, and the method by which it works.

Being thus the resultant of forces essentially revolutionary, it is not to be found in the ancient world among the material despotisms of Asia or the stationary civilisation of Egypt. The clay cylinders of Assyria and Babylon, the hieroglyphics of the pyramids, form not history but the material for history.

The Chinese annals, ascending as they do to the barbarous forest life of the nation, are marked with a soberness of judgment, a freedom from invention, which is almost unparalleled in the writings of any people; but the protective spirit which is the characteristic of that people proved as fatal to their literature as to their commerce. Free criticism is as unknown as free trade. While as regards the Hindus, their acute, analytical, and logical mind is directed rather to grammar, criticism, and philosophy than to history or chronology. Indeed, in history their imagination seems to have run wild, legend and fact are so indissolubly mingled together that any attempt to separate them seems vain. If we except the identification of the Greek Sandracottus with the Indian Chandragupta, we have really no clue by which we can test the truth of their writings or examine their method of investigation.

It is among the Hellenic branch of the Indo-Germanic race that history proper is to be found, as well as the spirit of historical criticism; among that wonderful offshoot of the primitive Aryans, whom we call by the name of Greeks and to whom, as has been well said, we owe all that moves in the world except the blind forces of nature.

For, from the day when they left the chill table-lands of Tibet and journeyed, a nomad people, to Aegean shores, the characteristic of their nature has been the search for light, and the spirit of historical criticism is part of that wonderful Aufklarung or illumination of the intellect which seems to have burst on

the Greek race like a great flood of light about the sixth century B.C. The first critic is perhaps as difficult to discover as the first man. It is from democracy that the spirit of criticism borrows its intolerance of dogmatic authority, from physical science the alluring analogies of law and order, from philosophy the conception of an essential unity underlying the complex manifestations of phenomena. It appears first rather as a changed attitude of mind than as a principle of research, and its earliest influences are to be found in the sacred writings.

For men begin to doubt in questions of religion first, and then in matters of more secular interest; and as regards the nature of the spirit of historical criticism itself in its ultimate development, it is not confined merely to the empirical method of ascertaining whether an event happened or not, but is concerned also with the investigation into the causes of events, the general relations which phenomena of life hold to one another, and in its ultimate development passes into the wider question of the philosophy of history.

Q.9
What, according to the author, is the importance of historical criticism?

1 ◯ It enables revolt against authority as great as religion and establishes the basis of secularity.

2 ◯ It is not confined either by empirical research or by dictates of established norms.

3 ◯ Its very nature is revolutionary and hence it promotes democracy and philosophical thought.

4 ◯ It enables progress by altering the thought process and inculcating seeds of revolutionary thought.

Solution:
Correct Answer : 4
Options 1, 2 and 3 are only partly correct and specific examples of progress encouraged by historical criticism. Option 4 explains why these could be brought about by historical criticism and what it really does.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Directions for questions 9-11: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.

Historical criticism nowhere occurs as an isolated fact in the civilisation or literature of any people. It is part of that complex working towards freedom which may be described as the revolt against authority. It is merely one facet of that speculative spirit of an innovation, which in the sphere of action produces democracy and revolution, and in that of thought is the parent of philosophy and physical science; and its importance as a factor of progress is based not so much on the results it attains, as on the tone of thought which it represents, and the method by which it works.

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For, from the day when they left the chill table-lands of Tibet and journeyed, a nomad people, to Aegean shores, the characteristic of their nature has been the search for light, and the spirit of historical criticism is part of that wonderful Aufklarung or illumination of the intellect which seems to have burst on the Greek race like a great flood of light about the sixth century B.C. The first critic is perhaps as difficult to discover as the first man. It is from democracy that the spirit of criticism borrows its intolerance of dogmatic authority, from physical science the alluring analogies of law and order, from philosophy the conception of an essential unity underlying the complex manifestations of phenomena. It appears first rather as a changed attitude of mind than as a principle of research, and its earliest influences are to be found in the sacred writings.

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Q.10
Why does the author criticise the Hindus?

1 ◯ They have not been able to extend their logical and analytical mind to the writing of history.

2 ◯ The historical writings of Hindus are too imaginative to be examined rationally.

3 ◯ The nature of the tales makes their investigations into history questionable.

4 ◯ It is not possible to separate their fictional legends from the actual historical accounts.

Solution:

🔖 **Bookmark**

Correct Answer : 4
The author states that Hindus, although, logical have created stories out of historical events so outrageous and so deeply embedded that it has become impossible to separate fact from fiction, legend from truth and hence historical research is difficult. 1,2, and 3 are twisted options. 1 is factually incorrect. 2 wrongly blames only the imaginative nature and misses the word "history". 3 is missing the phrase "imaginative nature".

🔍 **Answer key/Solution**

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Q.11
Why did the protective spirit of the Chinese proved fatal for literature and commerce?

1 ⃝ It protected them from criticism which is essential for progress.

2 ⃝ It protected them from outside influence necessary for progress.

3 ⃝ It protected them from invention which is essential for growth.

4 ⃝ It protected them from criticism which is necessary for democracy.

Solution:
Correct Answer : 1
The author explains throughout the passage that criticism is essential for progress. The protective spirit of Chinese blocked out criticism and hence limited progress.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Directions for questions 12-17: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.

Somewhere or other Byron makes use of the French word *longeur*, and remarks in passing that though in England we happen not to have the word, we have the thing in considerable profusion. In the same way, there is a habit of mind which is now so widespread that it affects our thinking on nearly every subject, but which has not yet been given a name. As the nearest existing equivalent, I have chosen the word 'nationalism', but it will be seen in a moment that I am not using it in quite the ordinary sense, if only because the emotion I am speaking about does not always attach itself to what is called a nation — that is, a single race or a geographical area. It can attach itself to a church or a class, or it may work in a merely negative sense, against something or other and without the need for any positive object of loyalty.

By 'nationalism' I mean first of all the habit of assuming that human beings can be classified like insects and that whole blocks of millions or tens of millions of people can be confidently labelled 'good' or 'bad'. But secondly — and this is much more important — I mean the habit of identifying oneself with a single nation or other unit, placing it beyond good and evil and recognising no other duty than that of advancing its interests. *Nationalism is not to be confused*

with patriotism. Both words are normally used in so vague a way that any definition is liable to be challenged, but one must draw a distinction between them, since two different and even opposing ideas are involved. By 'patriotism' I mean devotion to a particular place and a particular way of life, which one believes to be the best in the world but has no wish to force on other people. Patriotism is of its nature defensive, both militarily and culturally. Nationalism, on the other hand, is inseparable from the desire for power. The abiding purpose of every nationalist is to secure more power and more prestige, *not* for himself but for the nation or other unit in which he has chosen to sink his own individuality.

So long as it is applied merely to the more notorious and identifiable nationalist movements in Germany, Japan, and other countries, all this is obvious enough. Confronted with a phenomenon like Nazism, which we can observe from the outside, nearly all of us would say much the same things about it. But here I must repeat what I said above, that I am only using the word 'nationalism' for lack of a better. Nationalism, in the extended sense in which I am using the word, includes such movements and tendencies as Communism, political Catholicism, Zionism, Antisemitism, Trotskyism and Pacifism. It does not necessarily mean loyalty to a government or a country, still less to one's own country, and it is not even strictly necessary that the units in which it deals should exist. To name a few obvious examples, Jewry, Islam, Christendom, the Proletariat, and the White Race are all of them objects of passionate nationalistic feeling: but their existence can be seriously questioned, and there is no definition of any one of them that would be universally accepted.

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Q.12
Why does the author refer to Byron?

1 ◯ **To introduce the idea that the terms 'nationalism' and 'longeur' are closely connected.**

2 ◯ **To explain the reasons for the wide use of the term 'nationalism'.**

3 ◯ **To compare the terms 'nationalism' and 'longeur'.**

4 ◯ **To explain how he (the author) views the use of the term 'nationalism'.**

Solution:
Correct Answer : 4
The author uses the example of Byron to introduce the widespread and diverse use of the word nationalism and how he (the author) sees this use.
This makes option 4 correct. Option 1 and 3 are incorrect as his aim is not to compare or relate these terms but to show a similarity in how he and Byron respectively view the use of these terms. Option 2 is incorrect as this example is used merely to introduce the topic. The author explains the reason in the later part of the passage.

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🔍 **Answer key/Solution**

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Q.13
Which of the following statements is the author most likely to agree with?

1 ◯ Patriotism does not intend to impose its beliefs on others.

2 ◯ Patriotism does not believe that the side it represents is the best.

3 ◯ Patriotism is passive while nationalism is aggressive.

4 ◯ It is better to be patriotic than to be nationalistic.

☑

Solution:
Correct Answer : 1
Your Answer : 1
The author does not advocate patriotism. This makes option 4 incorrect. Author also does not discuss the passive nature of patriotism. This makes option 3 incorrect. 2 can't be supported by the passage. The author talks about this issue with relation to nationalism. Author states that a patriot believes that the side he represents is the best but he does not impose his views on others. This makes option 1 correct.

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🔍 **Answer key/Solution**

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Q.14

What does the author mean by stating that the feeling of nationalism can be applied to units which might not actually exist?

1 ◯ Nationalism does not restrict itself to nations but can be applied to anything.

2 ◯ Nationalism can be applied to ideas that may not belong to a set identifiable group.

3 ◯ Nationalism is a philosophy that is fluid and changes with the entity to which it is applied.

4 ◯ The feeling of nationalism exists even after the dissolution of the entity it was associated with.

☐ ✔

Solution:
Correct Answer : 2
Your Answer : 2
Refer to the lines – "…. the White Race are all of them objects of passionate nationalistic feeling: but their existence can be seriously questioned," This means that nationalism can exist even if existence of the entity is questionable.

☐ FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**

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Q.15
Which of the following characteristics have not been applied to a nationalist by the author?

1 ◯ Deluded

2 ◯ Competitive

3 ◯ Dishonest

4 ◯ Unbiased

☐ ✔

Solution:
Correct Answer : 4

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Your Answer : 4
A nationalist is biased towards the entity that it favours. This makes option 4 correct. Rest of the characteristics mentioned
here are given in the last paragraph of the passage. Refer to the lines – "…. A nationalist is one who thinks solely, or mainly, in
terms of competitive prestige…… Nationalism is power-hunger tempered by self-deception.………Every nationalist is capable of
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FeedBack

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believes to be the best in the world but has no wish to force on other people. Patriotism is of its nature defensive, both militarily and culturally.
Nationalism, on the other hand, is inseparable from the desire for power. The abiding purpose of every nationalist is to secure more power and more
prestige, *not* for himself but for the nation or other unit in which he has chosen to sink his own individuality.

So long as it is applied merely to the more notorious and identifiable nationalist movements in Germany, Japan, and other countries, all this is obvious
enough. Confronted with a phenomenon like Nazism, which we can observe from the outside, nearly all of us would say much the same things about it. But
here I must repeat what I said above, that I am only using the word 'nationalism' for lack of a better. Nationalism, in the extended sense in which I am using
the word, includes such movements and tendencies as Communism, political Catholicism, Zionism, Antisemitism, Trotskyism and Pacifism. It does not
necessarily mean loyalty to a government or a country, still less to one's own country, and it is not even strictly necessary that the units in which it deals
should exist. To name a few obvious examples, Jewry, Islam, Christendom, the Proletariat, and the White Race are all of them objects of passionate
nationalistic feeling: but their existence can be seriously questioned, and there is no definition of any one of them that would be universally accepted.

It is also worth emphasising once again that nationalist feeling can be purely negative. There are, for example, Trotskyists who have become simply enemies
of the U.S.S.R. without developing a corresponding loyalty to any other unit. When one grasps the implications of this, the nature of what I mean by
nationalism becomes a good deal clearer. A nationalist is one who thinks solely, or mainly, in terms of competitive prestige. He may be a positive or a
negative nationalist — that is, he may use his mental energy either in boosting or in denigrating — but at any rate his thoughts always turn on victories,
defeats, triumphs, and humiliations. He sees history, especially contemporary history, as the endless rise and decline of great power units, and every event
that happens seems to him a demonstration that his own side is on the upgrade and some hated rival is on the downgrade. But finally, it is important not to
confuse nationalism with mere worship of success. The nationalist does not go on the principle of simply ganging up with the strongest side. On the
contrary, having picked his side, he persuades himself that it is the strongest, and is able to stick to his belief even when the facts are overwhelmingly
against him. Nationalism is power-hunger tempered by self-deception. Every nationalist is capable of the most flagrant dishonesty, but he is also — since he
is conscious of serving something bigger than himself — unshakeably certain of being in the right.

Q.16
How does a nationalist view history?

1 ⃝ **As an evidence of the greatness of the side he represents**

2 ⃝ **As a series of events that justifies his siding with his group**

3 ⃝ **As a lesson to understand why the side he represents is great**

4 ⃝ **As a series of events that explain why other sides are not as great as his side is**

Solution:
Correct Answer : 1
Refer to the lines –"He sees history, especially contemporary history, as the endless rise and decline of great power units, and
every event that happens seems to him a demonstration that his own side is on the upgrade and some hated rival is on the
downgrade." This means that history is used by a nationalist as a proof of how his side is on the 'upgrade'.
This is not about why he has sided with a group but about why this group is great. He is not trying to understand but is trying to
prove or justify.

FeedBack

Directions for questions 12-17: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.

Somewhere or other Byron makes use of the French word *longeur*, and remarks in passing that though in England we happen not to have the word, we have
the thing in considerable profusion. In the same way, there is a habit of mind which is now so widespread that it affects our thinking on nearly every
subject, but which has not yet been given a name. As the nearest existing equivalent, I have chosen the word 'nationalism', but it will be seen in a moment

that I am not using it in quite the ordinary sense, if only because the emotion I am speaking about does not always attach itself to what is called a nation — that is, a single race or a geographical area. It can attach itself to a church or a class, or it may work in a merely negative sense, against something or other and without the need for any positive object of loyalty.

By 'nationalism' I mean first of all the habit of assuming that human beings can be classified like insects and that whole blocks of millions or tens of millions of people can be confidently labelled 'good' or 'bad'. But secondly — and this is much more important — I mean the habit of identifying oneself with a single nation or other unit, placing it beyond good and evil and recognising no other duty than that of advancing its interests. *Nationalism is not to be confused with patriotism*. Both words are normally used in so vague a way that any definition is liable to be challenged, but one must draw a distinction between them, since two different and even opposing ideas are involved. By 'patriotism' I mean devotion to a particular place and a particular way of life, which one believes to be the best in the world but has no wish to force on other people. Patriotism is of its nature defensive, both militarily and culturally. Nationalism, on the other hand, is inseparable from the desire for power. The abiding purpose of every nationalist is to secure more power and more prestige, *not* for himself but for the nation or other unit in which he has chosen to sink his own individuality.

So long as it is applied merely to the more notorious and identifiable nationalist movements in Germany, Japan, and other countries, all this is obvious enough. Confronted with a phenomenon like Nazism, which we can observe from the outside, nearly all of us would say much the same things about it. But here I must repeat what I said above, that I am only using the word 'nationalism' for lack of a better. Nationalism, in the extended sense in which I am using the word, includes such movements and tendencies as Communism, political Catholicism, Zionism, Antisemitism, Trotskyism and Pacifism. It does not necessarily mean loyalty to a government or a country, still less to one's own country, and it is not even strictly necessary that the units in which it deals should exist. To name a few obvious examples, Jewry, Islam, Christendom, the Proletariat, and the White Race are all of them objects of passionate nationalistic feeling: but their existence can be seriously questioned, and there is no definition of any one of them that would be universally accepted.

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Q.17
How does a nationalist delude himself?

1 ◯ By believing that the side he represents is making just and honest decisions

2 ◯ By believing that the side he represents is the strongest

3 ◯ By disregarding the evidence of the mis-endeavours that the side he represents has engaged in

4 ◯ By his unshakable belief in the meaning of his existence

Solution:
Correct Answer : 3
Refer to the lies- "... On the contrary, having picked his side, he persuades himself that it is the strongest, and is able to stick to his belief even when the facts are overwhelmingly against him. Nationalism is power-hunger tempered by self-deception...."

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🔍 **Answer key/Solution**

[FeedBack]

Q.18
Directions for question 18: The following question consists of a set of four sentences. These sentences need to be arranged in a coherent manner to create a meaningful paragraph. Type in the correct order of the sentences in the space provided below the question.

1. Postmodernism is the Swiss Army knife of critical concepts.
2. Postmodernism can mean, "We're all modernists now. Modernism has won." Or it can mean, "No one can be a modernist anymore. Modernism is over."
3. This is partly because, like many terms that begin with "post," it is fundamentally ambidextrous.
4. It's definitionally overloaded, and it can do almost any job you need done.

Solution:
Correct Answer : 1432
4 explains the analogy of 'swiss army knife' given in 1. So, 4 should follow 1. 3 explains why postmodernism is definitionally overloaded (as given in 4). So, 3 should follow 4. 2 explains the 'ambidextrous' nature of post-modernism as given in 3. So, 2 should follow 3.

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🔍 **Answer key/Solution**

[FeedBack]

Q.19
Directions for question 19: The following question consists of a set of five sentences. These sentences need to be arranged in a coherent manner to create

meaningful paragraph. Type in the correct order of the sentences in the space provided below the question.

1. It can help make an illegal money transfer appear like it was a run-of-the-mill, everyday exchange.
2. So what if the investigators do find evidence of money laundering in this case?
3. Without laundering, the illegal money transfer would connect the lawbreaking parties, making it easier for law enforcement to identify the wrongdoers.
4. That discovery, if found to be true, would make the investigation worth it. .
5. Money laundering, in its simplest form, is making it seem like money that comes from X place actually comes from Y place.

Solution:
Correct Answer : 51324
51324 is the correct order. 5 opens the discussion by defining money laundering. 1 expands this idea. 24 make a mandatory pair as 4 answers 2. It has to come at the end of the paragraph as 513 make a mandatory sequence. We also need to remember the structure general to specific in deductive paragraphs.

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🔍 **Answer key/Solution**

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Q.20
Directions for question 20: 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. For millions of years, the ancestors of *Homo sapiens* evolved painfully slowly.
2. Not only did this transformation create the foundation for art, spiritual practices and language, it came with a survival advantage for our ancestors, who had to work together in order to survive.
3. Plato instructed us to "know thyself", while psychologists have argued that this skill is at the core of human survival and advancement.
4. If your emotional abilities aren't in hand, if you don't have self-awareness, if you are not able to manage your distressing emotions, if you can't have empathy and have effective relationships, then no matter how smart you are, you are not going to get very far.
5. But as the neuroscientist VS Ramachandran explains in his book *The Tell-Tale Brain*, about 150,000 years ago there was an explosive development in the human brain where, among other things, we gained the ability to examine our own thoughts, feelings and behaviours, as well as to see things from another point of view.

Solution:
Correct Answer : 4
3152 is the correct sequence. 1 and 5 form a mandatory pair as they talk about the evolution of homo sapiens. 'this transformation' in 2 refers to 5. 4 and 3 both discuss self-awarenessbut 3 introduces the topic. Also, 4 talks about importance of self-awareness while the rest of the passage is only describes it.

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🔍 **Answer key/Solution**

FeedBack

Directions for questions 21-26: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.

In *Conspiracy of Fools: A True Story,* Kurt Eichenwald relates how Enron's leaders engaged in massive book-cooking with little interference from the dozens of managers, lawyers, and advisers who had a pretty good idea of what was going on. Similarly, at Parmalat, employees not involved in the Italian dairy giant's fraud apparently were aware of it because they often joked about fictitious milk sales to Cuba long before those became a public scandal. Tolerance of organizational bad behaviour has become so expected that, in 2002, *Time* magazine named Enron's Sherron Watkins, the FBI's Coleen Rowley, and WorldCom's Cynthia Cooper "Persons of the Year" for going public with stories of organizational failure. Why should simply speaking out about outrageous conduct be so difficult—and so rare?

Psychologists have studied the "bystander effect" and other theories of why people who are aware of wrongdoing fail to intervene. Passivity, it seems, is epidemic, cutting off oxygen to corporate consciences everywhere. Managers and executives generally have the right "values"—that is, they know what they should do when circumstances call on them to take a stand or make a hard choice. If managers acted on those values, and if they applied the same skills they draw on when making a tough sell or marshalling resources for a new business venture, then the misconduct might never escalate to the point where heroic whistle-blowing is required.

But people usually don't act on their values, our research shows, because they don't consider such action to be part of their jobs. Businesspeople view moral and ethical dilemmas as exceptions—and human beings don't deal with exceptions terribly well. In extensive interviews with dozens of managers who had confronted ethical quandaries, we heard repeatedly how they considered such questions—even the classic one's case studies often address—to be "extraordinary" or an "intrusion." They talked about being derailed by these issues, not because they felt morally ambivalent but because dealing with these sorts of problems is simply not what they do.

Confronting such dilemmas, managers feel as though they are stepping out of their competent, action-oriented work identities to expose a more personal part of themselves. So, they try to swiftly put the problem aside or behind them to get back to their "real" work. As a result, they choose paths that present the least friction—the fewest channels to go through and people to persuade, the easiest case to present. One manager described the experience of being forced to choose between standing up to his employer and taking advantage of a client: "In retrospect, the problem I faced really wasn't that overwhelming —that is, once I figured out what I wanted to do. But at first, I just tried to get out of it or get beyond it as quickly as I could. In fact, I lied. I instinctively lied to get out of the situation, hoping it wouldn't happen again."

Such conflicts are greatest for employees who define their jobs narrowly: as simply closing the next deal or making the numbers. Managers who view their professional purpose in broad terms—delivering customer value, say, or building a sustainable enterprise—have an easier time with ethical questions, our research suggests. The broader scope encompasses more kinds of decisions, more types of concerns, and so ethical questions can become just another part

of the landscape. As a result, those employees are less likely to lay low or obfuscate or even lie to avoid a tricky situation.

Most organizations want workers who don't just think the right thing but also do it. Managers have a responsibility to help employees over their mental hurdles. Leaders who act ethically themselves are necessary but not sufficient—they must also make clear that correctly resolving ethical and moral questions is part of everyone's job and that time spent doing so does, in fact, serve the business. And they should make it easier for employees to seek mentors who will guide them across difficult terrain and to build coalitions among like-minded colleagues willing to share the journey. Some companies are having success with programs in which people practice arguing ethical positions in front of respected leaders and peers.

Luigi Zingales, an entrepreneurship and finance professor at the University of Chicago Graduate School of Business, has suggested making whistle-blowing more common by offering monetary incentives. But whistle-blowing isn't a desirable end; it is a last resort. When we reach that stage, it means we have failed, both as organizations and as people. Rather than lionizing the exception, let us make the contemplation of moral and ethical questions the stuff of everyday work.

Q.21
What makes it easier to face ethical dilemmas at workplace?

1 ◯ Considering taking stand on ethical issues not part of the job role.

2 ◯ Broadening the job role to include not only customers but also colleagues.

3 ◯ Witnessing leaders take hard decisions when faced with moral issues.

4 ◯ Getting trained on how to handle such issues effectively.

Solution:
Correct Answer : 1
Refer to the lines – "Confronting such dilemmas, managers feel as though they are stepping out of their competent, action-oriented work .... behind them to get back to their "real" work." This makes option 1 correct. The author explains that most managers are feel uncomfortable taking a stand on such issues as this is not considered part of the job.

🔖 **Bookmark**

⚲ **Answer key/Solution**

[FeedBack]

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Q.22
Why is heroic whistleblowing often required in organisations?

1 ◯ Because wrongdoings are not stopped at initial stages.

2 ◯ Because most people are scared about job security.

3 ◯ Because reporting wrongdoings is not considered part of job description.

4 ◯ Because no one wants to take individual accountability for whistle blowing.

[✖]

Solution:
Correct Answer : 1
Your Answer : 3
Heroic whistleblowing is required as wrong doings are not reported at initial stages and most people choose to be bystanders.

🔖 **Bookmark**

⚙ **Answer key/Solution**

[FeedBack]

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Q.23
Which of the following is an example of bystander effect?

1 ◯ A woman facing sexual harassment at work but is too afraid to report it.

2 ◯ **Colleagues witnessing sexual harassment but unable to report it as they are not victims.**

3 ◯ **A sales manager unaware of a financial fraud in his team even though it is his job to be aware of such happenings.**

4 ◯ **All the above**

☑

Solution:
Correct Answer : 2
Your Answer : 2
Option 1 is incorrect as the woman is the victim and not the witness. Option 2 is correct as the colleagues are witness to a wrongdoing but are not taking action. This makes them bystanders. Sales manager is probably but not a bystander as he is unaware of the wrongdoing.

🔖 **Bookmark**

🔍 **Answer key/Solution**

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Q.24
Which of the following is not stated as a reason for why people become passive when something wrong is happening?

1 ◯ **Doing something about the problem puts them out of their comfort-zone.**

2 ◯ **Doing something about the problem is often not considered part of the role.**

3 ◯ **They fear the negative consequences of reporting wrongdoings.**

4 ◯ **They do not have mentors who can guide them.**

Solution:
Correct Answer : 3
Options 1, 2 and 4 are mentioned in the passage. The author discusses that most people do not consider reporting such events as part of their job and hence to do so becomes uncomfortable. These people can take better decisions when they have mentors to guide them.

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Psychologists have studied the "bystander effect" and other theories of why people who are aware of wrongdoing fail to intervene. Passivity, it seems, is epidemic, cutting off oxygen to corporate consciences everywhere. Managers and executives generally have the right "values"—that is, they know what they should do when circumstances call on them to take a stand or make a hard choice. If managers acted on those values, and if they applied the same skills they draw on when making a tough sell or marshalling resources for a new business venture, then the misconduct might never escalate to the point where heroic whistle-blowing is required.

But people usually don't act on their values, our research shows, because they don't consider such action to be part of their jobs. Businesspeople view moral and ethical dilemmas as exceptions—and human beings don't deal with exceptions terribly well. In extensive interviews with dozens of managers who had confronted ethical quandaries, we heard repeatedly how they considered such questions—even the classic one's case studies often address—to be "extraordinary" or an "intrusion." They talked about being derailed by these issues, not because they felt morally ambivalent but because dealing with these sorts of problems is simply not what they do.

Confronting such dilemmas, managers feel as though they are stepping out of their competent, action-oriented work identities to expose a more personal part of themselves. So, they try to swiftly put the problem aside or behind them to get back to their "real" work. As a result, they choose paths that present the least friction—the fewest channels to go through and people to persuade, the easiest case to present. One manager described the experience of being forced to choose between standing up to his employer and taking advantage of a client: "In retrospect, the problem I faced really wasn't that overwhelming —that is, once I figured out what I wanted to do. But at first, I just tried to get out of it or get beyond it as quickly as I could. In fact, I lied. I instinctively lied to get out of the situation, hoping it wouldn't happen again."

Such conflicts are greatest for employees who define their jobs narrowly: as simply closing the next deal or making the numbers. Managers who view their professional purpose in broad terms—delivering customer value, say, or building a sustainable enterprise—have an easier time with ethical questions, our research suggests. The broader scope encompasses more kinds of decisions, more types of concerns, and so ethical questions can become just another part of the landscape. As a result, those employees are less likely to lay low or obfuscate or even lie to avoid a tricky situation.

Most organizations want workers who don't just think the right thing but also do it. Managers have a responsibility to help employees over their mental hurdles. Leaders who act ethically themselves are necessary but not sufficient—they must also make clear that correctly resolving ethical and moral questions is part of everyone's job and that time spent doing so does, in fact, serve the business. And they should make it easier for employees to seek mentors who will guide them across difficult terrain and to build coalitions among like-minded colleagues willing to share the journey. Some companies are having success with programs in which people practice arguing ethical positions in front of respected leaders and peers.

Luigi Zingales, an entrepreneurship and finance professor at the University of Chicago Graduate School of Business, has suggested making whistle-blowing more common by offering monetary incentives. But whistle-blowing isn't a desirable end; it is a last resort. When we reach that stage, it means we have failed, both as organizations and as people. Rather than lionizing the exception, let us make the contemplation of moral and ethical questions the stuff of everyday work.

Q.25
The author of the passage would most likely consider which of the following as a tool for employees who are unable to face a moral quandary at workplace

1 ◯ Workshops on how to use whistle-blower helplines at office

2 ◯ Speaking with leaders on how take actions swiftly on ethical issues

3 ◯ Making employees accountable for reporting the wrongdoings happening in their surroundings

4 ◯ Making it easier for the employees to report wrong doings

✖

Solution:
Correct Answer : 3
Your Answer : 2
Refer to the lines – "Confronting such dilemmas, managers feel as though they are stepping out of their competent, action-oriented work .... behind them to get back to their "real" work." This makes option 1 correct. The author explains that most managers feel uncomfortable taking a stand on such issues as this is not considered part of the job. If employees become accountable for reporting, it becomes part of their job role.

FeedBack

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Q.26
Consider this scenario – A man riding a bike had an accident on the road and is in need of immediate medical attention. Two persons stopped after witnessing this and called an ambulance and started giving the person first aid. A few others also gathered around the injured person. Some people looked at the accident site and walked away. Which of the following is correct according to the passage?

A. People gathered around the victim are not bystanders as the victim is already being helped and nothing else can be done. These people have at least stopped to witness the accident
B. People passing by are bystanders as they are aware of the accident but did not stop to help.
C. People gathered around the victim are bystanders as they are not helping improve the situation.

1 ◯ **A and B**

2 ◯ **B and C**

3 ◯ **Only A**

4 ◯ **Only C**

Solution:
Correct Answer : 2
A is incorrect as people gathered around are bystanders and are not doing anything to improve the situation.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Q.27
Directions for question 27: 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. Are parents sweating the small stuff and worrying over the less important aspects of what makes a successful child?
2. The endless rise of new parenting methods we hear about in the media can add to our sense of confusion and lack of confidence.
3. Does it really matter if a toddler throws food, eats quinoa or can recite poetry?
4. The more people have studied different methods of bringing up children the more they have come to the conclusion that what good mothers and fathers instinctively feel like doing for their babies is the best after all
5. From tiger to helicopter parenting, micro-managers and maxi-organisers, parents whose children don't throw food to ones obsessed with tutoring, could it be that they've all got it wrong?

Solution:

Correct Answer : 4

2513 is the correct sequence. 1 and 3 make the mandatory pair as they together discuss if worrying about small stuff is required. 2 and 5 also form a mandatory pair as they discuss the rise of many and new parenting methods. Option 4 may become part of this discussion at a later stage but does not fit the sequence here.

FeedBack

Q.28
Directions for question 28: The following question consists of a set of five sentences. These sentences need to be arranged in a coherent manner to create meaningful paragraph. Type in the correct order of the sentences in the space provided below the question.

1. Is it possible to move from an individual case study to the full-blown investigation of animal personality?
2. If specific animals perform tasks differently from one other, but are consistent with their own past performance, perhaps we can identify those patterns as a kind of proto-personality.
3. A good example is the bold/shy paradigm: some creatures are audacious, and approach new objects or behaviours readily; some are timid, and more reluctant to engage.
4. In one example from 2004, individual fish known as three-spined sticklebacks were shown to feed and grow at different rates according to how bravely they returned to a meal after a simulated predator attack.
5. Evolutionary theory and mathematical modelling provide a possible explanation for such differences: variable behaviour in a population is an adaptive advantage and gives you a better shot at survival.

Solution:
Correct Answer : 12345
12345. The correct series is 12345. Animal personality mentioned in sentence 1 has been elaborated in sentence 2. An example of how specific animals perform tasks differently is mentioned in sentence 3, making 123 a series. The words 'such differences' in sentence 5 is related to the example mentioned in sentence 4 'sticklebacks were shown to feed and grow at different rates', making 45 a pair.

FeedBack

Q.29
Directions for question 29: The following question consists of a set of four sentences. These sentences need to be arranged in a coherent manner to create a meaningful paragraph. Type in the correct order of the sentences in the space provided below the question.

1. A micromastery is repeatable and has a successful payoff.
2. You can perfect that single thing or move on to bigger things – or you can do both.
3. A micromastery is a self-contained unit of doing, complete in itself, but connected to a greater field.
4. It's the way we learn as kids. You never absorb all the fundamentals straight away – you learn one cool thing, then another.

Solution:
Correct Answer : 3214
3214. 'that single thing' in 2 refers to 'self-contained unit' in 3. This makes 32 a mandatory pair. The paragraph should start from 3 as it introduces the topic of micromastery. The successful payoff discussed in 1 is explained in 4 – learning one cool thing at a time. So, 4 should follow 1.

FeedBack

Q.30
Directions for question 30: 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. When non-awkward people walk into a room full of people, they see the big social picture.

2. If there ever is a time to be socially awkward, it is now; nerd is the new cool.
3. By comparison, awkward people tend to see social situations in a fragmented way. 4. They intuitively understand the emotional tone in the room or how formally they should act.
5. It's as if they view the world with a narrow spotlight that means they see some things with intense clarity.

Solution:

Correct Answer : 2

1435 is the correct sequence. 'they' in 4 refer to non-awkward people in 1. 3 brings in the contrast with 'by comparison' of awkward people. 4 continues with this description.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Q.31

Directions for question 31: 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.

Peace or harmony between the sexes and individuals does not necessarily depend on a superficial equalization of human beings; nor does it call for the elimination of individual traits and peculiarities. The problem that confronts us today, and which the nearest future is to solve, is how to be one's self and yet in oneness with others, to feel deeply with all human beings and still retain one's own characteristic qualities. This seems to me to be the basis upon which the mass and the individual, the true democrat and the true individuality, man and woman, can meet without antagonism and opposition. The motto should not be: Forgive one another; rather, understand one another.

1. Rather than gender equality, what is more important in obtaining peace is being in alliance with the society and comprehending others, without losing oneself.
2. For ensuring equality between the genders, one should ensure a good level of accepting and understanding the other people.
3. The best way to ensure peace is to excuse the other person; gender equality and comprehending others are both secondary.
4. Being yourself and keeping all your traits alive is one of the most important in ensuring peace or harmony.

Solution:

Correct Answer : 3

3 is the correct answer. 1 is incorrect because the passage the main idea in the passage is forgiving others, not understanding others. Because of the same reason, 2 is incorrect and is not the correct summary. 4 is incorrect because it highlights only a minor point stated in the passage. 3 summarizes the passage appropriately by highlighting the important points.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Directions for questions 32-34: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.

The human species is an environmental abnormality. It is possible that intelligence in the wrong kind of species was foreordained to be a fatal combination for the biosphere. Perhaps a law of evolution is that intelligence usually extinguishes itself. This admittedly dour scenario is based on what can be termed the juggernaut theory of human nature, which holds that people are programmed by their genetic heritage to be so selfish that a sense of global responsibility will come too late. Individuals place themselves first, family second, tribe third and the rest of the world a distant fourth. Their genes also predispose them to plan for one or two generations at most. They fret over the petty problems and conflicts of their daily lives and respond swiftly and often ferociously to slight challenges to their status and tribal security. But oddly, as psychologists have discovered, people also tend to underestimate both the likelihood and impact of such natural disasters as major earthquakes and great storms.

The reason for this myopic fog, evolutionary biologists contend, is that it was actually advantageous during all but the last few millennia of the two million years of existence of the genus Homo. The brain evolved into its present form during this long stretch of evolutionary time, during which people existed in small, preliterate hunter-gatherer bands. Life was precarious and short. A premium was placed on close attention to the near future and early reproduction and little else. Disasters of a magnitude that occur only once every few centuries were forgotten or transmuted into myth. So today the mind still works comfortably backward and forward for only a few years, spanning a period not exceeding one or two generations. Those in past ages whose genes inclined them to short term thinking lived longer and had more children than those who did not. Prophets never enjoyed a Darwinian edge.

The rules have recently changed, however. Global crises are rising within the life span of the generation now coming of age, a foreshortening that may explain why young people express more concern about the environment than do their elders. The time scale has contracted because of the exponential growth in both the human population and technologies impacting the environment. Exponential growth is basically the same as the increase of wealth by compound interest. The larger the population, the faster the growth; the faster the growth, the sooner the population becomes still larger. In Nigeria, to cite one of our more fecund nations, the population is expected to double from its 1988 level to 216 million by the year 2010. If the same rate of growth were to continue to 2110, its population would exceed that of the entire present population of the world. With people everywhere seeking a better quality of life, the search for resources is expanding even faster than the population. The demand is being met by an increase in scientific knowledge, which doubles every 10 to 15 years. It is accelerated further by a parallel rise in environment-devouring technology.

Because Earth is finite in many resources that determine the quality of life - including arable soil, nutrients, fresh water, and space for natural ecosystems - doubling of consumption at constant time intervals can bring disaster with shocking suddenness. Even when a non-renewable resource has been only half used, it is still only one interval away from the end. Ecologists like to make this point with the French riddle of the lily pond. At first there is only one lily pad in the pond, but the next day it doubles, and thereafter each of its descendants doubles. The pond completely fills with lily pads in 3o days. When is the pond exactly half full? Answer: on the 29th day. Yet, mathematical exercises aside, who can safely measure the human capacity to overcome the perceived limits of Earth? The question of central interest is this: Are we racing to the brink of an abyss, or are we just gathering speed for a take-off to a wonderful future?

Q.32
Why do human beings give the environment less importance than they give to themselves?

1 ◯ Human beings are biologically programmed to be selfish.

2 ◯ Historically, human beings have been able to survive any environmental disaster.

3 ◯ Human beings have realised the importance of environment far too late for them to act.

4 ◯ Previously, it was advantageous for human beings to focus on themselves than on the environment.

Solution:
Correct Answer : 4
Refer to the lines- "A premium was placed on close attention to the near future and early reproduction, and little else. Disasters of a magnitude that occur only once every few centuries were forgotten or transmuted into myth." This explains that it was advantageous for humans to think only about the near future.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

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Q.33
Why does the author use the example of the lily pond?

1 ◯ To explain the period in which the earth's resources will possibly deplete.

2 ◯ To explain the suddenness with which the earth might exhaust its resources.

3 ◯ To comment on the finite nature of the earth's resources

4 ◯ To compel us to act soon to save the earth's resources.

Solution:
Correct Answer : 2
Refer to the lines- "…. doubling of consumption at constant time intervals can bring disaster with shocking suddenness…." The author urges us to understand the rate of depletion of resources and speed at which they might disappear.This makes option 2 correct. Option 4 is incorrect as although the end intention might be to encourage to act, the example of the lily pond is used specifically to explain the suddenness with which resources might disappear.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

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Q.34
Why does the author say that humans are an environmental abnormality?

1 ◯ **Evolution has allowed the survival of a species whose intelligence will destroy the environment.**

2 ◯ **The intelligence that let us survive evolution will also lead to our destruction.**

3 ◯ **The human beings are using their intelligence to create tools for environmental disaster**

4 ◯ **Human beings, despite their intelligence, have underestimated their capacity to exhaust the earth's resources.**

Solution:
Correct Answer : 2
Refer to the lines- "…. Perhaps a law of evolution is that intelligence usually extinguishes itself…." This refers to the fact that human beings have survived natural selection as they are an intelligent being. But this intelligence is leading us to deplete the resources more quickly than ordinarily a species would do and eventually will lead us to destruction.

🔖 **Bookmark**

⚡ **Answer key/Solution**

[FeedBack]

Sec 2

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

Three companies HP, Lenovo and Dell have launched two laptops each in the market, with unique specifications. However, some of the specifications of a few laptops are unknown.

Company	Mode Name	Processor	RAM size (in GB)	Hard disk capacity (in GB)	Battery life (in hours)
HP	Notbook	Quad Core	1	500	6
	Paviliona	Dual Core		160	
Dell	Vostrona		6		3
	Inspirona	i3			
Lenovo	Ideabad	i5	4	1000	5
	Essentiala	i7	8	320	4

Consider that a probable buyer takes into account only four features in a given laptop, vis-à-vis processor, RAM size, hard disk capacity and battery life. H will buy a laptop if a model satisfies any three of his requirements, but it must meet his requirements regarding processor and RAM.

The price of base model (simple core processor, 1 GB RAM, 40 GB hard disk and 3 hour battery life) is Rs 25,000. For each upgradation in the features liste from 'a' to 'd' below, some extra amount is charged which is different for different features but remains constant for every upgradation in the same featur This upgradation amount decreases from 'a' to 'd', e.g. it costs less to upgrade a RAM than a processor and so on. But it's always a multiple of 50.

It is also given that:
(a) There are only 6 types of processors available in the market, which are listed here in increasing order of their efficiency Simple core, Dual Core, Quad core, i3, i5 and i7. Extra charge for every upgradation is Rs. 1000, e.g. for getting Dual core one has to cough up Rs 1000 more than Simple core, Rs 1000 more than that for Quad core and so on.
(b) RAM comes in sizes of 1 GB, 2 GB, 4 GB, 6 GB, 8 GB and 16 GB.
(c) Hard disks can have a capacity of 40 GB, 80 GB, 160 GB, 320 GB, 500 GB or 1000 GB.
(d) Battery life can be 3, 4, 5, 6, 7 or 8 hours. Extra charge for every upgradation is Rs. 550.

Q.35
What is the maximum possible price of a laptop, if a given feature of two laptops may match?

1 ◯ Rs. 40,000

2 ◯ Rs. 39,850

3 ◯ Rs. 41,500

4 ◯ Rs. 40,350

Solution:
Correct Answer : 1

The maximum possible price of Notbook is base price + (maximum possible extra features × maximum possible upgradation charge) = 25,000 + (1000 × 2) + (950 × 0) + (900 × 4) + (550 × 3) = Rs. 32,250

Similarly for others, maximum possible price of Paviliona is 25,000 + (1000 × 1) + (950 × 5) + (900 × 2) + (550 × 5) = Rs. 35,300
Maximum possible price of Vostrona = 25,000 + (1000 × 5) + (950 × 3) + (900 × 5) + (550 × 0) = Rs. 37,350
Maximum possible price of Inspirona = 25,000 + (1000 × 3) + (950 × 5) + (900 × 5) + (550 × 5) = Rs. 40,000
Maximum possible price of Ideabad = 25,000 + (1000 × 4) + (950 × 2) + (900 × 5) + (550 × 2) = Rs. 36,500
Maximum possible price of Essentiala = 25,000 + (1000 × 5) + (950 × 4) + (900 × 3) + (550 × 1) = Rs. 37,050
Hence Inspirona may have the maximum price of Rs. 40,000.

[FeedBack]

⚑ **Bookmark**

✎ **Answer key/Solution**

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

Three companies HP, Lenovo and Dell have launched two laptops each in the market, with unique specifications. However, some of the specifications of a few laptops are unknown.

Company	Mode Name	Processor	RAM size (in GB)	Hard disk capacity (in GB)	Battery life (in hours)
HP	Notbook	Quad Core	1	500	6
	Paviliona	Dual Core		160	
Dell	Vostrona		6		3
	Inspirona	i3			
Lenovo	Ideabad	i5	4	1000	5
	Essentiala	i7	8	320	4

Consider that a probable buyer takes into account only four features in a given laptop, vis-à-vis processor, RAM size, hard disk capacity and battery life. H will buy a laptop if a model satisfies any three of his requirements, but it must meet his requirements regarding processor and RAM.

The price of base model (simple core processor, 1 GB RAM, 40 GB hard disk and 3 hour battery life) is Rs 25,000. For each upgradation in the features liste from 'a' to 'd' below, some extra amount is charged which is different for different features but remains constant for every upgradation in the same feature This upgradation amount decreases from 'a' to 'd', e.g. it costs less to upgrade a RAM than a processor and so on. But it's always a multiple of 50.

It is also given that:
(a) There are only 6 types of processors available in the market, which are listed here in increasing order of their efficiency Simple core, Dual Core, Quad core, i3, i5 and i7. Extra charge for every upgradation is Rs. 1000, e.g. for getting Dual core one has to cough up Rs 1000 more than Simple core, Rs 1000 more than that for Quad core and so on.
(b) RAM comes in sizes of 1 GB, 2 GB, 4 GB, 6 GB, 8 GB and 16 GB.
(c) Hard disks can have a capacity of 40 GB, 80 GB, 160 GB, 320 GB, 500 GB or 1000 GB.
(d) Battery life can be 3, 4, 5, 6, 7 or 8 hours. Extra charge for every upgradation is Rs. 550.

Q.36
What is the minimum possible price of a laptop such that none of the features is the same for any two given laptops?

1 ◯ Rs. 26,950

2 ◯ Rs. 27,200

3 ◯ Rs. 29,500

4 ◯ Rs. 27,800

Solution:
Correct Answer : 1

🔖 **Bookmark**

🔍 **Answer key/Solution**

As no two laptops share the same feature, we get the following table:

Company	Model Name	Specifications			
		Processor	RAM size (in GB)	Hard disk capacity (in GB)	Battery life
HP	Notbook	Quad core	1	500	6
	Paviliona	Dual Core	2 or 16	160	7 or 8
Dell	Vostrona	Simple core	6	40/80	3
	Inspirona	i3	16 or 2	80/40	8 or 7
Lenovo	Ideabad	i5	4	1000	5
	Essentiala	i7	8	320	4

The minimum possible price of Notbook is base price + (minimum possible extra features × minimum possible upgradation charge) = 25,000 + (1000 × 2) + (650 × 0) + (600 × 4) + (550 × 3) = Rs. 31,050

Similarly for others, minimum possible price of Paviliona is 25,000 + (1000 × 1) + (650 × 1) + (600 × 2) + (550 × 4) = Rs. 30,050
Minimum possible price of Vostrona = 25,000 + (1000 × 0) + (650 × 3) + (600 × 0) + (550 × 0) = Rs. 26,950
Minimum possible price of Inspirona = 25,000 + (1000 × 3) + (650 × 1) + (600 × 1) + (550 × 4) = Rs. 33,450
Minimum possible price of Ideabad = 25,000 + (1000 × 4) + (650 × 2) + (600 × 5) + (550 × 2) = Rs. 34,400
Minimum possible price of Essentiala = 25,000 + (1000 × 5) + (650 × 4) + (600 × 3) + (550 × 1) = Rs. 34,950

Hence, Vostrona may have the minimum price of Rs. 26,950.

Note: We can deduct from just a cursory look at the above table that the laptop with the lowest price must be either Paviliona or Vostrona.

FeedBack

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

Three companies HP, Lenovo and Dell have launched two laptops each in the market, with unique specifications. However, some of the specifications of a few laptops are unknown.

Company	Mode Name	Processor	RAM size (in GB)	Hard disk capacity (in GB)	Battery life (in hours)
HP	Notbook	Quad Core	1	500	6
	Paviliona	Dual Core		160	
Dell	Vostrona		6		3
	Inspirona	i3			
Lenovo	Ideabad	i5	4	1000	5
	Essentiala	i7	8	320	4

Consider that a probable buyer takes into account only four features in a given laptop, vis-à-vis processor, RAM size, hard disk capacity and battery life. H
will buy a laptop if a model satisfies any three of his requirements, but it must meet his requirements regarding processor and RAM.

The price of base model (simple core processor, 1 GB RAM, 40 GB hard disk and 3 hour battery life) is Rs 25,000. For each upgradation in the features liste
from 'a' to 'd' below, some extra amount is charged which is different for different features but remains constant for every upgradation in the same feature
This upgradation amount decreases from 'a' to 'd', e.g. it costs less to upgrade a RAM than a processor and so on. But it's always a multiple of 50.

It is also given that:
(a) There are only 6 types of processors available in the market, which are listed here in increasing order of their efficiency Simple core, Dual Core, Quad
core, i3, i5 and i7. Extra charge for every upgradation is Rs. 1000, e.g. for getting Dual core one has to cough up Rs 1000 more than Simple core, Rs 1000
more than that for Quad core and so on.
(b) RAM comes in sizes of 1 GB, 2 GB, 4 GB, 6 GB, 8 GB and 16 GB.
(c) Hard disks can have a capacity of 40 GB, 80 GB, 160 GB, 320 GB, 500 GB or 1000 GB.
(d) Battery life can be 3, 4, 5, 6, 7 or 8 hours. Extra charge for every upgradation is Rs. 550.

Q.37
Mayank wants to buy a laptop having at least i3 processor or above, at least 4 GB RAM, at least 320 GB hard disk capacity and at least 4 hour power
backup. How many laptops may satisfy the criteria of him being a probable buyer, and what is the least amount (in Rs.) that he will have to spend to buy a
model matching his requirements? (Assume none of the features is same for any two given laptops)

1 ◯ 3; 34,400

2 ◯ 3; 34,150

3 ◯ 2; 34,950

4 ◯ 3; 33,450

Solution:
Correct Answer : 4

Inspirona, Ideabad or Essentiala may fulfill his
requirements. The least amount that he may have to
dwell will be the lower of the least possible prices of
Inspirona, Ideabad and Essentiala wherein they just
about fulfill his requirements.
Minimum possible price of Inspirona such that it fulfills
Mayank's requirements = 25,000 + (1000 × 3) + (650 ×
5) + (600 × 0) + (550 × 4) = Rs. 33,450
Minimum possible price of Ideabad such that it fulfills
Mayank's requirements = 25,000 + (1000 × 4) + (650 ×
2) + (600 × 5) + (550 × 2) = Rs. 34,400
Minimum possible price of Essentiala such that it fulfills
Mayank's requirements = 25,000 + (1000 × 5) + (650 ×
4) + (600 × 3) + (550 × 1) = 34,950.

Hence, the least amount that Mayank will have to spend
is Rs. 33,450.

🔖 **Bookmark**

🔍 **Answer key/Solution**

[FeedBack]

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

Three companies HP, Lenovo and Dell have launched two laptops each in the market, with unique specifications. However, some of the specifications of a
few laptops are unknown.

Company	Mode Name	Processor	RAM size (in GB)	Hard disk capacity (in GB)	Battery life (in hours)
HP	Notbook	Quad Core	1	500	6
	Paviliona	Dual Core		160	
Dell	Vostrona		6		3
	Inspirona	i3			
Lenovo	Ideabad	i5	4	1000	5
	Essentiala	i7	8	320	4

Consider that a probable buyer takes into account only four features in a given laptop, vis-à-vis processor, RAM size, hard disk capacity and battery life. H
will buy a laptop if a model satisfies any three of his requirements, but it must meet his requirements regarding processor and RAM.

The price of base model (simple core processor, 1 GB RAM, 40 GB hard disk and 3 hour battery life) is Rs 25,000. For each upgradation in the features liste
from 'a' to 'd' below, some extra amount is charged which is different for different features but remains constant for every upgradation in the same featur
This upgradation amount decreases from 'a' to 'd', e.g. it costs less to upgrade a RAM than a processor and so on. But it's always a multiple of 50.

It is also given that:
(a) There are only 6 types of processors available in the market, which are listed here in increasing order of their efficiency Simple core, Dual Core, Quad
core, i3, i5 and i7. Extra charge for every upgradation is Rs. 1000, e.g. for getting Dual core one has to cough up Rs 1000 more than Simple core, Rs 1000
more than that for Quad core and so on.
(b) RAM comes in sizes of 1 GB, 2 GB, 4 GB, 6 GB, 8 GB and 16 GB.
(c) Hard disks can have a capacity of 40 GB, 80 GB, 160 GB, 320 GB, 500 GB or 1000 GB.
(d) Battery life can be 3, 4, 5, 6, 7 or 8 hours. Extra charge for every upgradation is Rs. 550.

Q.38
What will be the minimum sum of price of HP Paviliona and Dell Inspirona? (Assume none of the features is same for any two given laptops)

1 ◯ Rs. 66,650

2 ◯ Rs. 64,050

3 ◯ Rs. 61,450

4 ◯ Rs. 66,050

Solution:
Correct Answer : 2

For minimum sum,
HP Paviliona minimum price = 25,000 + (1000 × 1) +
(650 × 1) + (600 × 2) + (550 × 4) = Rs. 30,050
Since none of the features is same, hence
Dell Inspirona minimum price = 25,000 + (1000 × 3) +
(650 × 5) + (600 × 0) + (550 × 5) = Rs. 34,000
Hence, minimum sum = Rs. 64,050.

FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**

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

There are five cricket grounds – Den Gardens, Disney, Dorals, Oval and Bulanda – located in five different countries – India, Australia, England, South Afric
and Sri Lanka – not necessarily in the same order. Each of the five grounds is known for a specific character of its pitch from among Flat, Swinging, Bouncy,
Spinning and Slow. It is also known that:
(i) Oval is in England.
(ii) Bouncy and Swinging pitches are not in India.
(iii) Neither Den Gardens nor Bulanda is located in either South Africa or Australia, but each of the two countries has either a Bouncy or a Slow pitch.
(iv) The Spinning pitch is in Sri Lanka.
(v) Neither Bulanda nor Dorals is in Sri Lanka.

Q.39
Which of the ground is located in South Africa?

1 ◯ Disney

2 ◯ Dorals

3 ◯ Den Gardens

4 ◯ Disney or Dorals

✔

Solution:

Correct Answer : 4
Your Answer : 4

Country	Ground	Pitch
England	Oval	Swinging
India	Bulanda	Flat
South Africa	Disney/Dorals	Bouncy/Slow
Australia	Dorals/Disney	Slow/Bouncy
Sri Lanka	Den Gardens	Spinning

Disney or Dorals is in South Africa.

FeedBack

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

There are five cricket grounds – Den Gardens, Disney, Dorals, Oval and Bulanda – located in five different countries – India, Australia, England, South Afric
and Sri Lanka – not necessarily in the same order. Each of the five grounds is known for a specific character of its pitch from among Flat, Swinging, Bouncy,
Spinning and Slow. It is also known that:
(i) Oval is in England.
(ii) Bouncy and Swinging pitches are not in India.
(iii) Neither Den Gardens nor Bulanda is located in either South Africa or Australia, but each of the two countries has either a Bouncy or a Slow pitch.
(iv) The Spinning pitch is in Sri Lanka.
(v) Neither Bulanda nor Dorals is in Sri Lanka.

Q.40
Bulanda cricket ground is in

1 ○ Sri Lanka

2 ○ India

3 ○ England

4 ○ Australia

✔

Solution:
Correct Answer : 2
Your Answer : 2

Country	Ground	Pitch
England	Oval	Swinging
India	Bulanda	Flat
South Africa	Disney/Dorals	Bouncy/Slow
Australia	Dorals/Disney	Slow/Bouncy
Sri Lanka	Den Gardens	Spinning

Bulanda is in India.

FeedBack

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

There are five cricket grounds – Den Gardens, Disney, Dorals, Oval and Bulanda – located in five different countries – India, Australia, England, South Afric
and Sri Lanka – not necessarily in the same order. Each of the five grounds is known for a specific character of its pitch from among Flat, Swinging, Bouncy,
Spinning and Slow. It is also known that:
(i) Oval is in England.
(ii) Bouncy and Swinging pitches are not in India.
(iii) Neither Den Gardens nor Bulanda is located in either South Africa or Australia, but each of the two countries has either a Bouncy or a Slow pitch.
(iv) The Spinning pitch is in Sri Lanka.
(v) Neither Bulanda nor Dorals is in Sri Lanka.

Q.41
The nature of the pitch of the ground located in England is

1 ○ Flat

2 ○ Spinning

3 ○ Bouncy

4 ◯ **Swinging**

✔

Solution:
Correct Answer : 4
Your Answer : 4

Country	Ground	Pitch
England	Oval	Swinging
India	Bulanda	Flat
South Africa	Disney/Dorals	Bouncy/Slow
Australia	Dorals/Disney	Slow/Bouncy
Sri Lanka	Den Gardens	Spinning

The type of pitch in England is Swinging.

FeedBack

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

There are five cricket grounds – Den Gardens, Disney, Dorals, Oval and Bulanda – located in five different countries – India, Australia, England, South Afric and Sri Lanka – not necessarily in the same order. Each of the five grounds is known for a specific character of its pitch from among Flat, Swinging, Bouncy, Spinning and Slow. It is also known that:
(i) Oval is in England.
(ii) Bouncy and Swinging pitches are not in India.
(iii) Neither Den Gardens nor Bulanda is located in either South Africa or Australia, but each of the two countries has either a Bouncy or a Slow pitch.
(iv) The Spinning pitch is in Sri Lanka.
(v) Neither Bulanda nor Dorals is in Sri Lanka.

Q.42
The nature of the pitch of the ground located in Australia is

1 ◯ **Flat**

2 ◯ **Swinging**

3 ◯ **Bouncy**

4 ◯ **Cannot be determined**

✔

Solution:
Correct Answer : 4
Your Answer : 4

Country	Ground	Pitch
England	Oval	Swinging
India	Bulanda	Flat
South Africa	Disney/Dorals	Bouncy/Slow
Australia	Dorals/Disney	Slow/Bouncy
Sri Lanka	Den Gardens	Spinning

The required answer cannot be determined.

FeedBack

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

Five Cricket teams participated in Bihar Cricket League – Patna Panthers (PP), Chhapra Cheetah (CC), Samastipur Shardaar (SS), Nawada Knightriders (NK and Jamui Jaambaaz (JJ). Each team has to play exactly one match with each of the other teams. 2 points are awarded for winning a match and zero points are awarded for losing a match. In case of 'tie', both the teams are awarded 1 point each. It is also known that at the end of the League, there are 2 ties. All the matches are played. Sum of points scored by following teams are known,

Teams	Total score
NK and PP	12
PP and JJ	11
PP and SS	10
PP and CC	8

Q.43

If JJ won a match against NK, then SS tied their match against whom?

1 ◯ PP

2 ◯ CC

3 ◯ NK

4 ◯ JJ

Solution:

Correct Answer : 2

Since, total number of matches played is $^5C_2$ i.e., 10, sum of all the points in the tournament = 20.

i.e, PP + CC + SS + NK + JJ = 20   ... (1)

Given:

$\quad$ NK + PP = 12   ... (2)
$\quad$ PP + JJ = 11   ... (3)
$\quad$ PP + SS = 10   ... (4)
$\quad$ PP + CC = 8   ... (5)

Solving, we get PP = 7, NK = 5, JJ = 4, SS = 3, CC = 1.

Since the points scored by all the teams are odd except JJ, so JJ did not have any tie matches and JJ won 2 matches.

PP = 7, so PP would not have lost any match. (Since each team plays 4 matches, so max 8 pts.) Now, NK = 5, since it lost to JJ (given), its tie match should be with PP only, because if it has tie with CC or SS, then NK must have won against PP which is not true.

∴ SS tied their match with CC.

FeedBack

📑 **Bookmark**

🔍 **Answer key/Solution**

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

Five Cricket teams participated in Bihar Cricket League – Patna Panthers (PP), Chhapra Cheetah (CC), Samastipur Shardaar (SS), Nawada Knightriders (NK) and Jamui Jaambaaz (JJ). Each team has to play exactly one match with each of the other teams. 2 points are awarded for winning a match and zero points are awarded for losing a match. In case of 'tie', both the teams are awarded 1 point each. It is also known that at the end of the League, there are 2 ties. All the matches are played. Sum of points scored by following teams are known,

Teams	Total score
NK and PP	12
PP and JJ	11
PP and SS	10
PP and CC	8

Q.44

What is the difference between final points of NK and SS?

1 ◯ 1

2 ◯ 2

3 ◯ 3

4 ◯ 4

Solution:

Correct Answer : 2

📑 **Bookmark**

🔍 **Answer key/Solution**

Since, total number of matches played is $^5C_2$ i.e., 10, sum of all
the points in the tournament = 20.
i.e, PP + CC + SS + NK + JJ = 20   ... (1)
Given:
       NK + PP = 12   ... (2)
       PP + JJ = 11   ... (3)
       PP + SS = 10   ... (4)
       PP + CC = 8   ... (5)
Solving, we get PP = 7, NK = 5, JJ = 4, SS = 3, CC = 1.

FeedBack

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

Five Cricket teams participated in Bihar Cricket League – Patna Panthers (PP), Chhapra Cheetah (CC), Samastipur Shardaar (SS), Nawada Knightriders (NK) and Jamui Jaambaaz (JJ). Each team has to play exactly one match with each of the other teams. 2 points are awarded for winning a match and zero points are awarded for losing a match. In case of 'tie', both the teams are awarded 1 point each. It is also known that at the end of the League, there are 2 ties. All the matches are played. Sum of points scored by following teams are known,

Teams	Total score
NK and PP	12
PP and JJ	11
PP and SS	10
PP and CC	8

Q.45
How many total arrangement of wins and ties are possible?

1 ◯ **2**

2 ◯ **3**

3 ◯ **4**

4 ◯ **5**

Solution:
Correct Answer : 3

    Bookmark

    Answer key/Solution

Since, total number of matches played is $^5C_2$ i.e., 10, sum of all
the points in the tournament = 20.
i.e, PP + CC + SS + NK + JJ = 20   ... (1)
Given:
       NK + PP = 12   ... (2)
       PP + JJ = 11   ... (3)
       PP + SS = 10   ... (4)
       PP + CC = 8   ... (5)
Solving, we get PP = 7, NK = 5, JJ = 4, SS = 3, CC = 1.

Case 1:
PP ties with NK, and win against others.
NK loses to JJ and win against CC & SS.
JJ win against CC and loses to SS.
SS wins against JJ.

Case 2:
PP ties with SS and win against others.
NK ties with CC and win against JJ & SS.
JJ win against CC and SS.
SS wins against CC.

Case 3:
PP ties with CC and win against others.
NK ties with SS and win against JJ & CC.
JJ wins against CC and SS.
SS wins against CC.

Case 4:
PP ties with NK and win against others.
NK losing to SS and win against JJ & CC.
JJ win against SS and CC.
SS ties with CC.
∴ Total 4 arrangements of wins & ties are possible.

FeedBack

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

Five Cricket teams participated in Bihar Cricket League – Patna Panthers (PP), Chhapra Cheetah (CC), Samastipur Shardaar (SS), Nawada Knightriders (NK) and Jamui Jaambaaz (JJ). Each team has to play exactly one match with each of the other teams. 2 points are awarded for winning a match and zero points

are awarded for losing a match. In case of 'tie', both the teams are awarded 1 point each. It is also known that at the end of the League, there are 2 ties. All the matches are played. Sum of points scored by following teams are known,

Teams	Total score
NK and PP	12
PP and JJ	11
PP and SS	10
PP and CC	8

Q.46
At the end of the League, which teams point, is the median?

1 ⃝ **JJ**

2 ⃝ **SS**

3 ⃝ **CC**

4 ⃝ **NK**

Solution:
Correct Answer : 1

Since, total number of matches played is $^5C_2$ i.e., 10, sum of all the points in the tournament = 20.
i.e, PP + CC + SS + NK + JJ = 20   ... (1)
Given:
    NK + PP = 12   ... (2)
    PP + JJ = 11   ... (3)
    PP + SS = 10   ... (4)
    PP + CC = 8   ... (5)
Solving, we get PP = 7, NK = 5, JJ = 4, SS = 3, CC = 1.

$$\begin{bmatrix} CC & SS & JJ & NK & PP \\ 1 & 3 & 4 & 5 & 7 \end{bmatrix}$$

FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**

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

A cube of dimensions 8 cm × 8 cm × 8 cm is painted with black colour. This cube is cut into 512 smaller and identical cubes of edge 1 cm each. Now, smaller cubes are used to make two cuboids. The dimensions of one cuboid are 8 cm × 8 cm × 4 cm and that of the other are 16 cm × 4 cm × 4 cm. Three faces of the cube with dimensions 8 cm × 8 cm × 4 cm are painted with Red and the remaining faces are painted with three different colours - Blue, Pink and Yellow - with only one colour on a face. The other cube is painted with three different colours - Red, Pink and Blue - such that each colour is used on exactly two faces. Finally, these two cuboids are cut into smaller and identical cubes of edge 1 cm each.

Q.47
The number of smaller cubes painted with exactly two colours cannot be more than

1 ⃝ **394**

2 ⃝ **377**

3 ⃝ **376**

4 ⃝ **364**

Solution:
Correct Answer : 3

🔖 **Bookmark**

🔍 **Answer key/Solution**

When a cube of dimensions 8 cm × 8 cm × 8 cm is painted with black colour:

Number of cubes with exactly one coloured face
= 6 × 6 × 6 = 216

Number of cubes with exactly two coloured faces
= 6 × 12 = 72.

Number of cubes with exactly there coloured faces = 8

Number of cubes with no coloured face = 6 × 6 × 6 = 216.

Cuboid with dimensions 8 cm × 8 cm × 4 cm:
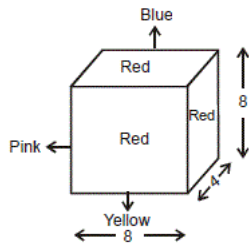
Minimum number of cubes with side 1 cm with 3 or more than 3 different colours on them = 4

Minimum number of smaller cubes with 1 or less than 1 different colour on them = 6 × 6 × 2 = 72

Cuboid with dimensions 16 cm × 4 cm × 4 cm:
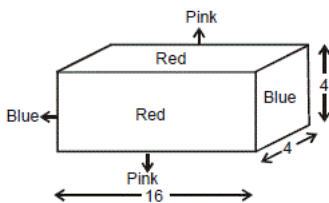
Minimum number of smaller cubes with side 1 cm with 3 or more than 3 different colours on them = 4

Minimum number of smaller cubes with 1 or less than 1 different colour on them = 14 × 2 × 2 = 56

Hence, maximum number of smaller cubes painted with exactly two different colours
= 512 − (4 + 72 + 4 + 56) = 512 − 136 = 376

FeedBack

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

A cube of dimensions 8 cm × 8 cm × 8 cm is painted with black colour. This cube is cut into 512 smaller and identical cubes of edge 1 cm each. Now, smaller cubes are used to make two cuboids. The dimensions of one cuboid are 8 cm × 8 cm × 4 cm and that of the other are 16 cm × 4 cm × 4 cm. Three faces of the cube with dimensions 8 cm × 8 cm × 4 cm are painted with Red and the remaining faces are painted with three different colours - Blue, Pink and Yellow - with only one colour on a face. The other cube is painted with three different colours - Red, Pink and Blue - such that each colour is used on exactly two faces. Finally, these two cuboids are cut into smaller and identical cubes of edge 1 cm each.

Q.48
The number of smaller cubes painted with exactly four colours cannot be more than

1 ◯ **16**

2 ◯ **14**

3 ◯ **12**

4 ◯ **10**

Solution:
Correct Answer : 3

🔖 **Bookmark**

🔍 **Answer key/Solution**

When a cube of dimensions 8 cm × 8 cm × 8 cm is painted with black colour:
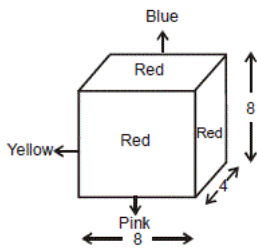
Number of cubes with exactly one coloured face
= 6 × 6 × 6 = 216

Number of cubes with exactly two coloured faces
= 6 × 12 = 72.

Number of cubes with exactly there coloured faces = 8

Number of cubes with no coloured face = 6 × 6 × 6 = 216.

Four colours can come only on those smaller cubes which are at corners of the two cuboids with black colour on at least one of the three unexposed faces of the cubes.
Cuboid with dimensions 8 cm × 8 cm × 4 cm:
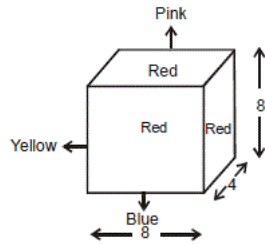
Number of smaller cubes painted with exactly four colours cannot be more than 4.
Cuboid with dimensions 16 cm × 4 cm × 4 cm
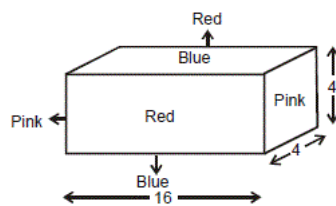
Number of smaller cubes painted with exactly four colours cannot be more than 8.
Hence, total number of smaller cubes in the two cuboids with exactly four colours on them cannot be more than 8 + 4 = 12.

FeedBack

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

A cube of dimensions 8 cm × 8 cm × 8 cm is painted with black colour. This cube is cut into 512 smaller and identical cubes of edge 1 cm each. Now, smaller cubes are used to make two cuboids. The dimensions of one cuboid are 8 cm × 8 cm × 4 cm and that of the other are 16 cm × 4 cm × 4 cm. Three faces of the cube with dimensions 8 cm × 8 cm × 4 cm are painted with Red and the remaining faces are painted with three different colours - Blue, Pink and Yellow - with only one colour on a face. The other cube is painted with three different colours - Red, Pink and Blue - such that each colour is used on exactly two faces. Finally, these two cuboids are cut into smaller and identical cubes of edge 1 cm each.

Q.49
The number of cubes painted with exactly three colours, out of which one is black, cannot be less than

1 ◯ **0**

2 ◯ **2**

3 ◯ **8**

4 ◯ **12**

Solution:
Correct Answer : 1

🔖 **Bookmark**

🔍 **Answer key/Solution**

When a cube of dimensions 8 cm × 8 cm × 8 cm is painted with black colour:

Number of cubes with exactly one coloured face
= 6 × 6 × 6 = 216

Number of cubes with exactly two coloured faces
= 6 × 12 = 72.

Number of cubes with exactly there coloured faces = 8

Number of cubes with no coloured face = 6 × 6 × 6 = 216.

Number of smaller cubes in the interior of the two cuboids = (6 × 6 × 2) + (14 × 2 × 2) = 72 + 56 = 128. So, all the smaller cubes obtained from the original cube with two or more painted faces with black colour can be adjusted at the interior of the two cuboids. Smaller cubes with exactly one face painted with black colour can be adjusted on the faces of the two cuboids in such a way that after painting the two cuboids the old black faces become a new coloured faces.

In this way, we are left with no smaller cube which is painted with exactly three colours, out of which one is black.
Hence, the required answered is 0.

> FeedBack

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

A cube of dimensions 8 cm × 8 cm × 8 cm is painted with black colour. This cube is cut into 512 smaller and identical cubes of edge 1 cm each. Now, smaller cubes are used to make two cuboids. The dimensions of one cuboid are 8 cm × 8 cm × 4 cm and that of the other are 16 cm × 4 cm × 4 cm. Three faces of the cube with dimensions 8 cm × 8 cm × 4 cm are painted with Red and the remaining faces are painted with three different colours - Blue, Pink and Yellow - with only one colour on a face. The other cube is painted with three different colours - Red, Pink and Blue - such that each colour is used on exactly two faces. Finally, these two cuboids are cut into smaller and identical cubes of edge 1 cm each.

Q.50
The number of cubes painted with exactly one colour cannot be more than

1 ◯ 374

2 ◯ 376

3 ◯ 405

4 ◯ 415

Solution:
Correct Answer : 4

🔖 **Bookmark**

🔍 **Answer key/Solution**

When a cube of dimensions 8 cm × 8 cm × 8 cm is painted with black colour:

Number of cubes with exactly one coloured face
= 6 × 6 × 6 = 216

Number of cubes with exactly two coloured faces
= 6 × 12 = 72.

Number of cubes with exactly there coloured faces = 8

Number of cubes with no coloured face = 6 × 6 × 6 = 216.

Cuboid with dimensions 8 cm × 8 cm × 4 cm:

In this cuboid, smaller cubes with exactly one colour (black) on them in the interior = 6 × 6 × 2 = 72
The number of smaller cubes with exactly 1 colour on the faces of the cuboid will be maximum when smaller cubes with one or no face painted with black colour are arranged in such a way on the faces of the cuboid that they have only colour on them after final painting.
Maximum number of smaller cubes with exactly one colour on the faces of the cuboid
= 2(6 × 6 + 6 × 2 + 6 × 2) = 120
Maximum number of smaller cubes on the edges of the cuboid with exactly one face painted
= 7 + 6 + 6 = 19
Total number of smaller cubes with exactly one colour on them = 72 + 120 + 19 = 211

Cuboid with dimensions 16 cm × 4 cm × 4 cm:
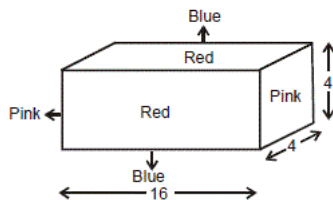
In this cuboid, maximum number of smaller cubes with exactly one colour (black) on them in the interior
= 14 × 2 × 2 = 56

Maximum number of smaller cubes with exactly one colour on the faces of the cuboid
= 2(14 × 2 + 14 × 2 + 2 × 2) = 120
Maximum number of smaller cubes on the edges of the cuboid with exactly one colour on them
= 14 + 14 = 28
Total number of smaller cubes with exactly one colour on them = 56 + 120 + 28 = 204
∴ Number of smaller cubes painted with exactly one colour cannot be more than 211 + 204 = 415.

FeedBack

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

There are seven pebbles namely P1, P2, P3, P4, P5, P6 and P7 with Jujharu Hansi. On one side of these pebbles, numbers 2, 3, 4, 5, 6, 7 and 8 are to be inscribed such that 2 is inscribed on P1, 3 on P2, 4 on P3, and so on. Similarly, on the other sides of these pebbles, 2, 5, 16, 27, 63, 45 and 12 are to be inscribed, with one number on each pebble, not necessarily in the same order. On any pebble the number to be inscribed on one side is not a factor of the number to be inscribed on the other. The sum of two numbers inscribed on each pebble is a prime number.

Q.51
In how many ways can numbers be inscribed on the two sides of the seven pebbles?

1 ◯ **2**

2 ◯ **4**

3 ◯ **8**

4 ◯ **16**

✖

Solution:

Correct Answer : 2

Your Answer : 4

The sum of two numbers on each pebble is a prime number and one of the two numbers on each pebble is given. Hence, the following arrangement is possible.

Pebble	Numbers	
	Side	Side 2
P1	2	27/45
P2	3	2/16
P3	4	27/63
P4	5	2/12
P5	6	5
P6	7	16/12
P7	8	63/45

In four different ways numbers can be inscribed on the seven pebbles.

FeedBack

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

There are seven pebbles namely P1, P2, P3, P4, P5, P6 and P7 with Jujharu Hansi. On one side of these pebbles, numbers 2, 3, 4, 5, 6, 7 and 8 are to be inscribed such that 2 is inscribed on P1, 3 on P2, 4 on P3, and so on. Similarly, on the other sides of these pebbles, 2, 5, 16, 27, 63, 45 and 12 are to be inscribed, with one number on each pebble, not necessarily in the same order. On any pebble the number to be inscribed on one side is not a factor of the number to be inscribed on the other. The sum of two numbers inscribed on each pebble is a prime number.

Q.52

What is the sum of the numbers inscribed on P4?

1 ◯ 7

2 ◯ 17

3 ◯ Either (1) or (2)

4 ◯ Cannot be determined

✔

Solution:

Correct Answer : 3

Your Answer : 3

The sum of two numbers on each pebble is a prime number and one of the two numbers on each pebble is given. Hence, the following arrangement is possible.

Pebble	Numbers	
	Side	Side 2
P1	2	27/45
P2	3	2/16
P3	4	27/63
P4	5	2/12
P5	6	5
P6	7	16/12
P7	8	63/45

Possible sum of two numbers on P4 is either 5 + 2 = 7 or 5 + 12 = 17.

FeedBack

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

There are seven pebbles namely P1, P2, P3, P4, P5, P6 and P7 with Jujharu Hansi. On one side of these pebbles, numbers 2, 3, 4, 5, 6, 7 and 8 are to be inscribed such that 2 is inscribed on P1, 3 on P2, 4 on P3, and so on. Similarly, on the other sides of these pebbles, 2, 5, 16, 27, 63, 45 and 12 are to be inscribed, with one number on each pebble, not necessarily in the same order. On any pebble the number to be inscribed on one side is not a factor of the number to be inscribed on the other. The sum of two numbers inscribed on each pebble is a prime number.

Q.53

If the seven pebbles are arranged in ascending order of the sum of the numbers on the pebbles from left to right, which pebble would come at sixth positio from the right?

1 ○ **P5**

2 ○ **P4**

3 ○ **P3**

4 ○ **P2**

✔

Solution:
Correct Answer : 1
Your Answer : 1

The sum of two numbers on each pebble is a prime number and one of the two numbers on each pebble is given. Hence, the following arrangement is possible.

Pebble	Numbers	
	Side	Side 2
P1	2	27/45
P2	3	2/16
P3	4	27/63
P4	5	2/12
P5	6	5
P6	7	16/12
P7	8	63/45

Since we have 4 ways to inscribe two numbers on each pebble, the following 4 arrangements are possible:

(i) 5(3 + 2) < 11(6 + 5) < 17(5 + 12) < 23(7 + 16) < 29(2 + 27) < 53(8 + 45) < 67(4 + 63)

(ii) 7(5 + 2) < 11(6 + 5) < 19(7 + 12) = 19(3 + 16) < 29(2 + 27) < 53(8 + 45) < 67(4 + 63)

(iii) 5(3 + 2) < 11(6 + 5) < 17(5 + 12) < 23 (7 + 16) < 31(4 + 27) < 47(2 + 45) < 71(8 + 63)

(iv) 7(5 + 2) < 11(6 + 5) < 19(7 + 12) < 19 (3 + 16) < 31(4 + 27) < 47(2 + 45) < 71(8 + 63)

Sum of the numbers on the sixth pebble from right is 11 with number 6 on one side and 5 on another side the required is pebble is P5.

[FeedBack]

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

There are seven pebbles namely P1, P2, P3, P4, P5, P6 and P7 with Jujharu Hansi. On one side of these pebbles, numbers 2, 3, 4, 5, 6, 7 and 8 are to be inscribed such that 2 is inscribed on P1, 3 on P2, 4 on P3, and so on. Similarly, on the other sides of these pebbles, 2, 5, 16, 27, 63, 45 and 12 are to be inscribed, with one number on each pebble, not necessarily in the same order. On any pebble the number to be inscribed on one side is not a factor of the number to be inscribed on the other. The sum of two numbers inscribed on each pebble is a prime number.

Q.54
If X is the sum of the numbers inscribed on P3 and Y is the sum of the number inscribed on P6, what is the sum of all possible values of the absolute difference between X and Y?

1 ○ **112**

2 ○ **92**

3 ○ **56**

4 ○ **20**

✔

Solution:
Correct Answer : 1
Your Answer : 1

The sum of two numbers on each pebble is a prime number and one of the two numbers on each pebble is given. Hence, the following arrangement is possible.

Pebble	Numbers	
	Side	Side 2
P1	2	27/45
P2	3	2/16
P3	4	27/63
P4	5	2/12
P5	6	5
P6	7	16/12
P7	8	63/45

X can be either 67 or 31 and Y can be either 23 or 19. Required sum = |67 − 23| + |67 − 19| + |31 − 23| + |31− 19| = 44 + 48 + 8 + 12 = 112.

FeedBack

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

SM sports institute has three types of sportspersons – Shooters, Archers and Boxers. Currently the institute has 42 sportspersons involved in the aforementioned sports. Each sportsperson is associated with at least one of the three mentioned sports. It is also known that:
• The sportspersons who are associated with all the three sports are half of the number of persons who are only Boxers.
• The number of sportspersons who are only Shooters is 5/7th of the number of sportspersons who are only Archers.
• The number of sportspersons who are Shooters and Boxers is same as the sum of number of sportspersons who are Shooters and Archers but not Boxers and the number of sportspersons who are Boxers and Archers but not Shooters.
• The number of sportspersons who are only Shooters is 2 more than the number of sportspersons who are Shooters and Archers.
• The number of Boxers who are not Shooters is one-sixth of the total number of sportspersons in the institute.
• 150% of the number of sportspersons who are only Archers is one more than 125% of the sum of number of sportspersons who are only Shooters and that of those who are only Boxers.
• Only one person is both Archer and Boxer but not Shooter.

Q.55
What is the number of persons who are Shooters but not Archers?

✔

Solution:
Correct Answer : 13
Your Answer : 13

From the last condition, only one person is both Archer and Boxer but not Shooter. Then using sixth condition, the number sportspersons who are only Boxers will be 6. From second condition we can say that the number of sportspersons who are involved in all the three sports is 3.
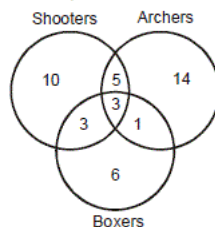Let the number sportspersons who are only Archers be a, then the number of only Shooters will be $\frac{5}{7}$a.

Let the number of sportspersons who are Boxers and Shooters but not Archers be x and number of sportspersons who are Archers and Shooters but not Boxers be y. Then, using fourth condition,
x + 3 = y + 1 ⟹ x = y − 2

From seventh condition,

$$\frac{150}{100}a = 1 + \frac{125}{100}\left(\left(\frac{5}{7}\right)a + 6\right) \Rightarrow a = 14$$

Using further information, we can make the following diagram:

The number of persons who are Shooters but not Archers (10 + 3) = 13.

FeedBack

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

SM sports institute has three types of sportspersons – Shooters, Archers and Boxers. Currently the institute has 42 sportspersons involved in the aforementioned sports. Each sportsperson is associated with at least one of the three mentioned sports. It is also known that:
- **The sportspersons who are associated with all the three sports are half of the number of persons who are only Boxers.**
- **The number of sportspersons who are only Shooters is 5/7th of the number of sportspersons who are only Archers.**
- **The number of sportspersons who are Shooters and Boxers is same as the sum of number of sportspersons who are Shooters and Archers but not Boxers and the number of sportspersons who are Boxers and Archers but not Shooters.**
- **The number of sportspersons who are only Shooters is 2 more than the number of sportspersons who are Shooters and Archers.**
- **The number of Boxers who are not Shooters is one-sixth of the total number of sportspersons in the institute.**
- **150% of the number of sportspersons who are only Archers is one more than 125% of the sum of number of sportspersons who are only Shooters and tha of those who are only Boxers.**
- **Only one person is both Archer and Boxer but not Shooter.**

Q.56
How many sportspersons play the three sports?

✔

Solution:

Correct Answer : 3

Your Answer : 3

From the last condition, only one person is both Archer and Boxer but not Shooter. Then using sixth condition, the number sportspersons who are only Boxers will be 6. From second condition we can say that the number of sportspersons who are involved in all the three sports is 3.

Let the number sportspersons who are only Archers be a,

then the number of only Shooters will be $\frac{5}{7}a$.

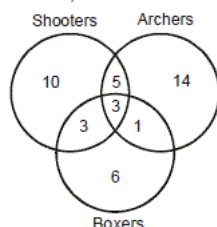Let the number of sportspersons who are Boxers and Shooters but not Archers be x and number of sportspersons who are Archers and Shooters but not Boxers be y. Then, using fourth condition,

$x + 3 = y + 1 \Rightarrow x = y - 2$

From seventh condition,

$$\frac{150}{100}a = 1 + \frac{125}{100}\left(\left(\frac{5}{7}\right)a + 6\right) \Rightarrow a = 14$$

Using further information, we can make the following diagram:

Three sportspersons in the institute are involved in all the three sports.

FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**

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

SM sports institute has three types of sportspersons – Shooters, Archers and Boxers. Currently the institute has 42 sportspersons involved in the aforementioned sports. Each sportsperson is associated with at least one of the three mentioned sports. It is also known that:
- **The sportspersons who are associated with all the three sports are half of the number of persons who are only Boxers.**
- **The number of sportspersons who are only Shooters is 5/7th of the number of sportspersons who are only Archers.**
- **The number of sportspersons who are Shooters and Boxers is same as the sum of number of sportspersons who are Shooters and Archers but not Boxers and the number of sportspersons who are Boxers and Archers but not Shooters.**
- **The number of sportspersons who are only Shooters is 2 more than the number of sportspersons who are Shooters and Archers.**
- **The number of Boxers who are not Shooters is one-sixth of the total number of sportspersons in the institute.**
- **150% of the number of sportspersons who are only Archers is one more than 125% of the sum of number of sportspersons who are only Shooters and tha of those who are only Boxers.**
- **Only one person is both Archer and Boxer but not Shooter.**

Q.57
Find the absolute difference between the number of Shooters and that of Boxers.

✔

Solution:

Correct Answer : 8

Your Answer : 8

🔖 **Bookmark**

🔍 **Answer key/Solution**

From the last condition, only one person is both Archer and Boxer but not Shooter. Then using sixth condition, the number sportspersons who are only Boxers will be 6. From second condition we can say that the number of sportspersons who are involved in all the three sports is 3.
Let the number sportspersons who are only Archers be a,
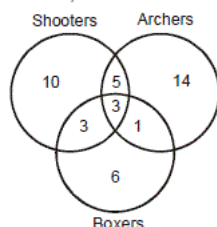
then the number of only Shooters will be $\frac{5}{7}a$.

Let the number of sportspersons who are Boxers and Shooters but not Archers be x and number of sportspersons who are Archers and Shooters but not Boxers be y. Then, using fourth condition,
$x + 3 = y + 1 \Rightarrow x = y - 2$

From seventh condition,

$$\frac{150}{100}a = 1 + \frac{125}{100}\left(\left(\frac{5}{7}\right)a + 6\right) \Rightarrow a = 14$$

Using further information, we can make the following diagram:

Required difference = (10 + 5 + 3 + 3) − (6 + 3 + 3 + 1) = 21 − 13 = 8.

FeedBack

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

SM sports institute has three types of sportspersons – Shooters, Archers and Boxers. Currently the institute has 42 sportspersons involved in the aforementioned sports. Each sportsperson is associated with at least one of the three mentioned sports. It is also known that:
• The sportspersons who are associated with all the three sports are half of the number of persons who are only Boxers.
• The number of sportspersons who are only Shooters is 5/7th of the number of sportspersons who are only Archers.
• The number of sportspersons who are Shooters and Boxers is same as the sum of number of sportspersons who are Shooters and Archers but not Boxers and the number of sportspersons who are Boxers and Archers but not Shooters.
• The number of sportspersons who are only Shooters is 2 more than the number of sportspersons who are Shooters and Archers.
• The number of Boxers who are not Shooters is one-sixth of the total number of sportspersons in the institute.
• 150% of the number of sportspersons who are only Archers is one more than 125% of the sum of number of sportspersons who are only Shooters and tha
of those who are only Boxers.
• Only one person is both Archer and Boxer but not Shooter.

Q.58
Find the number of persons who play exactly two of the three sports.

✔

Solution:
Correct Answer : 9
Your Answer : 9

🔖 **Bookmark**

🔍 **Answer key/Solution**

From the last condition, only one person is both Archer and Boxer but not Shooter. Then using sixth condition, the number sportspersons who are only Boxers will be 6. From second condition we can say that the number of sportspersons who are involved in all the three sports is 3.
Let the number sportspersons who are only Archers be a,

then the number of only Shooters will be $\frac{5}{7}$a.

Let the number of sportspersons who are Boxers and Shooters but not Archers be x and number of sportspersons who are Archers and Shooters but not Boxers be y. Then, using fourth condition,
x + 3 = y + 1 ⇒ x = y − 2

From seventh condition,

$$\frac{150}{100}a = 1 + \frac{125}{100}\left(\left(\frac{5}{7}\right)a + 6\right) \Rightarrow a = 14$$

Using further information, we can make the following diagram:

The number of persons who play exactly two of the three sports = 5 + 3 + 1 = 9.

FeedBack

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

Four gastronomes – G1 ,G2,G3 and G4 – rated three features F1, F2 and F3 of two foods X and Y. Each of the gastronomes suffers from disparnumerophob i.e phobia of odd numbers so they decided to rate the features using even positive integers from 0 to 20 on a scale of 20. Table 1 shows triplets having lowest, average and highest ratings in the given order, for each feature-food combination. Table 2 shows the ratings given by four gastronomes in any two of the three given features for food X and Y.

Table 1			
	F1	F2	F3
X	(6, 13, 18)	(8, 12.5, 20)	(4, 11.5, 18)
Y	(16, 18, 20)	(8, 14.5, 18)	(2, 11.5, 16)

Table 2		
	X	Y
G1	(6, 14)	(8, 18)
G2	(8, 18)	(2, 16)
G3	(4, 18)	(14, 18)
G4	(12, 20)	(14, 20)

Table 3 shows the average of ratings given by the individual gastronome on each feature for the two products.

Table 3		
	F1	F2
G1	12	11
G2	13	12
G3	18	13
G4	19	18

Q.59
The rating given by G1 to feature F1 for food X is

Solution:
Correct Answer : 6

🔖 **Bookmark**

🔍 **Answer key/Solution**

Using the information given in Table 1, the following table can be drawn:

Food	Feature	Ratings			
X	F1	6	18	x	28 – x
	F2	8	20	y	22 – y
	F3	4	18	z	24 – z
Y	F1	16	20	a	36 – a
	F2	8	18	b	32 – b
	F3	2	16	c	28 – c

Now, any rating given by the four Gastronome to any of the features of two foods X and Y lies between the rating given in first column and second column in the table above inclusive of these two values.

Using the logic explained earlier, the following table gives the possible ratings given by the four gastronomes on feature F1 for the two products:

Food	Feature	Ratings			
X	F1	6	10	18	18
		6	12	16	18
		6	14	14	18
Y	F1	16	16	20	20
		16	18	18	20

From Table 3, the sum of ratings given by G1 to features F1 for products X and Y is 24. This is only possible when the rating given by G1 to F1 for X and Y is 6 and 18 respectively. Similarly, rating given by G2 to F1 for products X and Y is 10 and 16 respectively; by G3 to F1 for products X and Y is 18 and 18 respectively and by G4 to F1 for products X and Y is 18 and 20 respectively.

Proceeding in similar fashion using table 2 and table 3 we get the final table as follows:

Food	Feature	Gastronome			
		G1	G2	G3	G4
X	F1	6	10	18	18
	F2	14	8	8	20
	F3	12	18	4	12
Y	F1	18	16	18	20
	F2	8	16	18	16
	F3	16	2	14	14

The required rating = 6.

> FeedBack

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

Four gastronomes – G1 ,G2,G3 and G4 – rated three features F1, F2 and F3 of two foods X and Y. Each of the gastronomes suffers from disparnumerophob i.e phobia of odd numbers so they decided to rate the features using even positive integers from 0 to 20 on a scale of 20. Table 1 shows triplets having lowest, average and highest ratings in the given order, for each feature-food combination. Table 2 shows the ratings given by four gastronomes in any two of the three given features for food X and Y.

Table 1			
	F1	F2	F3
X	(6, 13, 18)	(8, 12.5, 20)	(4, 11.5, 18)
Y	(16, 18, 20)	(8, 14.5, 18)	(2, 11.5, 16)

Table 2		
	X	Y
G1	(6, 14)	(8, 18)
G2	(8, 18)	(2, 16)
G3	(4, 18)	(14, 18)
G4	(12, 20)	(14, 20)

Table 3 shows the average of ratings given by the individual gastronome on each feature for the two products.

Table 3		
	F1	F2
G1	12	11
G2	13	12
G3	18	13
G4	19	18

Q.60
The rating given by G3 to feature F2 for food Y is

Solution:

Correct Answer : 18

Using the information given in Table 1, the following table can be drawn:

Food	Feature	Ratings			
	F1	6	18	x	28 − x
X	F2	8	20	y	22 − y
	F3	4	18	z	24 − z
	F1	16	20	a	36 − a
Y	F2	8	18	b	32 − b
	F3	2	16	c	28 − c

Now, any rating given by the four Gastronome to any of the

features of two foods X and Y lies between the rating given in first column and second column in the table above inclusive of these two values.

Using the logic explained earlier, the following table gives the possible ratings given by the four gastronomes on feature F1 for the two products:

Food	Feature	Ratings			
		6	10	18	18
X	F1	6	12	16	18
		6	14	14	18
Y	F1	16	16	20	20
		16	18	18	20

From Table 3, the sum of ratings given by G1 to features F1 for products X and Y is 24. This is only possible when the rating given by G1 to F1 for X and Y is 6 and 18 respectively. Similarly, rating given by G2 to F1 for products X and Y is 10 and 16 respectively; by G3 to F1 for products X and Y is 18 and 18 respectively and by G4 to F1 for products X and Y is 18 and 20 respectively.

Proceeding in similar fashion using table 2 and table 3 we get the final table as follows:

Food	Feature	Gastronome			
		G1	G2	G3	G4
	F1	6	10	18	18
X	F2	14	8	8	20
	F3	12	18	4	12
	F1	18	16	18	20
Y	F2	8	16	18	16
	F3	16	2	14	14

The required rating = 18.

FeedBack

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

Four gastronomes – G1 ,G2,G3 and G4 – rated three features F1, F2 and F3 of two foods X and Y. Each of the gastronomes suffers from disparnumerophob i.e phobia of odd numbers so they decided to rate the features using even positive integers from 0 to 20 on a scale of 20. Table 1 shows triplets having lowest, average and highest ratings in the given order, for each feature-food combination. Table 2 shows the ratings given by four gastronomes in any two of the three given features for food X and Y.

Table 1			
	F1	F2	F3
X	(6, 13, 18)	(8, 12.5, 20)	(4, 11.5, 18)
Y	(16, 18, 20)	(8, 14.5, 18)	(2, 11.5, 16)

Table 2		
	X	Y
G1	(6, 14)	(8, 18)
G2	(8, 18)	(2, 16)
G3	(4, 18)	(14, 18)
G4	(12, 20)	(14, 20)

Table 3 shows the average of ratings given by the individual gastronome on each feature for the two products.

Table 3		
	F1	F2
G1	12	11
G2	13	12
G3	18	13
G4	19	18

Q.61
The rating given by G2 to feature F3 for food X is

Solution:

Correct Answer : 18

Using the information given in Table 1, the following table can be drawn:

Food	Feature	Ratings			
	F1	6	18	x	28 – x
X	F2	8	20	y	22 – y
	F3	4	18	z	24 – z
	F1	16	20	a	36 – a
Y	F2	8	18	b	32 – b
	F3	2	16	c	28 – c

Now, any rating given by the four Gastronome to any of the

features of two foods X and Y lies between the rating given in first column and second column in the table above inclusive of these two values.
Using the logic explained earlier, the following table gives the possible ratings given by the four gastronomes on feature F1 for the two products:

Food	Feature	Ratings			
X	F1	6	10	18	18
		6	12	16	18
		6	14	14	18
Y	F1	16	16	20	20
		16	18	18	20

From Table 3, the sum of ratings given by G1 to features F1 for products X and Y is 24. This is only possible when the rating given by G1 to F1 for X and Y is 6 and 18 respectively. Similarly, rating given by G2 to F1 for products X and Y is 10 and 16 respectively; by G3 to F1 for products X and Y is 18 and 18 respectively and by G4 to F1 for products X and Y is 18 and 20 respectively.

Proceeding in similar fashion using table 2 and table 3 we get the final table as follows:

Food	Feature	Gastronome			
		G1	G2	G3	G4
X	F1	6	10	18	18
	F2	14	8	8	20
	F3	12	18	4	12
Y	F1	18	16	18	20
	F2	8	16	18	16
	F3	16	2	14	14

The required rating = 18.

FeedBack

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

Four gastronomes – G1 ,G2,G3 and G4 – rated three features F1, F2 and F3 of two foods X and Y. Each of the gastronomes suffers from disparnumerophob i.e phobia of odd numbers so they decided to rate the features using even positive integers from 0 to 20 on a scale of 20. Table 1 shows triplets having lowest, average and highest ratings in the given order, for each feature-food combination. Table 2 shows the ratings given by four gastronomes in any two of the three given features for food X and Y.

Table 1

	F1	F2	F3
X	(6, 13, 18)	(8, 12.5, 20)	(4, 11.5, 18)
Y	(16, 18, 20)	(8, 14.5, 18)	(2, 11.5, 16)

Table 2

	X	Y
G1	(6, 14)	(8, 18)
G2	(8, 18)	(2, 16)
G3	(4, 18)	(14, 18)
G4	(12, 20)	(14, 20)

Table 3 shows the average of ratings given by the individual gastronome on each feature for the two products.

Table 3

	F1	F2
G1	12	11
G2	13	12
G3	18	13
G4	19	18

Q.62

The rating given by G4 to feature F3 for food Y is

Solution:

Correct Answer : 14

Using the information given in Table 1, the following table can be drawn:

Food	Feature	Ratings			
	F1	6	18	x	28 − x
X	F2	8	20	y	22 − y
	F3	4	18	z	24 − z
	F1	16	20	a	36 − a
Y	F2	8	18	b	32 − b
	F3	2	16	c	28 − c

Now, any rating given by the four Gastronome to any of the features of two foods X and Y lies between the rating given in first column and second column in the table above inclusive of these two values.

Using the logic explained earlier, the following table gives the possible ratings given by the four gastronomes on feature F1 for the two products:

Food	Feature	Ratings			
		6	10	18	18
X	F1	6	12	16	18
		6	14	14	18
Y	F1	16	16	20	20
		16	18	18	20

From Table 3, the sum of ratings given by G1 to features F1 for products X and Y is 24. This is only possible when the rating given by G1 to F1 for X and Y is 6 and 18 respectively. Similarly, rating given by G2 to F1 for products X and Y is 10 and 16 respectively; by G3 to F1 for products X and Y is 18 and 18 respectively and by G4 to F1 for products X and Y is 18 and 20 respectively.

Proceeding in similar fashion using table 2 and table 3 we get the final table as follows:

Food	Feature	Gastronome			
		G1	G2	G3	G4
	F1	6	10	18	18
X	F2	14	8	8	20
	F3	12	18	4	12
	F1	18	16	18	20
Y	F2	8	16	18	16
	F3	16	2	14	14

The required rating = 14.

FeedBack

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

Five friends – Birbal, Fazal, Tansen, Mansingh and Kapil – participate in a game named DiceRoll. In the game, there are three rounds. In each round, each player rolls three dice out of a set of five dice – D1, D2, D3, D4 and D5 – first three of which are normal dice i.e. unbiased and the last two are biased dice. The probabilities of getting 1, 2, 3, 4, 5 and 6 on D4 are in an increasing Arithmetic Progression with the probability of getting 3 as 5/36. The probabilities of getting 6, 5, 4, 3, 2 and 1 on D5 are in an increasing Arithmetic Progression with the probability of getting 4 as 5/36. In the first round, each player rolled unbiased dice. In this round, each player was awarded a point which is the product of the numbers appeared on the three dice on his roll. In this round, if the score of any player is 35 or more, all the three dice rolled by him in the second round would be unbiased ones; if the score of any player is less than 35 but not less than 20, out of three dice rolled by him in the second round one would be a biased one; if it is less than 20, out of three dice rolled by him in the second round two would be biased ones. In the second round, each player was awarded a point which is the sum of the numbers appeared on the three dice on his roll. In the second round, if the score of any player is 12 or more, all the three dice rolled by him in the third round would be unbiased ones; if the score of any player is less than 12 but not less than 8, out of three dice rolled by him in the third round one would be a biased one; if it is less than 8, out of three dice rolled by him in the third round two would be biased ones. In the third round, each player was awarded a point which is given by N1 × N2 + N3, where N1, N2 and N3 are numbers appeared on the three dice on his roll in the third round such that N1 ≥ N3 ≥ N2. The friend with maximum number of points in the three rounds taken together is declared winner of the game. It is also known that no participant got the same number on two or more dice in any of the three rounds.

Q.63

If a player who rolls exactly two biased dice in the third round emerge as the winner, what is the probability that the player ends up with a score of 120?

1. $\dfrac{1}{36} \times \dfrac{1}{72} \times \dfrac{201}{7772}$

2. $\left(\dfrac{1}{36}\right)^2 \times \dfrac{101}{3888}$

3. $\dfrac{1}{36} \times \dfrac{5}{36} \times \dfrac{81}{7776}$

4. $\dfrac{1}{36} \times \dfrac{5}{36} \times \dfrac{13}{1296}$

Solution:
Correct Answer : 2

🔖 Bookmark

🔍 Answer key/Solution

Let the probabilities of getting 1, 2, 3, 4, 5 and 6 on D4 be
$a - 5d$, $a - 3d$, $a - d$, $a + d$, $a + 3d$ and $a + 5d$ respectively.
Also, $(a - 5d) + (a - 3d) + (a - d) + (a + d) + (a + 3d) + (a + 5d)$
$= 1$

$\Rightarrow 6a = 1 \Rightarrow a = \dfrac{1}{6}$

Probability of getting 3 is $\dfrac{5}{36}$.

Hence, the required probability of getting 1, 2, 3, 4, 5 and 6 on

D4 is $\dfrac{1}{36}, \dfrac{3}{36}, \dfrac{5}{36}, \dfrac{7}{36}, \dfrac{9}{36}$ and $\dfrac{11}{36}$ respectively.

Similarly, the probability of getting 1, 2, 3, 4, 5 and 6 on D5 is

$\dfrac{11}{36}, \dfrac{9}{36}, \dfrac{7}{36}, \dfrac{5}{36}, \dfrac{3}{36}$ and $\dfrac{1}{36}$ respectively.

In first round, a player can get a minimum and maximum possible score of 6 and 120 respectively.
In second round, minimum and maximum possible scores are 6 and 15 respectively.
In third round, minimum and maximum possible scores are 5 and 29 respectively.

If the winner with a score of 120 rolled two biased dice in the third round, then he must have scored less than 8 in the second round.
Hence, the possible scores in three rounds are as follows (as it is given in the question statement that no participant got the same number on two or more dice in any of the three rounds):

Round	Score
I	90
II	7
III	23

In first round, one can score 90 only if he gets the numbers 3, 5 and 6 on his rolled dice.
The probability of getting a score of 90 in the first

round $= \dfrac{1}{6} \times \dfrac{1}{6} \times \dfrac{1}{6} \times 3! = \dfrac{6}{216} = \dfrac{1}{36}$.

In second round, 7 can be scored as (1, 2, 4).
So, the probability of getting a score of 7

$= \dfrac{3!}{216} = \dfrac{6}{216} = \dfrac{1}{36}$.

In third round, 23 can be scored only if
N1 = 6, N2 = 3 and N3 = 5

If N1 is obtained on an unbiased die, then N2 and N3 are obtained on biased dice D4 and D5, in any order.
Thus, probability of scoring 23

$= \left(\dfrac{1}{6} \times \dfrac{5}{36} \times \dfrac{3}{36}\right) + \left(\dfrac{1}{6} \times \dfrac{7}{36} \times \dfrac{9}{36}\right)$

$= \dfrac{5}{2592} + \dfrac{21}{2592} = \dfrac{26}{2592} = \dfrac{13}{1296}$

Similarly, if N2 is obtained on an unbiased die, the probability of scoring 23

$= \left(\dfrac{11}{36} \times \dfrac{1}{6} \times \dfrac{3}{36}\right) + \left(\dfrac{1}{36} \times \dfrac{1}{6} \times \dfrac{9}{36}\right)$

$= \dfrac{11}{2592} + \dfrac{3}{2592} = \dfrac{14}{2592} = \dfrac{7}{1296}$

If N3 is obtained on an unbiased die, then the probability

of scoring 23 $= \left(\dfrac{11}{36} \times \dfrac{7}{36} \times \dfrac{1}{6}\right) + \left(\dfrac{1}{36} \times \dfrac{5}{36} \times \dfrac{1}{6}\right)$

$= \dfrac{77}{7776} + \dfrac{5}{7776} = \dfrac{82}{7776}$

Hence, probability of scoring 23 in third round

$= \dfrac{13}{1296} + \dfrac{7}{1296} + \dfrac{82}{7776} = \dfrac{202}{7776} = \dfrac{101}{3888}$

Hence, required probability $= \dfrac{1}{36} \times \dfrac{1}{36} \times \dfrac{101}{3888}$

FeedBack

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

Five friends – Birbal, Fazal, Tansen, Mansingh and Kapil – participate in a game named DiceRoll. In the game, there are three rounds. In each round, each player rolls three dice out of a set of five dice – D1, D2, D3, D4 and D5 – first three of which are normal dice i.e. unbiased and the last two are biased dice. The probabilities of getting 1, 2, 3, 4, 5 and 6 on D4 are in an increasing Arithmetic Progression with the probability of getting 3 as 5/36. The probabilities of getting 6, 5, 4, 3, 2 and 1 on D5 are in an increasing Arithmetic Progression with the probability of getting 4 as 5/36. In the first round, each player rolle unbiased dice. In this round, each player was awarded a point which is the product of the numbers appeared on the three dice on his roll. In this round, if the score of any player is 35 or more, all the three dice rolled by him in the second round would be unbiased ones; if the score of any player is less than 35

but not less than 20, out of three dice rolled by him in the second round one would be a biased one; if it is less than 20, out of three dice rolled by him in the second round two would be biased ones. In the second round, each player was awarded a point which is the sum of the numbers appeared on the three dice on his roll. In the second round, if the score of any player is 12 or more, all the three dice rolled by him in the third round would be unbiased ones; if the score of any player is less than 12 but not less than 8, out of three dice rolled by him in the third round one would be a biased one; if it is less than 8, out of three dice rolled by him in the third round two would be biased ones. In the third round, each player was awarded a point which is given by N1 × N2 + N3, where N1, N2 and N3 are numbers appeared on the three dice on his roll in the third round such that N1 ≥ N3 ≥ N2. The friend with maximum number of points in the three rounds taken together is declared winner of the game. It is also known that no participant got the same number on two or more dice in any of the three rounds.

Q.64
If Birbal gets 36 points in the first round, what is the probability that his total score at the end of the third round would be more than 78?

1. $\dfrac{2}{(36)^3}$

2. $\dfrac{1}{(36)^3}$

3. $\dfrac{1}{(36)^2} \times \dfrac{1}{72}$

4. $\dfrac{1}{(72)^3}$

Solution:

Correct Answer : 1

Let the probabilities of getting 1, 2, 3, 4, 5 and 6 on D4 be $a - 5d$, $a - 3d$, $a - d$, $a + d$, $a + 3d$ and $a + 5d$ respectively.
Also, $(a - 5d) + (a - 3d) + (a - d) + (a + d) + (a + 3d) + (a + 5d) = 1$

$\Rightarrow 6a = 1 \Rightarrow a = \dfrac{1}{6}$

Probability of getting 3 is $\dfrac{5}{36}$.

Hence, the required probability of getting 1, 2, 3, 4, 5 and 6 on

D4 is $\dfrac{1}{36}, \dfrac{3}{36}, \dfrac{5}{36}, \dfrac{7}{36}, \dfrac{9}{36}$ and $\dfrac{11}{36}$ respectively.

Similarly, the probability of getting 1, 2, 3, 4, 5 and 6 on D5 is

$\dfrac{11}{36}, \dfrac{9}{36}, \dfrac{7}{36}, \dfrac{5}{36}, \dfrac{3}{36}$ and $\dfrac{1}{36}$ respectively.

In first round, a player can get a minimum and maximum possible score of 6 and 120 respectively.
In second round, minimum and maximum possible scores are 6 and 15 respectively.
In third round, minimum and maximum possible scores are 5 and 29 respectively.

Birbal got 36 points in the first round.
To score a total of more than 78, he must have scored 29 in the third round. So, the possible scores in second round are 14 or 15.
The following table gives us the possible scores in the three rounds:

Round	Case I	Case II
I	36	36
II	14	15
III	29	29
Total Score	79	80

In first round, 36 can only be scored if Birbal gets the numbers 2, 3 and 6 on his roll.

So, the probability of scoring $36 = \dfrac{3!}{6 \times 6 \times 6} = \dfrac{1}{36}$.

In second round, 14 can be scored if Birbal gets the numbers 3, 5 and 6 on his dice roll.

So, probability of scoring $14 = \dfrac{3!}{6 \times 6 \times 6} = \dfrac{1}{36}$.

Similarly, probability of scoring $15 = \dfrac{1}{36}$.

In third round, 29 can only be scored if Birbal gets the numbers 4, 5 and 6 on his roll.

So, probability of scoring $29 = \dfrac{3!}{216} = \dfrac{1}{36}$.

Hence, required probability $= \dfrac{1}{36} \times \left(\dfrac{1}{36} + \dfrac{1}{36} \right) \times \dfrac{1}{36}$

$= \dfrac{1}{36} \times \dfrac{2}{36} \times \dfrac{1}{36} = \dfrac{2}{(36)^3}$.

[FeedBack]

🔖 **Bookmark**

🔍 **Answer key/Solution**

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

Five friends – Birbal, Fazal, Tansen, Mansingh and Kapil – participate in a game named DiceRoll. In the game, there are three rounds. In each round, each player rolls three dice out of a set of five dice – D1, D2, D3, D4 and D5 – first three of which are normal dice i.e. unbiased and the last two are biased dice. The probabilities of getting 1, 2, 3, 4, 5 and 6 on D4 are in an increasing Arithmetic Progression with the probability of getting 3 as 5/36. The probabilities of getting 6, 5, 4, 3, 2 and 1 on D5 are in an increasing Arithmetic Progression with the probability of getting 4 as 5/36. In the first round, each player rolled unbiased dice. In this round, each player was awarded a point which is the product of the numbers appeared on the three dice on his roll. In this round, if the score of any player is 35 or more, all the three dice rolled by him in the second round would be unbiased ones; if the score of any player is less than 35 but not less than 20, out of three dice rolled by him in the second round one would be a biased one; if it is less than 20, out of three dice rolled by him in the second round two would be biased ones. In the second round, each player was awarded a point which is the sum of the numbers appeared on the three dice on his roll. In the second round, if the score of any player is 12 or more, all the three dice rolled by him in the third round would be unbiased ones; if the score of any player is less than 12 but not less than 8, out of three dice rolled by him in the third round one would be a biased one; if it is less than 8, out of three dice rolled by him in the third round two would be biased ones. In the third round, each player was awarded a point which is given by N1 × N2 + N3, where N1, N2 and N3 are numbers appeared on the three dice on his roll in the third round such that N1 ≥ N3 ≥ N2. The friend with maximum number of points in the three rounds taken together is declared winner of the game. It is also known that no participant got the same number on two or more dice in any of the three rounds.

Q.65
Fazal got a score of 26 in the first round. What is absolute difference between the minimum and maximum possible score that Fazal can get in the second round?

1 ◯ **15**

2 ◯ **12**

3 ◯ **9**

4 ◯ **Cannot be determined**

Solution:
Correct Answer : 3

Let the probabilities of getting 1, 2, 3, 4, 5 and 6 on D4 be $a - 5d$, $a - 3d$, $a - d$, $a + d$, $a + 3d$ and $a + 5d$ respectively.
Also, $(a - 5d) + (a - 3d) + (a - d) + (a + d) + (a + 3d) + (a + 5d) = 1$

$\Rightarrow 6a = 1 \Rightarrow a = \dfrac{1}{6}$

Probability of getting 3 is $\dfrac{5}{36}$.

Hence, the required probability of getting 1, 2, 3, 4, 5 and 6 on

D4 is $\dfrac{1}{36}, \dfrac{3}{36}, \dfrac{5}{36}, \dfrac{7}{36}, \dfrac{9}{36}$ and $\dfrac{11}{36}$ respectively.

Similarly, the probability of getting 1, 2, 3, 4, 5 and 6 on D5 is

$\dfrac{11}{36}, \dfrac{9}{36}, \dfrac{7}{36}, \dfrac{5}{36}, \dfrac{3}{36}$ and $\dfrac{1}{36}$ respectively.

In first round, a player can get a minimum and maximum possible score of 6 and 120 respectively.
In second round, minimum and maximum possible scores are 6 and 15 respectively.
In third round, minimum and maximum possible scores are 5 and 29 respectively.
The required difference = 15 – 6 = 9.

> FeedBack

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

Q.66
What is the probability of getting 5 on D5?

1 ○ **11/36**

2 ○ **1/4**

3 ○ **5/36**

4 ○ **1/12**

Solution:

Correct Answer : 4

Let the probabilities of getting 1, 2, 3, 4, 5 and 6 on D4 be
a − 5d, a − 3d, a − d, a + d, a + 3d and a + 5d respectively.
Also, (a − 5d) + (a − 3d) + (a − d) + (a + d) + (a + 3d) + (a + 5d)
= 1

$\Rightarrow$ 6a = 1 $\Rightarrow$ a = $\dfrac{1}{6}$

Probability of getting 3 is $\dfrac{5}{36}$.

Hence, the required probability of getting 1, 2, 3, 4, 5 and 6 on

D4 is $\dfrac{1}{36}, \dfrac{3}{36}, \dfrac{5}{36}, \dfrac{7}{36}, \dfrac{9}{36}$ and $\dfrac{11}{36}$ respectively.

Similarly, the probability of getting 1, 2, 3, 4, 5 and 6 on D5 is

$\dfrac{11}{36}, \dfrac{9}{36}, \dfrac{7}{36}, \dfrac{5}{36}, \dfrac{3}{36}$ and $\dfrac{1}{36}$ respectively.

In first round, a player can get a minimum and maximum possible
score of 6 and 120 respectively.
In second round, minimum and maximum possible scores are
6 and 15 respectively.
In third round, minimum and maximum possible scores are
5 and 29 respectively.

The probability of getting 5 on D5 = $\dfrac{3}{36} = \dfrac{1}{12}$.

🔖 **Bookmark**

🔍 **Answer key/Solution**

[FeedBack]

Sec 3

Q.67
f(x) = x^3 − x^2 (3 + a) + x(2 + 3a) − 2a, where 'a' is an odd prime number. In which of the following range of values of 'x' will f(x) definitely be a positive real number?

1 ○ **x < 1 or 2 < x < a**

2 ○ **1 < x < 2 or x > a**

3 ○ **x < 2 or x > a**

4 ○ **x < 1 or x > a**

Solution:

Correct Answer : 2

Given that f(x) = x³ − x² (3 + a) + x(2 + 3a) − 2a > 0
$\Rightarrow$ x³ − x²a + 2x − 2a + 3ax − 3x² > 0
$\Rightarrow$ x²(x − a) + 2(x − a) − 3x(x − a) > 0
$\Rightarrow$ (x² − 3x + 2)(x − a) > 0
$\Rightarrow$ (x − 1)(x − 2)(x − a) > 0
Since, 'a' is an odd prime number, therefore 'a' is not
less than 3.
Therefore, the range of values of 'x' for which f(x) > 0
is 1 < x < 2 or x > a.

🔖 **Bookmark**

🔍 **Answer key/Solution**

[FeedBack]

Q.68
N is a five-digit number. P is a six-digit number formed by appending a "1" to the right of N, and Q is another six-digit number formed by appending a "1" to the left end of N. If P = 3Q, what is the value of N?

☑

Solution:

🔖 **Bookmark**

Correct Answer : 42857
Your Answer : 42857

```
P = 10N + 1
Q = 100000 + N
P = 3Q
⇒ 10N + 1 = 300000 + 3N
⇒ 7N = 299999
⇒ N = 42857.
```

FeedBack

Q.69
Trapezium ABCD is inscribed in a circle with centre O. AB is parallel to CD and the tangent at point C intersects the line AB produced to E. If BE = 2 units, CE = 4 units and ΔBCE is an isosceles triangle, what is the area (in square units) of trapezium ABCD?

1 ◯ **32**

2 ◯ **24**

3 ◯ **$7\sqrt{15}$**

4 ◯ **$8\sqrt{15}$**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

We know that $EC^2 = EA \times EB$.

⇒ $16 = EA \times 2$
⇒ $EA = 8$ units
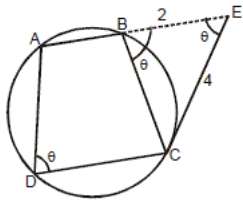
Since ΔBEC is an isosceles triangle and the length of BC cannot be 2 units as the sum of length of two sides of a triangle is always greater than that of the third side.

∴ ∠CBE = ∠BEC
ABCD is a cyclic quadrilateral.
∠ADC = ∠CBE
∴ ∠AEC = ∠ADC
Hence, AECD is a parallelogram.
∴ AE = DC = 8 units
From the figure, it can be observed that the perpendicular distance between AB and CD will be equal to the altitude of triangle BCE drawn from the point C to side BE.

∴ Perpendicular distance between AB and CD

= $\sqrt{4^2 - 1^2} = \sqrt{15}$

Hence, the area of the trapezium ABCD

= $\frac{1}{2}(AB + DC) \times \sqrt{15}$

= $\frac{1}{2} \times 14 \times \sqrt{15}$

= $7\sqrt{15}$ square units.

FeedBack

Q.70

If $y = x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \ldots \infty}}}}$ and $\frac{3}{2} \leq y \leq \frac{5}{2}$, which of the following can be a value of 4x?

1 ◯ **4**

2 ◯ **6**

3 ◯ **9**

4 ◯ **Both (1) and (2)**

Solution:

Correct Answer : 4

$y = x + \dfrac{1}{y} \Rightarrow x = y - \dfrac{1}{y}$

Also, $\dfrac{3}{2} \le y \le \dfrac{5}{2}$

$\therefore 4\left(\dfrac{3}{2} - \dfrac{2}{3}\right) \le 4x \le 4\left(\dfrac{5}{2} - \dfrac{2}{5}\right) \Rightarrow 3.33 \le 4x \le 8.4$

Among the given options 4 and 6 fall in the range of the values of 4x and hence, option (4) is correct.

🔖 **Bookmark**

🔍 **Answer key/Solution**

[FeedBack]

Q.71

150 persons attended a fair, in which everyone played at least one of the games out of Mario, Nintendo and NFS. Price that a person paid for playing exact one game, exactly two games and all the three games was $2, $3 and $5 respectively. It is also known that 40 persons played Mario, 90 played Nintendo an 145 played NFS. The amount paid by these 150 persons for playing the games could not be less than

1 ◯ **$300**

2 ◯ **$425**

3 ◯ **$750**

4 ◯ **$500**

Solution:

Correct Answer : 2

Let the number of players who played exactly one game, exactly two games and exactly three games be 'a', 'b' and 'c' respectively.
According to the question,
a + b + c = 150   ... (i)
a + 2b + 3c = 40 + 90 + 145
⇒ a + 2b + 3c = 275   ... (ii)
Subtracting equation (i) from equation (ii), we get
b + 2c = 125   ... (iii)
Quantity that we have to minimize = 2a + 3b + 5c
Above expression can be rewritten as:
2(a + b + c) + (b + 2c) + c   ... (iv)
Putting values from equations (i) and (iii), value of the above expression comes out to be
2 × 150 + 125 + c
Value of the above expression will be minimum when c = 0.
Hence, required value = 2 × 150 + 125 + 0 = 425.

🔖 **Bookmark**

🔍 **Answer key/Solution**

[FeedBack]

Q.72

A quadrilateral is constructed by joining the midpoints of a rectangle and then, a rectangle is constructed by joining the midpoints of the quadrilateral thu formed. Then, another quadrilateral is constructed by joining the midpoints of the second rectangle. This process is repeated infinite number of times. The ratio of the sum of the areas of all the rectangles, including the original one, to the sum of the areas of all the quadrilaterals is

1 ◯ **2 : 1**

2 ◯ **3 : 1**

3 ◯ **4 : 1**

4 ◯ **Cannot be determined**

Solution:

Correct Answer : 1

🔖 **Bookmark**

🔍 **Answer key/Solution**

Quadrilateral formed by joining the mid-points of a rectangle is a rhombus.

Area of rhombus = $\frac{1}{2}$ × area of rectangle

Area of inner rectangle = $\frac{1}{2}$ × (area of rhombus)
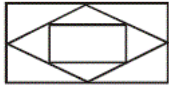
Let the area of the original rectangle be 1

∴ Sum of areas of all rectangles = $1 + \frac{1}{2^2} + \frac{1}{2^4} + \ldots$

$= \frac{1}{1-\frac{1}{4}} = \frac{4}{3}$

Sum of areas of all rhombuses

$= \frac{1}{2} + \frac{1}{2^3} + \frac{1}{2^5} = \frac{\frac{1}{2}}{1-\frac{1}{4}} = \frac{2}{3}$

Required ratio = $\frac{4}{3} : \frac{2}{3} = 2 : 1$.

FeedBack

Q.73

Let V(t − 2) = t² − t, where, 0 ≤ t ≤ 89 and t is an integer. Find the number of values of t such that V(t) is divisible by the minimum possible value of the product of 2 distinct prime numbers.

1 ◯ **45**

2 ◯ **50**

3 ◯ **60**

4 ◯ **70**

Solution:
Correct Answer : 3

V(t − 2) = t² − t
Replacing t by t + 2, we get V(t) = (t + 1)(t + 2)
Clearly the minimum possible product of 2 distinct possible prime numbers is 6.
If t = 3x + 1 or 3x + 2, then V(t) is divisible by 6.
So, except all the multiples of 3 from 0 to 89 (both inclusive) and zero, all the values of 't' will satisfy the given condition, in which 6 divides V(t).
∴ Number of possible values of t = 90 − 30 = 60.

FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**

Q.74

In triangle ABC, P and Q are points on AB and AC respectively. BQ and PC intersect each other at M such that the areas of triangles PMB and QMC are equal. If AP : AB = 1 : 2, then find the ratio of the length of PQ to that of BC?

1 ◯ **1 : 2**

2 ◯ **1 : 3**

3 ◯ **1 : 4**

4 ◯ **2 : 3**

Solution:
Correct Answer : 1

In a quadrilateral PQCB, since area of triangle PMB = area of triangle QMC, it implies that PQ is parallel to BC.
Therefore, triangles APQ and ABC are similar and their corresponding sides are in the same ratio.
Given that AP : AB = 1 : 2
⇒ PQ : BC = 1 : 2

FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**

Q.75

If $f(x) = \displaystyle\sum_{n=0}^{\infty} x^n = a$, where $-1 < x < 1$, then $f(-x)$ is

1. ○ $\dfrac{a}{2a+1}$

2. ○ a

3. ○ $\dfrac{a}{2a-1}$

4. ○ None of the above

Solution:

Correct Answer : 3

$\displaystyle\sum_{n=0}^{\infty} x^n = 1 + x + x^2 + x^3 + \dots = \dfrac{1}{1-x} = a$

$\Rightarrow x = \dfrac{a-1}{a}$

$f(-x) = 1 - x + x^2 - x^3 + \dots = \dfrac{1}{1+x}$

$f(-x) = \dfrac{1}{1+x} = \dfrac{1}{1 + \dfrac{a-1}{a}} = \dfrac{a}{2a-1}$

☐ **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Q.76

Total number of bananas with three friends Moti, Sumit and Manky together is 10. If sum of reciprocals of the number of bananas with the three friends is 1, what is the absolute difference between number of bananas with Moti and Sumit?

1. ○ 2

2. ○ 3

3. ○ 0

4. ○ Either (1) or (3)

Solution:

Correct Answer : 4

Let the number of bananas with Moti, Sumit and Manky is a, b and c respectively.
$\Rightarrow a + b + c = 10$ ...(i)

Also, $\dfrac{1}{a} + \dfrac{1}{b} + \dfrac{1}{c} = 1$ ...(ii)

The only possible set of values of a, b and c that satisfy both the equations is 4, 2 and 4 not necessarily in that particular order.
Therefore, the absolute difference between a and b could be either 0 or 2.
Hence, the exact value cannot be determined.

☐ **Bookmark**

🔍 **Answer key/Solution**

FeedBack

Q.77

Perpendiculars AP, BQ and CR are dropped from the vertices A, B and C of triangle ABC on a line LM in the same plane as shown in the figure given below. Perpendiculars meet the line LM at points P, Q and R respectively, where PQ = a and QR = b. If AP = x, BQ = y, and CR = z. Find area (in square units) of triangle ABC.
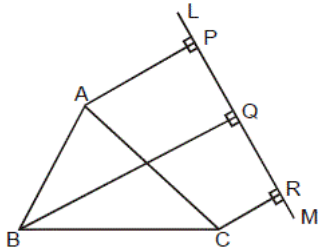
1. ○ $\dfrac{a(y-z)+b(y-x)}{2}$

2. ○ $\dfrac{a(y-x)+b(y-z)}{2}$

3. ○ $\dfrac{a^2(y-z)+b^2(y-x)}{a+b}$

4. ○ $\dfrac{b^2(y-z)+a^2(y-x)}{b+a}$

Solution:
Correct Answer : 1

🔖 **Bookmark**

🔍 **Answer key/Solution**
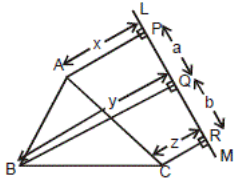
Area of quadrilateral APQB = $\dfrac{1}{2}$a(x + y)

Area of quadrilateral BQRC = $\dfrac{1}{2}$b (y + z)

Area of quadrilateral APRC = $\dfrac{1}{2}$(a + b) (x + z)

∴ Area of triangle ABC

= $\dfrac{1}{2}$a (x + y) + $\dfrac{1}{2}$b (y + z) − $\dfrac{1}{2}$ (a + b) (x + z)

= $\dfrac{a(y-z)+b(y-x)}{2}$ square units.

FeedBack

Q.78
When cube of a natural number is divided by 7, the remainder obtained is 5. How many values can the number assume?

✔

Solution:
Correct Answer : 0
Your Answer : 0

🔖 **Bookmark**

🔍 **Answer key/Solution**

Let the natural number be n
So, n³ = 7k + 5, where 'k' is the quotient
Now, n is of one of the following forms:
7x ± 1, 7x ± 2, 7x ± 3, 7x
Case I: n = 7x ± 1
In this case n³ leaves in remainder of ±1 when divided
by 7.
Thus, not possible.
Case II: n = 7x ± 2
In this case n³ leaves in remainder of ±1 when divided
by 7.
Thus, not possible.
Case III: n³ = 7x ± 3
In this case n³ leaves in remainder ∓ 1 when divided
by 7.
Thus, not possible.
Case IV: n³ = 7x
In this case n³ is divisible by 7
Thus, not possible.
Therefore, no such number is possible.

FeedBack

Q.79

Two identical semicircles, with unit radius each, are drawn with AC and CG as their diameters, as shown in the figure given below. E and D are the centers of the semicircles. F and N are points on the circular arcs such that F, E and N are collinear and EN is tangent to the semi circle as shown in the figure. If length of the line segment CN is 1 unit, then find the length of line segment FD.
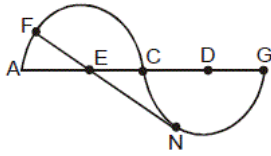
1 ◯ $\sqrt{4 + 3\sqrt{3}}$ units

2 ◯ $\sqrt{5 + 3\sqrt{3}}$ units

3 ◯ $\sqrt{4 + 2\sqrt{3}}$ units

4 ◯ $\sqrt{5 + 2\sqrt{3}}$ units

✔

Solution:
Correct Answer : 4
Your Answer : 4

🔖 **Bookmark**

🔍 **Answer key/Solution**
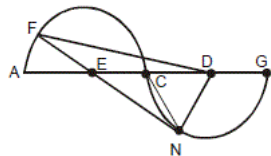
Since, CD = CN, a semicircle with radius equal to CD and center C can be drawn passing through N and E.

$\therefore \angle END = 90°$

AE = EC = CD = DG = 1 unit

In $\triangle END$, $EN^2 + ND^2 = ED^2$

$\Rightarrow EN^2 = 2^2 - 1^2 = 3$

$\therefore EN = \sqrt{3}$.

$FN = FE + EN = (1 + \sqrt{3})$

In $\triangle FND$, $FN^2 + ND^2 = FD^2$

$\Rightarrow FD^2 = 1^2 + (4 + 2\sqrt{3}) = (5 + 2\sqrt{3})$

$\therefore FD = (\sqrt{5 + 2\sqrt{3}})$ units.

FeedBack

Q.80

Let $(1 + x + x^2)^n = a_0 + a_1x + a_2x^2 + ... + a_{2n}.x^{2n}$, where n is a natural number. If $a_0 + a_2 + a_4 + ... + a_{2n} = 365$, then the value of n is

Solution:
Correct Answer : 6

🔖 **Bookmark**

🔍 **Answer key/Solution**

$(1 + x + x^2)^n = a_0 + a_1x + a_2x^2 + ...a_{2n}x^{2n}$, n being a natural number.

Putting $x = 1$ and -1 successively, we get

$3^n = a_0 + a_1 + a_2 + ... + a_{2n}$ ... (i)

$1 = a_0 - a_1 + a_2 - ... + a_{2n}$ ... (ii)

Adding equations (i) and (ii), we get

$3^n + 1 = 2(a_0 + a_2 + a_4 + ... + a_{2n}) = 2 \times 365$

$\Rightarrow 3^n + 1 = 730$

$\Rightarrow 3^n = 729 \Rightarrow n = 6$.

FeedBack

Q.81

In a triangle ABC right-angled at B, BA is produced to F. Bisector of the external angle CAF, when produced, intersects the base CB (extended) at E. If AB = 3 cm and AC = 5 cm, then find the length of the line segment AE.
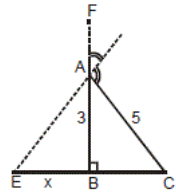
1 ◯ 5 cm

2 ◯ 4√3 cm

3 ◯ 5√2 cm

4 ◯ 3√5 cm

☑

Solution:
Correct Answer : 4
Your Answer : 4

Let, the length of BE be 'x' cm.

$BC = \sqrt{AC^2 - AB^2} = 4$ cm

Using the external angle bisector theorem in $\triangle ABC$, we get

$\dfrac{AB}{AC} = \dfrac{BE}{CE} \Rightarrow \dfrac{3}{5} = \dfrac{x}{x+4} \Rightarrow x = 6$ cm

$\Rightarrow AE = \sqrt{AB^2 + BE^2} = \sqrt{45}$ cm $= 3\sqrt{5}$ cm.

FeedBack

Q.82

In the given ΔABC, AR : RC = 1 : 4 and AP : PB = 2: 3. SR is parallel to AB and PQ is parallel to AC. Find the value of $\left(\dfrac{PX}{XR}\right) \times \left(\dfrac{SX}{QX}\right)$.
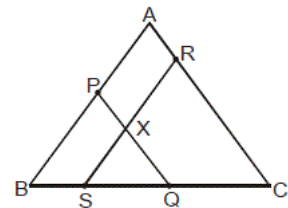
1 ◯ 4/7

2 ◯ 5/8

3 ◯ 1/2

4 ◯ 3/7

Solution:
Correct Answer : 3
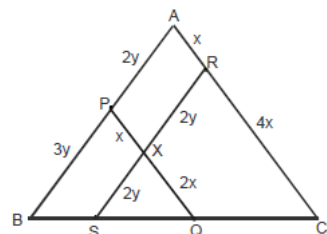
Let AR = x units.
⇒ RC = 4x units and AC = 5x units.
Also let AP = 2y units.
⇒ PB = 3y units and AB = 5y units.
Obviously ARXP is a parallelogram.
Therefore, PX = x units and XR = 2y units.
ΔBPQ and ΔBAC are similar.

$$\therefore \frac{PQ}{AC} = \frac{BP}{BA} = \frac{3}{5}$$

So, PQ = 3x units.
∴XQ = PQ − PX = 2x units.
Also ΔCRS and ΔCAB are similar.

$$\therefore \frac{RS}{AB} = \frac{CR}{CA} = \frac{4}{5}$$

So, RS = 4y units.
∴SX = RS − RX = 2y units.

$$\left(\frac{PX}{XR}\right) \times \left(\frac{SX}{QX}\right) = \left(\frac{PX}{QX}\right) \times \left(\frac{SX}{XR}\right) = \frac{1}{2} \times 1 = \frac{1}{2}.$$

FeedBack

Q.83
How many distinct five-digit multiples of 11 can be formed using the digits 3, 4, 5, 6 and 7?

1 ◯ **12**

2 ◯ **18**

3 ◯ **24**

4 ◯ **36**

Solution:
Correct Answer : 1

Let abcde be the required multiple of 11, where a, b, c, d and e are 3, 4, 5, 6 and 7, not necessarily in that order.
(a + c + e) − (b + d) = 0 or 11 or − 11
(I) (a + c + e) − (b + d) = 0
     (a + c + e) + (b + d) = 2 (b + d)
     25 = 2 (b + d); Not possible
(II) (a + c + e) − (b + d) = − 11
     (a + b + c + d + e) + 11 = 2 (b + d)
     ⇒ b + d = 18 (each should be 9)
     So not possible
(III) (a + c + e) − (b + d) = 11
     (a + b + c + d + e) − 11 = 2 (b + d)
⇒ b + d = 7
Therefore, the possible set of values of (b, d) are (3, 4) and (4, 3).
Other number 5, 6, 7 can be arranged in 6 ways.
So, 2 × 6 = 12 numbers are possible.

FeedBack

📑 **Bookmark**

🔍 **Answer key/Solution**

Q.84
When 907 is divided by two 2-digit numbers N and (N + 2), the remainder obtained in both the cases is 'x'. Then value of 'x' for the maximum possible value of N is:

1 ◯ **1**

2 ◯ **3**

3 ◯ **5**

4 ◯ **8**

Solution:

Correct Answer : 4

Since, 907 when divided by N and N + 2 leaves a remainder of 'x' in each case it is of the following forms:
$907 = Nk_1 + x$ and $907 = (N + 2)k_2 + x$
where k_1 and k_2 are quotients.
$\Rightarrow 907 = N(N + 2)k_1k_2 + x$
To maximize the value of N, k_1k_2 should be 1.
$\Rightarrow N(N + 2) = 907 - x$
$\Rightarrow (N + 1)^2 = 908 - x = 900 + 8 - x$
$\therefore$ Maximum possible value of N, which is 29, will occur at x = 8.

FeedBack

Q.85

Let N1 be the number of coprimes to 132 that are less than 132, N2 be the number of coprimes to 65 that are less than 65 and N be the L.C.M. of N1 and N2. If 8! is completely divisible by (k × N), where k is a natural number, then what is the maximum possible value of k?

1 ◯ **168**

2 ◯ **240**

3 ◯ **306**

4 ◯ **148**

Solution:

Correct Answer : 1

$132 = 2^2 \times 3 \times 11$

$N1 = 132 \times \left(1 - \frac{1}{2}\right) \times \left(1 - \frac{1}{3}\right) \times \left(1 - \frac{1}{11}\right) = 40$

$65 = 5 \times 13$

$N2 = 65 \times \left(1 - \frac{1}{5}\right) \times \left(1 - \frac{1}{13}\right) = 48$

N = LCM (N1, N2) = 240
8! = 240 × 168 = N × 168
Since 8! is completely divisible by (N × k), the maximum value that k can have is 168.

FeedBack

Q.86

If P be the product of all the natural numbers between 45 and 293 that have an odd number of factors, what is the highest power of 12 in P?

Solution:

Correct Answer : 8

Only perfect squares have odd number of factors
$\therefore$ P = 49 × 64 × 81 × 100 × 121 × 144 × 169 × 196 × 225 × 256 × 289.

$\Rightarrow$ P = $2^{6+2+4+2+8} \times 3^8 \times N$, where N is neither a multiple of 2 nor a multiple of 3.
For powers of 12 check the powers of 3 and 4.
Here highest power of 3 is 8, and highest power of 4 is 11. Thus, the highest power of 12 is min(8, 11) = 8.

FeedBack

Q.87

If ax + by = 4, $ax^2 + by^2 = 2$ and $ax^3 + by^3 = -3$, where 'a', 'b', 'x' and 'y' are real numbers, find the value of (2x − 1) (2y − 1).

1 ◯ **4**

2 ◯ **3**

3 ◯ **5**

4 ◯ **−3**

Solution:

Correct Answer : 1

It can be observed that,

$(ax^2 + by^2)(x + y) - (ax + by)xy$

$= (ax^3 + by^3 + ax^2y + bxy^2) - (ax^2y + bxy^2)$

$= ax^3 + by^3$

Substituting given values, we get,

$2(x + y) - 4xy = -3$

Thus, $(2x - 1)(2y - 1) = 4xy - 2(x + y) + 1 = 4.$

FeedBack

Q.88

If $a_n = x^n + \dfrac{1}{x^n}$, where 'n' a natural number, then $a_{n+3} =$

1. ◯ $a_1 \cdot a_{n+2} - a_{n+1}$

2. ◯ $a_1 \cdot a_{n+2} - a_{n+1} + a_n$

3. ◯ $a_1 \cdot a_{n+2} - a_{n+1} - a_n$

4. ◯ $a_n \cdot a_{n+2} - a_{n+1}$

Solution:

Correct Answer : 1

🔖 **Bookmark**

⚹ **Answer key/Solution**

We will calculate $a_1 \cdot a_{n+2}$ first.

$a_1 \cdot a_{n+2} = \left(x + \dfrac{1}{x}\right)\left(x^{n+2} + \dfrac{1}{x^{n+2}}\right)$

$= x^{n+3} + \dfrac{1}{x^{n+3}} + x^{n+1} + \dfrac{1}{x^{n+1}}$

$\Rightarrow a_1 \cdot a_{n+2} = a_{n+3} + a_{n+1}$

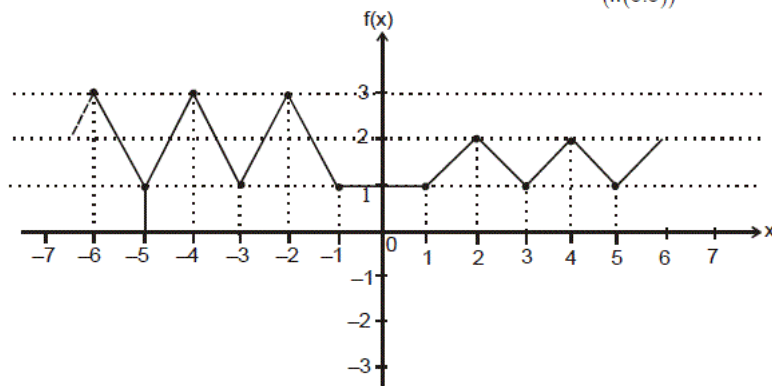$\Rightarrow a_{n+3} = a_1 \cdot a_{n+2} - a_{n+1}.$

FeedBack

Q.89

The following figure shows the graph of a real function f(x). Another two real functions g(x) and h(x) are defined as g(x) = f(f(x)) and h(x) = g(g(x)). Find the value of $\dfrac{g(-2.5) \times g(-3.5)}{(h(5.5))^2}$.

1. ◯ 16/9

2. ◯ 1

3. ◯ 4/9

4. ◯ 9/16

Solution:

Correct Answer : 1

🔖 **Bookmark**

$g(-2.5) = f\{f(-2.5)\} = f(2) = 2$

$g(-3.5) = f\{f(-3.5)\} = f(2) = 2$

$h(5.5) = g\{g(5.5)\} = g\{f(f(5.5))\} = g\{f(1.5)\} = g(1.5)$

$f(f(1.5)) = f(1.5) = 1.5$

$\Rightarrow \dfrac{g(-2.5) \times g(-3.5)}{\{h(5.5)\}^2} = \dfrac{2 \times 2}{1.5 \times 1.5} = \dfrac{16}{9}.$

FeedBack

Q.90

Suresh and Ramesh decide to play a game with a fair die marked with numbers 1, 2, 3, 4, 5 and 6 on its six faces. In the game, each player rolls the die and notes the number obtained. They roll the die turn by turn. The player who first gets 6 wins the game. If Suresh starts the game, then the probability of Ramesh winning the game is

1 ◯ **1/6**

2 ◯ **5/6**

3 ◯ **6/11**

4 ◯ **5/11**

Solution:

Correct Answer : 4

Ramesh gets the second, fourth, sixth.... infinite turns to roll the die. The probability that he is the first to get number 6 as his outcome is given by:

P(Ramesh Wins)

$= \left(\dfrac{5}{6} \times \dfrac{1}{6}\right) + \left(\dfrac{5}{6} \times \dfrac{5}{6} \times \dfrac{5}{6} \times \dfrac{1}{6}\right) +$

$\qquad \left(\dfrac{5}{6} \times \dfrac{5}{6} \times \dfrac{5}{6} \times \dfrac{5}{6} \times \dfrac{5}{6} \times \dfrac{1}{6}\right) + ... \infty$

$= \dfrac{\left(\dfrac{5}{6} \times \dfrac{1}{6}\right)}{1 - \left(\dfrac{5}{6} \times \dfrac{5}{6}\right)} = \dfrac{5}{11}.$

FeedBack

🔖 Bookmark

Q.91

Amar, Akbar and Anthony are standing on the x-axis at x = −1.3, x = 2.5 and x = −0.3 respectively. Sheila, their mother, is standing at a point P on the x axis such that the total distance travelled by the three to reach their mother is minimum. What is the difference between the distances travelled by Akbar and Anthony to reach their mother?
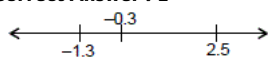
1 ◯ **2.8**

2 ◯ **2.2**

3 ◯ **1.6**

4 ◯ **1.1**

Solution:

Correct Answer : 1

If the point P is at x, then

$|x - (-1.3)| + |x - (-0.3)| + |x - 2.5| = $ minimum

$\Rightarrow x = -0.3$

Thus, Anthony does not travel any distance whereas Akbar travels $|-0.3 - 2.5| = 2.8$ units

∴ Required answer = 2.8.

FeedBack

🔖 Bookmark

Q.92

Due to an increase of 10% in the price of sugar, a woman was forced to decrease the consumption of sugar by 9.09% to keep the expenditure on sugar constant. If the consumption of sugar by the woman was 5 kg before the increase in the price of sugar, then find the initial price of sugar in Rs. per kg.

1 ⃝ Rs. 5

2 ⃝ Rs. 10

3 ⃝ Rs. 20

4 ⃝ **Cannot be determined**

✔

Solution:
Correct Answer : 4
Your Answer : 4

In the given data, there is no information about total expenditure or the price of sugar in Rs. per kg after the increase in the price of sugar. So, we cannot determine the initial price of the sugar in Rs. per kg.

FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**


Q.93

In a school, there are "m × n" students. On October 2, 2014, all the students of the school were asked to assemble at the school ground. The students stood in 'm' rows, with 'n' students in each row. Each student was allotted a position number denoted by P(a, b), where 'a' and 'b' represent the row number and the column number respectively in which the student was standing. Each student gave 'a' toffees to every other student if 'a' was not more than 'b', and he/she gave 'b' toffees to every other student otherwise. If m = 3 and n = 5, find the total number of toffees that exchanged hands.

Solution:
Correct Answer : 364

For m = 3 and n = 5, the students will be standing in the shape of the grid shown below.
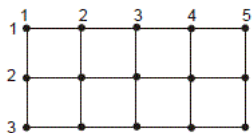
For a = 1, total number of toffees that exchanged hands = 5 × 14 = 70.
For a = 2, total number of toffees given by the student with position P(2, 1) = 14
Total number of toffees given by the students with positions P(2, 2), P(2, 3), P(2, 4) and P(2, 5) = 4 × 2 × 14 = 112
For a = 3, total number of toffees given by the students with positions numbered P(3, 1) and P(3, 2)
= 1 × 14 + 2 × 14 = 42
Total number of toffees given by the students with positions P(3, 3), P(3, 4) and P(3, 5)
= 3 × 3 × 14 = 126.
Therefore, total number of toffees that exchanged hands = 70 + 14 + 112 + 42 + 126 = 364.

FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**

Q.94

If a $\text{Log}_{200} 2 + b \text{Log}_{200} 5 = c$, where a, b, c are natural numbers, then find the minimum possible value of (a + b + c).

Solution:
Correct Answer : 6

a $\text{Log}_{200} 2 + b \text{Log}_{200} 5 = \text{Log}_{200} (2^a \times 5^b) = c$
So, $200^c = 2^a \times 5^b$
For minimum value of a + b + c, c = 1 and hence, a = 3 and b = 2. Hence, a + b + c = 6.

FeedBack

🔖 **Bookmark**

🔍 **Answer key/Solution**

Q.95

Three persons A, B and C, working together can complete a work in 12 days. The time taken to complete the same work by A is twice of the time taken by B and thrice of the time taken by C. If these three work alternatively for first 6 days, then in how many days can B complete the remaining work?

1 ◯ **25**

2 ◯ **30**

3 ◯ **20**

4 ◯ **35**

✔

Solution:
Correct Answer : 2
Your Answer : 2

Let A can do the work in 6x days.
Then, B can do the work in 3x days and C can do the work in 2x days.

$$\Rightarrow \frac{1}{6x} + \frac{1}{3x} + \frac{1}{2x} = \frac{1}{12}$$

$\Rightarrow x = 12.$
If they work on alternate days for 6 days,

$$\text{work done} = 2\left(\frac{1}{6x} + \frac{1}{3x} + \frac{1}{2x}\right) = \frac{2}{12} = \frac{1}{6}$$

Remaining work $= \frac{5}{6}$

We know that B can complete the work in 3x
= 36 days

So, time taken by B to complete $\frac{5}{6}$ th of the work

$= \frac{5}{6} \times 36 = 30$ days.

FeedBack

Q.96

Only three telecom companies China Telecom Ltd. (CTL), Telecom Consultants India Ltd. (TCIL) and Israel Telecom Ltd. (ITL) work on telecommunication projects in Afghanistan. CTL and TCIL are working together, without ITL, on 12 projects. CTL and ITL are working together, without TCIL, on 5 projects. CT is working on a total of 26 projects. ITL and TCIL are working on 14 projects each, out of total 36 ongoing projects in Afghanistan. If CTL is working alone on as many projects as the sum of the number of projects on which ITL and TCIL are working on individually, then on how many of these projects both ITL and TCIL are working together, without CTL?

Solution:
Correct Answer : 1

The information given in the question can be represented in the following venn-diagram:
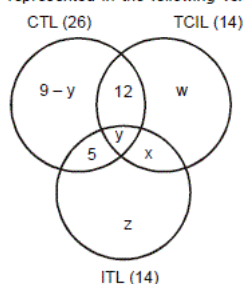
In the diagram above,
y = number of projects on which CTL, TCIL and ITL are all working together.
x = number of projects on which only TCIL and ITL are working together without CTL.
w = number of projects on which TCIL works alone.
z = number of projects on which ITL works alone.

According to the given conditions,
w + z = (9 − y) or y + w + z = 9   ...(i)
x + y + w = 2   ...(ii)
x + y + z = 9   ...(iii)
x + z + w = 36 − 26 = 10   ...(iv)
Solving above equations, we get x = 1, y = 0, w = 1 and z = 8.
∴ Number of projects on which both ITL and TCIL are working together, without CTL = (x + y) = 1.

FeedBack

Q.97

Cost price of 6 'Dairy Milks' is equal to the selling price of 10 'Kitkats' and cost price of 6 'Kitkats' is equal to the selling price of 1 'Dairy Milk'. Net profit percent on the sale of a 'Dairy Milk' and a 'Kitkat' is 50%. Find the profit percentage on the sale of each 'Kitkat'.[Assume all 'Dairy Milks' are identical and the same applies to 'Kitkats'.]

1 ⦿ **160%**

2 ⦿ **200%**

3 ⦿ **180%**

4 ⦿ **150%**

✔

Solution:

Correct Answer : 2

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Your Answer : 2

⚲ **Answer key/Solution**

Let the cost price of a Dairy Milk and a Kitkat be x and y respectively. Then the selling price of a Dairy Milk and a Kitkat will be 6y and 0.6x respectively.

Now,

$$\left(\frac{6y + 0.6x}{x + y} - 1\right) \times 100 = 50$$

$$\Rightarrow 6y + 0.6x = 1.5x + 1.5y$$

$$\Rightarrow 4.5y = 0.9x$$

$$\Rightarrow 5y = x$$

Also, profit percent on the sale of each Kitkat,

$$= \left(\frac{0.6x}{y} - 1\right) \times 100 = (0.6 \times 5 - 1) \times 100 = 200\%.$$

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Q.98

Points P and Q are marked on a straight road. Gypsa started from the point P and walked towards point Q. On the first day Gypsa covered $\left(\frac{1}{4x}\right)$ of the tota distance between P and Q. On the second day she covered $\left(\frac{1}{3y}\right)$ of the remaining distance, where 'x' and 'y' are integers. At the end of the second day she found out that she had covered $\left(\frac{3}{xy}\right)$ of the total distance between P and Q. If the total distance between P and Q is 110 km, then find the minimum possible distance (in km) left to be covered by her after the first two days.

Solution:

Correct Answer : 80

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⚲ **Answer key/Solution**

Distance remaining after the first day

$$= 110\left(1 - \frac{1}{4x}\right).$$

Distance remaining after the second day

$$= 110\left(1 - \frac{1}{4x}\right)\left(1 - \frac{1}{3y}\right)$$

Or, $110\left(1 - \frac{1}{4x}\right)\left(1 - \frac{1}{3y}\right) = 110\left(1 - \frac{3}{xy}\right)$

3y + 4x = 37.

Possible integer values of 'x' and 'y' that satisfy the above equation are (x = 1 and y = 11); (x = 4 and y = 7) and (x = 7 and y = 3).

Minimum possible product of 'x' and 'y' = 11.

Maximum possible aggregate distance covered on the

first two days $= 110\left(\frac{3}{11}\right) = 30$ km.

Minimum possible distance left to be covered by Gypsa after the first two days = 110 − 30 = 80 km.

FeedBack

Q.99

A solid metal cylinder of height and radius as 8 cm and 7 cm respectively is melted and recast into a cone of height 24 cm. By what percent is the lateral surface area of the cone more than that of the cylinder?

1 ⦿ **37.5%**

2 ⃝ **44.44%**

3 ⃝ **56.25%**

4 ⃝ **54.5%**

Solution:

Correct Answer : 3

According to the question,

$\frac{22}{7} \times 7^2 \times 8 = \frac{1}{3} \times \frac{22}{7} \times r^2 \times 24$

$\Rightarrow r = 7$ cm

where r = radius of the cone.

Slant height of the cone = $\sqrt{(24)^2 + (7)^2}$ = 25 cm.

Hence, the required percentage

$= \frac{\frac{22}{7} \times 7 \times 25 - 2 \times \frac{22}{7} \times 7 \times 8}{2 \times \frac{22}{7} \times 7 \times 8} \times 100 = 56.25\%.$

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🔍 **Answer key/Solution**

Q.100

The percentage increase/decrease in the curved surface area of a hemisphere when the radius of the hemisphere is halved is

1 ⃝ **50% increase**

2 ⃝ **25% decrease**

3 ⃝ **25% increase**

4 ⃝ **75% decrease**

✔

Solution:

Correct Answer : 4

Your Answer : 4

Curved surface area of a hemisphere = $2\pi r^2$

Now, new radius = $\frac{r}{2}$ units

New curved surface area

$= 2\pi \left(\frac{r}{2}\right)^2 = \frac{\pi r^2}{2}$

Hence, percentage change

$= \frac{2\pi r^2 - \frac{\pi r^2}{2}}{2\pi r^2} \times 100 = 75\%$ decrease.

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🔍 **Answer key/Solution**