



## All India CAT Open Mock - 3 2019

Scorecard (procreview.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:55:08 IST 2020&qsetId=G9K4cKJLaWM=&qsetName=All India CAT Open Mock - 3 2019)

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Qs Analysis (QsAnalysis.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:55:08 IST 2020&qsetId=G9K4cKJLaWM=&qsetName=All India CAT Open Mock - 3 2019)

Booster Analysis (BoosterAnalysis.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:55:08 IST 2020&qsetId=G9K4cKJLaWM=&qsetName=All India CAT Open Mock - 3 2019)

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Solutions (Solution.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:55:08 IST 2020&qsetId=G9K4cKJLaWM=&qsetName=All India CAT Open Mock - 3 2019)

Bookmarks (Bookmarks.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:55:08 IST 2020&qsetId=G9K4cKJLaWM=&qsetName=All India CAT Open Mock - 3 2019)

Toppers (Toppers.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:55:08 IST 2020&qsetId=G9K4cKJLaWM=&qsetName=All India CAT Open Mock - 3 2019)

VARC

DILR

QA

## Sec 1

**Direction for questions (1-5): Read the given passage and answer the questions that follow.**

[...] Only recently have most governments begun to worry about the consequences of global warming. They have responded mainly by asking scientists for more proof. This is understandable: it is hard to ask voters to make large changes in their behaviour on the basis of uncertain horrors that may afflict their children's children. But the risk is that, by the time scientists can produce evidence that satisfies politicians, the costs of stopping global warming will have become unmanageable. More sensible has been the discussion of international machinery, for no country will agree to limit its emissions of greenhouse gases if it thinks that others are increasing theirs. But one danger with these discussions is that they will lead to time-wasting efforts to set up new institutions, instead of adapting what already exists.

So far governments have been reluctant to talk much about the need to change domestic policies. True, the EEC has agreed to stop producing another kind of greenhouse gas, chlorofluorocarbons, by the end of the century. But that will be easy, compared with cutting carbon-dioxide emissions by 20% by 2025, a target set at a meeting in Toronto last year.

A tax on carbon offers the most efficient way to reach that goal. Make energy more expensive, and people will use it more frugally. That was the clear lesson of the 1970s, when two huge jumps in the oil price (and higher energy taxes) led to a big cut in the amount of energy used for each dollar of output. Since then, the price of oil has fallen steeply in real terms, and the gains in energy efficiency have begun to unravel.

A carbon tax is also the best way to make nuclear power look a better buy. And it offers a direct cash reward to those who devise other kinds of carbon-free power. If a tax is such a good idea, why is the proposal so unpopular? It has two serious flaws. First, it is silly to link a carbon tax in the EEC to a fund for saving the rain forests. Each issue is tricky enough in its own right: besides, the proper level of a carbon tax ought no more to be determined by the amount of cash needed to bribe Brazil to keep its trees than the size of the rain-forest fund should be determined by the rate of carbon tax. It would be wiser to tell member governments to keep the proceeds of the tax to use as they think best—perhaps to cut other indirect taxes and to help industry and consumers pay for energy-saving investments.

The scheme also offers no answer to those who worry that it might drive carbon-belching industries out of the Community, and give dirtier countries an advantage. It might be possible, sceptics say, to persuade America or Japan to impose a comparable burden on industry—but what of developing countries, which may have neither the will nor the administrative means to impose such a levy?

As the Dutch government has found, taxing pollution is a dangerous game. Tax brings into the open the costs of adjusting to a cleaner economy. Politicians prefer regulations: they impose greater costs and distortions on the economy, but these are better hidden. Regulations may be needed as well as taxes, but they will not be enough on their own. The sooner voters are willing to face the true costs of cutting carbon, the sooner will the world stop warming.

**Q.1**

As per the passage, all of the following are true EXCEPT:

- 1  Oil prices have affected the goal of energy efficiency.
- 2  Developing countries don't have the will power or capability to fight climate change.
- 3  Carbon tax as a fund for saving rain forests doesn't seem to be a good plan.
- 4  The discussion on global warming on the international forum has been practical but not completely fruitful.

**Solution:**

**Correct Answer : 2**

**Genre: Economics / Environment**

**Word Count# 577**

 **Bookmark**

 **Answer key/Solution**

**Option 1 – Refer to the line, “Since then, the price of oil has fallen steeply in real terms, and the gains in energy efficiency have begun to unravel.” So, this option is true.**

**Option 2 – When the author asks, “...but what of developing countries, which may have neither the will nor the administrative means to impose such a levy”, he doesn't imply it to be a given fact. It's mentioned as a possibility, not a certainty. So, this is the correct answer.**

**Option 3 – Refer to the line, “First, it is silly to link a carbon tax in the EEC to a fund for saving the rain forests.” So, this option is true too.**

**Option 4 – Refer to the lines, “More sensible has been the discussion of international machinery, for no country will agree to limit its emissions of greenhouse gases if it thinks that others are increasing theirs. But one danger with these discussions is that they will lead to time-wasting efforts to set up new institutions, instead of adapting what already exists.” So, this option is true.**

**FeedBack**

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**Q.2**

**Which of the following best describes the main point of the last paragraph of the passage?**

- 1  People all over the world have to take the responsibility to curb global warming.
- 2  Instead of playing political games, politicians should unite to fight the menace of climate change.
- 3  The world will stop warming the day we all start to pay a carbon tax.
- 4  The failure of the Dutch government to impose a carbon tax is a lesson for all.

**Solution:**

**Correct Answer : 1**

**Genre: Economics / Environment**

**Word Count# 577**

 **Bookmark**

 **Answer key/Solution**

Refer to the last sentence of the passage: "The sooner voters are willing to face the true costs of cutting carbon, the sooner will the world stop warming." This is the main issue the author keeps mentioning throughout the passage. Politicians may want to fight global warming in earnest, but if their electorate is not ready to face the consequences, they will not succeed. So, option 1 is the correct answer.

Option 2 – This is wrong. The author focuses on the voters, not the elected representatives.

Option 3 – This is a distorted interpretation. Carbon tax is not mandatory. It's one of the means suggested.

Option 4 – This is an option that stretches an example to an extreme conclusion.

**FeedBack**

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**Q.3**

**Why have the governments asked scientists for more proof of global warming?**

- 1  Because their voters are not farsighted enough to make informed decisions.
- 2  Because the general public is by nature skeptical of empirical proof.
- 3  Because they want to take actions against global warming before it is too late.
- 4  Because it is challenging to convince the general populace about a long term catastrophe.

**Solution:**

**Correct Answer : 4**

**Genre: Economics / Environment**

**Word Count# 577**

 **Bookmark**

 **Answer key/Solution**

Refer to the line: "This is understandable: it is hard to ask voters to make large changes in their behaviour on the basis of uncertain horrors that may afflict their children's children." So, option 4 is the clear answer.

Option 1 – It is vague and it also goes beyond the scope of the passage (decisions).

Options 2 and 3 are not factually supported by the passage.

**FeedBack**

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**Q.4**

**What does the author indicate by 'dirtier countries'?**

- 1  Countries that have alarmingly high instances of unhygienic practices.
- 2  Places where developed countries dump their garbage.
- 3  Economically backward nations where carbon emission is high.
- 4  Places or countries which produce the highest amount of carbon dioxide.

**Solution:**

**Correct Answer : 3**

**Genre: Economics / Environment**

**Word Count# 577**

 **Bookmark**

 **Answer key/Solution**

This can be answered by the method of elimination.

Option 1 – The word 'dirty' can't be taken literally here. The author might not refer to actual dirt.

Option 2 – This is not relevant to the theme of the passage.

Option 3 – This is the correct answer. It matches the theme of the passage.

Option 4 – This might be true for the developed nations too.

**FeedBack**

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**Q.5**

**What can be inferred about the tone of the author towards the idea of a carbon tax?**

1  Reluctantly appreciative

2  Objectively supportive

3  Openly hostile

4  Subtly critical

**Solution:**

**Correct Answer : 2**

**Genre: Economics / Environment**

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 **Bookmark**

 **Answer key/Solution**

**Two sentences make the answer clear. Refer to the sentences:**

**"A tax on carbon offers the most efficient way to reach that goal."**

**"A carbon tax is also the best way to make nuclear power look a better buy."**

**The author is clearly supportive of the plan. So, 'reluctantly', 'hostile', and 'critical' in options 1, 3, and 4 respectively are wrong.**

**The answer is option 2.**

**FeedBack**

**Direction for questions (6-10): Read the given passage and answer the questions that follow.**

For many readers, the decisive moment in the short story's history is 1914, the year James Joyce published 'Dubliners'. That book, more than any other, has become synonymous with our idea of what a modern short story is like, 'Dubliners' bequeathed two concepts, meanwhile, which have become mantras both for those who would write short fiction and, until recently, for those who would write about it. The first of these concepts is the 'epiphany', by which Joyce (or, rather, his character Stephen Hero) meant a 'sudden spiritual manifestation, whether in the vulgarity of speech or gesture or in a memorable phase of the mind itself'. The other is the belief that the proper prose style for short stories is one of 'scrupulous meanness'. It should be noted that Joyce's ideas are really formulations and developments of trends we witnessed in the previous section – the 'epiphany' standing in place of the conventional resolution of plot, and the scrupulously mean style producing an indirect, elliptical and ambiguous narrative discourse. What this suggests is that 'Dubliners', far from being a moment of superlative transition, of profound change in the development of the form, was a further evolution of the 'plotless' short story of the 1890s. Likewise, Joyce's proximity to the 'fin de siecle' needs to be borne in mind, because while 'Dubliners' was not published until 1914, the stories that compose it were begun in 1904 and completed, with the exception of the otherwise exceptional 'The Dead', by 1906.

It is also worth remembering that Joyce's landmark novel 'Ulysses' started life as a short story. So too did Virginia Woolf's 'Mrs Dalloway' while her novel 'Jacob's Room' is composed of chapters that Woolf thought of as individual stories. What this suggests is that the short story, while we may tend to think of it as the lesser fictional form, the apprentice piece to the novel, in fact played a fundamental role in the development of experimental modernist fiction. In Woolf's case, it was in the short story that she first began to devise the techniques of narration and characterization by which she hoped to render, more authentically than her Victorian or Edwardian predecessors, the texture of human consciousness and the nature of experience. To this she was abetted by the example of the Russian writer Anton Chekhov, whose stories were then appearing in English. It was in Chekhov's work that Woolf first heard the 'note of interrogation' that showed her a way out of the moribund conventionalism of the English novel.

What Woolf also found in Chekhov's stories was a means of conducting in fictional form a broadly anti-materialist critique of modern mass culture. Woolf famously accused her fellow novelists Arnold Bennett and John Galsworthy of 'materialism' in their writing, by which she meant their preoccupation with the superficial material, economic and behavioural dimensions of existence, rather than what she considered the 'proper stuff of fiction', the study of character consciousness and what she unblushingly called 'soul'. Again, it was in the short story that she first devised an alternative to the materialist nomenclature by creating a sense of indeterminacy and open-endedness that allowed her to allude to the existence of realities that lay beyond the comprehension of the culturally authoritative, superintendent 'masculine point of view', as she called it in one story, 'The Mark on the Wall'.

**Q.6**

As per the passage, Chekhov inspired Woolf in all of the following ways EXCEPT:

1  His anti-materialist stance

2  His unconventional writing style

3  His writing in English

4  His critique of mass culture

**Solution:**

**Correct Answer : 3**

**Genre: Literary Theory**

**Word Count# 555**

 **Bookmark**

 **Answer key/Solution**

**Options 1, 2, and 4 are clearly mentioned in the last two paragraphs. Option 3 is distorted. Chekhov's writings appeared in English. He didn't write in English. It was also not something that inspired Woolf. It only enabled her to read and be inspired by them.**

**FeedBack**

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**Q.7**

**Which of the following best describes the main message of the author?**

- 1  How Joyce changed the landscape of modern fiction.
- 2  How Woolf and Joyce inspired the future generation of writers.
- 3  How Joyce helped in the evolution of the modern short story.
- 4  How 'epiphany' changed the narrative landscape of fiction writing.

**Solution:**

**Correct Answer : 3**

**Genre: Literary Theory**

**Word Count# 555**

 **Bookmark**

 **Answer key/Solution**

**This is an easy question where the options can be eliminated .**

**Options 1 and 4 – The passage is about short story, not fiction. Secondly, 'epiphany' is given as a supporting idea. It's not the main focus.**

**Option 2 – This is too extreme.**

**Option 3 – It is the best choice, as the author focuses on Joyce and mentions Woolf as someone who was inspired by the style of Joyce.**

**FeedBack**

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**Q.8**

**Which of the following is definitely true according to the passage?**

1  The real era of the dominance of short stories began in 1914.

2  Woolf was a contemporary of Joyce.

3  'Ulysses' and 'Jacob's Room' were started in the same time period.

4  'The Dead' was finished after 1906.

**Solution:**

**Correct Answer : 4**

**Genre: Literary Theory**

**Word Count# 555**

 **Bookmark**

 **Answer key/Solution**

**Option 1 – It is a distorted way of interpreting the first sentence. 'Decisive moment' doesn't mean the beginning of 'dominance'.**

**Option 2 – We can't determine this from the passage.**

**Option 3 – They both began as short stories. But nothing has been mentioned about their time period.**

**Option 4 – It is true. Refer to the last sentence of the first paragraph.**

**FeedBack**

**Direction for questions (6-10): Read the given passage and answer the questions that follow.**

For many readers, the decisive moment in the short story's history is 1914, the year James Joyce published 'Dubliners'. That book, more than any other, has become synonymous with our idea of what a modern short story is like, 'Dubliners' bequeathed two concepts, meanwhile, which have become mantras both for those who would write short fiction and, until recently, for those who would write about it. The first of these concepts is the 'epiphany', by which Joyce (or, rather, his character Stephen Hero) meant a 'sudden spiritual manifestation, whether in the vulgarity of speech or gesture or in a memorable phase of the mind itself'. The other is the belief that the proper prose style for short stories is one of 'scrupulous meanness'. It should be noted that Joyce's ideas are really formulations and developments of trends we witnessed in the previous section – the 'epiphany' standing in place of the conventional resolution of plot, and the scrupulously mean style producing an indirect, elliptical and ambiguous narrative discourse. What this suggests is that 'Dubliners', far from being a moment of superlative transition, of profound change in the development of the form, was a further evolution of the 'plotless' short story of the 1890s. Likewise, Joyce's proximity to the 'fin de siecle' needs to be borne in mind, because while 'Dubliners' was not published until 1914, the stories that compose it were begun in 1904 and completed, with the exception of the otherwise exceptional 'The Dead', by 1906.

It is also worth remembering that Joyce's landmark novel 'Ulysses' started life as a short story. So too did Virginia Woolf's 'Mrs Dalloway' while her novel 'Jacob's Room' is composed of chapters that Woolf thought of as individual stories. What this suggests is that the short story, while we may tend to think of it as the lesser fictional form, the apprentice piece to the novel, in fact played a fundamental role in the development of experimental modernist fiction. In Woolf's case, it was in the short story that she first began to devise the techniques of narration and characterization by which she hoped to render, more authentically than her Victorian or Edwardian predecessors, the texture of human consciousness and the nature of experience. To this she was abetted by the example of the Russian writer Anton Chekhov, whose stories were then appearing in English. It was in Chekhov's work that Woolf first heard the 'note of interrogation' that showed her a way out of the moribund conventionalism of the English novel.

What Woolf also found in Chekhov's stories was a means of conducting in fictional form a broadly anti-materialist critique of modern mass culture. Woolf famously accused her fellow novelists Arnold Bennett and John Galsworthy of 'materialism' in their writing, by which she meant their preoccupation with the superficial material, economic and behavioural dimensions of existence, rather than what she considered the 'proper stuff of fiction', the study of character consciousness and what she unblushingly called 'soul'. Again, it was in the short story that she first devised an alternative to the materialist nomenclature by creating a sense of indeterminacy and open-endedness that allowed her to allude to the existence of realities that lay beyond the comprehension of the culturally authoritative, superintendent 'masculine point of view', as she called it in one story, 'The Mark on the Wall'.

**Q.9**

As per the passage, what can be said with certainty about 'scrupulous meanness'?

- 1  It was one of the major legacies of Woolf.
- 2  It was a style invented by Joyce in 'Dubliners'.
- 3  It was perfected by Woolf in her story 'Jacob's Room'.
- 4  It was a major influence for short story writers.

**Solution:**

**Correct Answer : 4**

**Genre: Literary Theory**

**Word Count# 555**

 **Bookmark**

 **Answer key/Solution**

Refer to the lines: "It should be noted that Joyce's ideas are really formulations and developments of trends we witnessed in the previous section – the 'epiphany' standing in place of the conventional resolution of plot, and the scrupulously mean style producing an indirect, elliptical and ambiguous narrative discourse. What this suggests is that 'Dubliners', far from being a moment of superlative transition, of profound change in the development of the form, was a further evolution of the 'plotless' short story of the 1890s."

So, this style was definitely not invented by Joyce or used by him exclusively. It was a continuation of a previously existing style. This eliminates option 2.

Options 1 and 3 can't be determined by the passage.

Option 4 can be validated from the lines: "That book, more than any other, has become synonymous with our idea of what a modern short story is like, 'Dubliners' bequeathed two concepts, meanwhile, which have become mantras both for those who would write short fiction and, until recently, for those who would write about it." The second concept refers to the phrase in question.

**FeedBack**

**Direction for questions (6-10): Read the given passage and answer the questions that follow.**

For many readers, the decisive moment in the short story's history is 1914, the year James Joyce published 'Dubliners'. That book, more than any other, has become synonymous with our idea of what a modern short story is like, 'Dubliners' bequeathed two concepts, meanwhile, which have become mantras both for those who would write short fiction and, until recently, for those who would write about it. The first of these concepts is the 'epiphany', by which Joyce (or, rather, his character Stephen Hero) meant a 'sudden spiritual manifestation, whether in the vulgarity of speech or gesture or in a memorable phase of the mind itself'. The other is the belief that the proper prose style for short stories is one of 'scrupulous meanness'. It should be noted that Joyce's ideas are really formulations and developments of trends we witnessed in the previous section – the 'epiphany' standing in place of the conventional resolution of plot, and the scrupulously mean style producing an indirect, elliptical and ambiguous narrative discourse. What this suggests is that 'Dubliners', far from being a moment of superlative transition, of profound change in the development of the form, was a further evolution of the 'plotless' short story of the 1890s. Likewise, Joyce's proximity to the 'fin de siecle' needs to be borne in mind, because while 'Dubliners' was not published until 1914, the stories that compose it were begun in 1904 and completed, with the exception of the otherwise exceptional 'The Dead', by 1906.

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**Q.10**

**Which of the following best describes the organisation of the passage?**

- 1  An idea is followed by a denial of an existing myth.
- 2  An assertion is followed by certain examples which validate it.
- 3  An opinion is stated and then a counter point is raised.
- 4  An overstatement is presented which is then proven by certain counter points.

**Solution:**

**Correct Answer : 2**

**Genre: Literary Theory**

**Word Count# 555**

 **Bookmark**

 **Answer key/Solution**

The author never counters his points. So, options 1, 3, and 4 are all incorrect. Option 2 is the best choice.

**FeedBack**

**Direction for questions (11-15): Read the given passage and answer the questions that follow.**

[...] The expression of dissatisfaction with imposed imperialist education has a long history. In the early 20th century, Rabindranath Tagore set up Santiniketan in Bengal, to protest at British colonialist schooling. Classes were held outdoors; the natural world was honoured as a teacher. Stories, music and art were integral to learning. Exams were not. Nor was the world of business. Generating art in everything, Tagore's aim was to regenerate the moment with noticed beauty to turn the merely quotidian into a daily ceremony.

His ideas of schooling are echoed in Forest Schools, the Reggio Emilia system, and the multitude of fledgling radical schools that emphasise nature and art, and value moral, meaningful learning as much as academic work. Meanwhile, Jiddu Krishnamurti's educational philosophy began with a revulsion at the ways in which the typical education of his time served nationalism and economics, when he taught ethics: the goodness of the human being.

Radical education has often focused on similar themes: from Devon to the Sierra Nevada, from Bengal to Veracruz, people speak a common sense of mind and body learning in each other's service.

Take a human being. Lean it gently on the earth and let it listen awhile in the darkness. Ask it then what are the good words, and true. Ask what is the core curriculum for the human heart, the 'coeur' values which children should learn. And, like a fundamental law of metaphysics, the answers seem to come back the same all over the world. Nature. Story. Ethics. Respect. Balance. Creativity. Spirit. Insight. Gift. The art of being human.

It is not just the overtly colonised indigenous cultures that know this; not just the nations that

have suffered imperialism or slavery, but any human being who has felt the stress, cruelty, insufficiency or marginalisation of education. Anyone who deplores seeing education manacled to corporations. All who resent seeing children as colonised subjects in the empire of the school, or decry the kind of education that mainly markets children as earners, consumers and debtors-to-be. This message can be heard wherever people, in exasperation, anger and bewilderment want to snatch their children away from a toxic ideology that damages Nature, and human nature. The Dominant Society, say the Arhuaco people of Colombia, with real bitterness, knows little of the natural world but much about how to destroy it. At the core of Arhuaco education is the sacred duty of maintaining the balance of life: the protection of nature.

If this is the cherished end of the path of pedagogy, how might those steps be taken in relation to individual children? It is a matter of one's gift, say Totonac people: the seed that needs to be discovered and nurtured from childhood. In effect, they say, like some of the more gifted educators of the Dominant Society: do not ask if this child is gifted, ask how is this child gifted.

In a traditional Totonac story, the sky-grandmothers merrily hurl stars at young children and the ones that stick are their gifts. So important is this sense of gift that it is inherent in the name Totonac, which means 'three hearts'. They gloss it thus: we need three hearts – to ask to know one's gift, to receive it, and to give it in service to the world. [...]

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#### Q.11

With which of the following would the author of the passage most likely agree?

- 
- 1  Jiddu Krishnamurti was a renaissance humanist.
  - 2  Discrimination is a part of the modern education system.
  - 3  Colonial societies were against teaching their children the value of marginalization.
  - 4  If you leave a child lying in a dark field, he/she will learn his/her core purpose in life.
-

**Solution:****Correct Answer : 2****Genre: Education / Research Methodology****Word Count# 595****Bookmark****Answer key/Solution**

**Option 1 – This can't be determined from the information given in the passage.** Krishnamurti has been mentioned as a humanist. No definition of 'renaissance humanism' has been given. So, the author may or may not agree with this inference.

**Option 2 - Refer to the fifth paragraph.** The author mentions that anyone who has ever faced colonization or marginalization feels disenchanted with the modern education system. So, the author would agree with this inference. Hence, this is the correct answer.

**Option 3 – The passage talks about the colonized societies.** Nothing has been mentioned about the colonizers. Secondly, 'value of marginalization' doesn't make sense.

**Option 4 – This is a distorted version of an example mentioned in the passage.**

**FeedBack**

**Direction for questions (11-15): Read the given passage and answer the questions that follow.**

[...] The expression of dissatisfaction with imposed imperialist education has a long history. In the early 20th century, Rabindranath Tagore set up Santiniketan in Bengal, to protest at British colonialist schooling. Classes were held outdoors; the natural world was honoured as a teacher. Stories, music and art were integral to learning. Exams were not. Nor was the world of business. Generating art in everything, Tagore's aim was to regenerate the moment with noticed beauty to turn the merely quotidian into a daily ceremony.

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If this is the cherished end of the path of pedagogy, how might those steps be taken in relation to individual children? It is a matter of one's gift, say Totonac people: the seed that needs to be discovered and nurtured from childhood. In effect, they say, like some of the more gifted educators of the Dominant Society: do not ask if this child is gifted, ask how is this child gifted.

In a traditional Totonac story, the sky-grandmothers merrily hurl stars at young children and the ones that stick are their gifts. So important is this sense of gift that it is inherent in the name Totonac, which means 'three hearts'. They gloss it thus: we need three hearts – to ask to know one's gift, to receive it, and to give it in service to the world. [...]

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#### Q.12

What can be inferred from the example of the traditional Totonac story?

- 
- 1  Its moral is compatible with that of the radical education movement.
  - 2  The Totonacs were much ahead of their times in providing a structured system of education.
  - 3  It criticizes the modern education system by highlighting a core contradiction.
  - 4  The Totonacs agree with the mainstream education system when it comes to testing methodology.
-

**Solution:****Correct Answer : 1****Genre: Education / Research Methodology****Word Count# 595****Bookmark****Answer key/Solution**

The main message of the Totonac story is that every child is gifted and the main aim of education should be to nurture this gift. This is also the aim of the alternate schools mentioned as radical schools in the passage. So, option 1 is surely a logical inference.

**Options 2 and 4 – Nothing has been said about the Totonac's education system. It is just a traditional story.**

**Option 3 – This is a vague option. The author doesn't talk about any contradiction in the modern education system. S/he highlights some flaws. So, this inference can't be logically validated.**

**FeedBack**

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**Direction for questions (11-15): Read the given passage and answer the questions that follow.**

[...] The expression of dissatisfaction with imposed imperialist education has a long history. In the early 20th century, Rabindranath Tagore set up Santiniketan in Bengal, to protest at British colonialist schooling. Classes were held outdoors; the natural world was honoured as a teacher. Stories, music and art were integral to learning. Exams were not. Nor was the world of business. Generating art in everything, Tagore's aim was to regenerate the moment with noticed beauty to turn the merely quotidian into a daily ceremony.

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If this is the cherished end of the path of pedagogy, how might those steps be taken in relation to individual children? It is a matter of one's gift, say Totonac people: the seed that needs to be discovered and nurtured from childhood. In effect, they say, like some of the more gifted educators of the Dominant Society: do not ask if this child is gifted, ask how is this child gifted.

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#### Q.13

As per the passage, which of the following is the main message of the fourth paragraph?

- 
- 1  We should teach our children the laws of metaphysics.
  - 2  We should teach our children the values of respect, balance, and creativity.
  - 3  We should let our children learn the values of humanity.
  - 4  We should let our children decide their own curriculum by giving them the freedom to follow their hearts.
-

**Solution:****Correct Answer : 3****Genre: Education / Research Methodology****Word Count# 595****Bookmark****Answer key/Solution**

In the fourth paragraph, the author says that when we allow a child to listen to the Earth, the former will learn the values of respect, balance, creativity etc. The author terms this 'the art of being human'. So, the main message of the paragraph is captured by option 3.

**Option 1 – This is a distorted option. The word metaphysics has been used in a different context in the paragraph.**

**Option 2 – This is too narrow. The author also mentions other qualities. The word 'humanity' captures all these qualities.**

**Option 4 – This is not supported by the paragraph. It may or may not be true. But it is not the main message of the paragraph.**

**FeedBack**

**Direction for questions (11-15): Read the given passage and answer the questions that follow.**

[...] The expression of dissatisfaction with imposed imperialist education has a long history. In the early 20th century, Rabindranath Tagore set up Santiniketan in Bengal, to protest at British colonialist schooling. Classes were held outdoors; the natural world was honoured as a teacher. Stories, music and art were integral to learning. Exams were not. Nor was the world of business. Generating art in everything, Tagore's aim was to regenerate the moment with noticed beauty to turn the merely quotidian into a daily ceremony.

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#### **Q.14**

**Which of the following can best substitute the word 'quotidian' in the first paragraph?**

- 1  Celebration
- 2  Festivity
- 3  Engagement
- 4  Mundane

**Solution:**

**Correct Answer : 4**

**Genre: Education / Research Methodology**

**Word Count# 595**

 **Bookmark**

 **Answer key/Solution**

'Quotidian' literally means 'daily, routine, or mundane'. The context tells us that 'quotidian' means the opposite of 'ceremony'. 'Merely' doesn't suggest a positive connotation. So, option 4 is the correct answer. Even a ceremony means a kind of engagement. So, option 3 can be ruled out.

**FeedBack**

**Direction for questions (11-15): Read the given passage and answer the questions that follow.**

[...] The expression of dissatisfaction with imposed imperialist education has a long history. In the early 20th century, Rabindranath Tagore set up Santiniketan in Bengal, to protest at British colonialist schooling. Classes were held outdoors; the natural world was honoured as a teacher. Stories, music and art were integral to learning. Exams were not. Nor was the world of business. Generating art in everything, Tagore's aim was to regenerate the moment with noticed beauty to turn the merely quotidian into a daily ceremony.

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**Q.15**

As per the passage, the main theme of radical education all over the world has been:

- 1  to focus on stories, music, and art, not on exams.
- 2  to facilitate a harmonious education that respects nature.
- 3  to be exasperated and bewildered at the lack of respect for Nature in modern education.
- 4  to encourage nationalistic and economic teachings along with the value of ethics.

**Solution:**

**Correct Answer : 2**

**Genre: Education / Research Methodology**

**Word Count# 595**

 **Bookmark**

 **Answer key/Solution**

Refer to the lines: "Radical education has often focused on similar themes: from Devon to the Sierra Nevada, from Bengal to Veracruz, people speak a common sense of mind and body learning in each other's service."

Option 1 – This is true about Tagore's school, not the movement in general. It is also too narrow to be the main focus.

Option 2 – It captures the main aim of the movement. Hence, it is the correct answer.

Option 3 – This is the reaction of the reformers, not their main aim.

Option 4 – This is factually wrong. They don't focus on economics or nationalism.

**FeedBack**

**Direction for questions (16-19): Read the given passage and answer the questions that follow.**

The emergence of the Internet and social media have dramatically altered media coverage and perception, and understanding contemporary concerns about fake news require considering the novel social dynamics introduced by new media technologies. In 2017, two-thirds of Americans reported receiving at least some of their news via social media. It has been taken up for various political purposes. Platforms have been effectively utilized by marginalized groups seeking freedom or justice; perniciously by totalitarian groups aiming to censor, misinform, or distract; and for different purposes by citizens connecting with fellow activists or disconnecting from those with different views. Moreover, these new media technologies both increase the volume of news while allowing niche marketing on an unprecedented scale, often presenting ideologically bifurcated readers and viewers with entirely different universes of discourse, which has fuelled political polarization.

While social media companies capture public attention, newspapers have experienced shrinking ad revenue due to pressures from diminished sales because of competition from the Internet. Many agencies have either closed or contracted, which has led to diminished local news coverage and less in-depth reporting. It has also increased the likelihood of reporting factual errors or passing along public relations material as news without thoroughly vetting it for bias or inaccuracies. Newspapers increasingly depend on Internet ad revenue, leading to heightened pressure for headlines or stories that are hyperbolic or sensationalistic. Such stories are more likely to go viral, generate clicks, and thus contribute to the company's bottom line.

Media dynamics surrounding the emergence of the Internet and social media have also heightened the impact of media manipulation. For example, in his book 'Trust Me, I'm Lying: Confessions of a Media Manipulator', Ryan Holiday explains how he exploits the new media environment to create buzz around products for his various clients. In a process he calls trading up the chain, Holiday explains how he plants a story with a small blog with low reporting standards, which becomes the source for a larger, more reputable blog, which subsequently may get picked up for coverage by mainstream outlets. One may question why major news organizations would cover unverified information from a blog. Holiday explains that news outlets, in their desperation for readers and clicks, are now more likely to practice what he calls "iterative journalism", which is repeating unverified stories from less reputable sources under the pretence that the story is still in process and the facts are incomplete. Yet this is part of the manipulation. Reporters often know the stories are bogus so they rarely investigate further and instead content themselves with the temporary increase in clicks.

#### **Q.16**

**As per the passage, which of the following can be inferred about 'iterative journalism'?**

- 1  This is an act of desperation by the readers.
- 2  Stories like these are expected to increase revenue.
- 3  Respectable media outlets have increasingly ignored such practices.

4  People like Holiday have mastered the art of writing fake news stories.

**Solution:**

**Correct Answer : 2**

**Genre: Current Affairs**

**Word Count# 428**

 **Bookmark**

 **Answer key/Solution**

The example of 'iterative journalism' is given to show how such manipulations are increasingly practiced to increase clicks, and, in turn, the revenues. So, option 2 is a valid inference.

**Option 1 – It is not an act by the readers, but by the companies struggling to keep up with the increased competition due to the rise of internet.**

**Option 3 – The opposite is mentioned in the last paragraph.**

**Option 4 – This may sound correct but it is misleading. Holiday never states that he writes 'fake news stories'. So, this can't actually be a logical answer.**

**FeedBack**

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#### **Q.17**

**Which of the following has not been cited as an effect of the rise of the internet media?**

- 1  Rise of sensational or exaggerated stories
- 2  Closing of many news outlets
- 3  Marginalized groups demanding social justice

#### 4 ● Increased circulation of unverified news

**Solution:**

**Correct Answer : 3**

**Genre: Current Affairs**

**Word Count# 428**

 **Bookmark**

 **Answer key/Solution**

**In the second paragraph, the author talks about options 1, 2, and 4. Option 3 is mentioned in the first paragraph with the full context of how the marginalized groups utilize these social media platforms to gather support for their movements. So, option 3 is both incomplete and out of context.**

**FeedBack**

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#### **Q.18**

**Why does the author give the example of the 2017 study in the first paragraph?**

- 1  To show that two-thirds of Americans were receiving their news from social media sites.
- 2  To highlight how traditional media is battling for survival.

3  To expose the new reality of fake news and how readers are being targeted by unscrupulous groups.

4  To emphasize upon the increased clout and reach of the new media.

**Solution:**

**Correct Answer : 4**

**Genre: Current Affairs**

**Word Count# 428**

 **Bookmark**

 **Answer key/Solution**

In the first paragraph, the author introduces the topic of the new reality of news media in the era of internet. The 2017 study shows that the new medium has an ever increasing range. So, option 4 best justifies the reasoning of the author. Option 1 – This is the finding of the study. It's factually true but it doesn't answer the question.

Option 2 – This is mentioned in a different context. There is no data to show that these Americans are also not reading newspapers.

Option 3 – This is a close option. But the example in the question doesn't show that these people are actually receiving fake news or falling prey to click bait stories. So, option 4 remains the better answer.

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#### **Q.19**

As per the passage, which of the following is required to better comprehend the concerns regarding fake news stories?

- 1  To take into account the new social dynamics
- 2  To consider democracy and its aims

3  To ponder over the issue of click bait journalism

4  To analyse the impact of sensational stories on reporters

**Solution:**

**Correct Answer : 1**

**Genre: Current Affairs**

**Word Count# 428**

 **Bookmark**

 **Answer key/Solution**

Refer to the first sentence of the passage: "...and understanding contemporary concerns about fake news require considering the novel social dynamics introduced by new media technologies." Option 1 is the clear answer. Options 3 and 4 are narrow in scope and don't fully answer the question. Option 2 is too broad.

**FeedBack**

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Students, many of whom have a background in public service, are applying the social sciences – psychology, economics, sociology, social policy, and education – to today's big questions. "To put it simply, the social sciences are about working out how we can do things better," says Richard Watermeyer, associate professor at the University of Warwick.

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#### Q.20

The main focus of the passage is:

- 
- 1  to show how social scientists are changing the world.
  - 2  to describe the relevance of social science to today's society.
  - 3  to highlight how different people view social sciences.
  - 4  to explain how policy making is related to the new social reality.
-

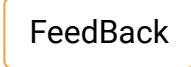
**Solution:****Correct Answer : 2****Genre: Sociology****Word Count# 585** **Bookmark** **Answer key/Solution**

In the passage, the author talks about how many students are now studying social science and applying it to some of the more important questions pertaining to today's world. So, option 2 is the correct answer.

**Option 1 – The passage is about social science, not the social scientists.**

**Option 3 – This is not the main idea. The author mentions the quotes by different experts in social science to put forth the point mentioned in option 2.**

**Option 4 – This is too narrow. Policy making is mentioned in a narrower context.**

 **FeedBack**

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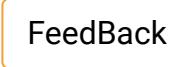
#### Q.21

Which of the following is not true about John Wood's example?

- 
- 1  He researched on the topic of funding for public policy.
  - 2  He gained statistical and data analysis skills.
  - 3  He is placed in a global thinktank on economic issues.
  - 4  He is interested in working for charity.
-

**Solution:****Correct Answer : 3****Genre: Sociology****Word Count# 585** **Bookmark** **Answer key/Solution**

**Option 3 is untrue. Nothing has been mentioned about John Wood's placement. The other options are clearly mentioned.**

 **FeedBack**

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## Q.22

**Which of the following is a valid inference about Richard Watermeyer?**

- 1  He believes in the practical application of the teachings of social sciences.
- 2  He is a professor at a University.
- 3  He designed the new public policy course for his university.
- 4  He has guided many legislators in improving their policy making skills.

**Solution:**

**Correct Answer : 1**

**Genre: Sociology**

**Word Count# 585**

 **Bookmark**

 **Answer key/Solution**

**The passage doesn't provide any information regarding option 4.**

**Option 3 too can't be stated with certainty.**

**Option 2 is a fact, not an inference.**

**Option 1 is the valid inference.**

**FeedBack**

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### Q.23

As per the passage, social policy courses:

- 1  help raise support for the policy in the legislative branch.
- 2  allow students to gain the required skills to design policies.
- 3  allow members of parliament to raise funds for their policies.
- 4  help evaluate the value of a policy proposal.

**Solution:**

**Correct Answer : 4**

**Genre: Sociology**

**Word Count# 585**

 **Bookmark**

 **Answer key/Solution**

Refer to the sentence: "Social policy courses provide the tools to weigh up the strength of a policy proposal." So, option 4 is the clear answer.

The other options are not mentioned in the passage. Students are taught to research, not design, a policy.

 **FeedBack**

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#### **Q.24**

**As per the passage, which of the following is the main aim of social sciences?**

1  **To help inform people who don't have knowledge on a topic.**

2  **To find out how to make the world better.**

3  **To research countries where new methodologies have been implemented.**

4  **To help students gain skills that employers want.**

**Solution:****Correct Answer : 2****Genre: Sociology****Word Count# 585** **Bookmark** **Answer key/Solution**

**Option 2 is the main aim of these subjects. It is indirectly mentioned in the first paragraph.**

**Option 1 – It is mentioned in a different context with respect to one student's experience.**

**Option 3 – This is an out of context option.**

**Option 4 – This is mentioned in a different context.**

[FeedBack](#)

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**Q.25**

**Directions for question (25): The passage given below is followed by four summaries.  
Choose the option that best captures the author's position.**

Instability in the circadian rhythm, the 24-hour body cycle, is known to impair signalling in the immune system, making sleep-deprived people more vulnerable to illness. This daily process is observable even in a single cell. Impaired judgement, anxiety, depression, hypertension, diabetes, all are associated with chronic sleep disorders. If you have had difficulty sleeping on three or more nights per week for at least three months and your difficulty sleeping is troubling you, you may be suffering from insomnia disorder.

- 
- 1  Sleep deprivation and other physical ailments have a possible root in circadian rhythm.
  - 2  Sleep deprivation leads to circadian rhythm and the former also has many side-effects in terms of physical and mental illnesses.
  - 3  Insomnia, a sleep disorder, can result in an unstable circadian rhythm which in turn leads to other complications.
  - 4  Ailments like impaired judgement, anxiety, depression etc are the result of sleep deprived people being more prone to single cell disorders.
-

**Solution:****Correct Answer : 3****The main points of the passage are:** **Bookmark** **Answer key/Solution**

- Instability in circadian rhythm increases the vulnerability of people suffering from insomnia to other physical and mental illnesses.
- The definition of insomnia

**Options 1 and 2 – These are distorted option because they miss the word ‘instability’ before circadian rhythm. Disruption of the regularity of the rhythm results in ailments, not the rhythm itself.**

**Option 4 – ‘Sleep deprived’ people doesn’t exclusively talk about people who suffer from a sleeping disorder. ‘Single cell disorders’ is not defined by the paragraph.**

**Option 3 – This covers the main idea. So, it is the correct choice.**

**FeedBack**
**Q.26**

**Directions for question (26): Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.**

1. It must provide these individuals with the experience and knowledge they need to perform effective as top executives.
2. An artistic discipline must induce capable managers to enter career paths that lead to executive positions.
3. And it must reward talented executives sufficiently so they will remain in the field.
4. Many of the most critical managerial problems facing American arts institutions concern the careers of the individuals who manage them.
5. Individuals and service organizations in all artistic disciplines are concerned about administrative recruitment.

**Solution:****Correct Answer : 5**

The correct order is 4213. The entire paragraph talks about the problems faced by the art field as many of its students are not trained enough to become capable managers. Sentence 4 opens the discussion. Sentence 2 follows as ‘artistic discipline’ explains the problem mentioned in 4. 1 comes next as ‘it’ refers to ‘an artistic discipline’. 3 continues the idea in 1 by ‘and’.

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

**Sentence 5 is the odd one out. It talks about all artistic disciplines. Secondly, it just repeats the idea already mentioned in 4. It also talks about ‘administrative recruitment’, not ‘training art graduates’ to become capable managers.**

**FeedBack**

**Q.27**

**Directions for question (27):** The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. A Coldian starting to work in a Warmland firm quickly acquires the reputation of a snob or a cold fish, and makes few if any friends.
2. He never advances to senior positions, and he therefore never gets the opportunity to change the corporate culture.
3. People think that he is insincere, or that he lacks basic human-relation skills.
4. Much the same thing happens to Coldians who emigrate to Warmland.

**Solution:**

**Correct Answer : 4132**

3 and 2 make a mandatory pair as 3 is the cause and 2 is the effect.

4 talks about 'Coldians' and 1 talks about 'A Coldian'. 3 and 2 use the singular pronoun 'he'. Hence, 1 will come before 3 and 2 to maintain pronoun consistency.

4 has to be the opening sentence. It introduces the topic and it can't follow 2 as the theme will be redundant. As there is no precedence to 'much the same thing', we have to assume that this paragraph is part of a larger paragraph. So, 4132 is the correct sequence.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Q.28**

**Directions for question (28):** Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. Thus, it was preserved in the lifelike form now on display.
2. Over millions of years on the ocean floor, minerals took the place of the dinosaur's armour and skin.
3. It has taken researchers 7,000 hours over the course of the last six years to test and display the remains.
4. Researchers suggest that the creature "may have been swept away by a flooded river and carried out to sea, where it eventually sank."
5. How the dinosaur mummy could remain so intact is still something of a mystery.

**Solution:****Correct Answer : 3**

The correct order is 5421. All these sentences talk about how the dinosaur remains could have remained intact. Sentence 3 talks about the work of the researchers and it is not directly related to the other sentences. It belongs to the topic of discussion, but it doesn't fit the context of the paragraph.

**Bookmark** **Answer key/Solution****FeedBack****Q.29**

**Directions for question (29):** The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Play, defined as anything we do simply for the joy of doing rather than as a means to an end – whether it's flying a kite or listening to music or kicking around a football – might seem like a non-essential activity. Often it is treated that way. But in fact play is essential in many ways. Play has the power to significantly improve everything from personal health to relationships to education to organisations' ability to innovate. Play leads to brain plasticity, adaptability, and creativity. Nothing fires up the brain like play.

- 1  Play is an essential activity with multi-faceted benefits for people.
- 2  For the overall improvement of brain functions, one needs to indulge in an activity like flying a kite or listening to music.
- 3  Play is an essential activity as long as it leads to mental and health benefits for individuals.
- 4  Although considered non-essential, play is an essential component in the daily routine of an individual.

**Solution:****Correct Answer : 1**

There is only one main point in this paragraph: Play is an essential activity. The rest of the paragraph deals with explaining why.

**Bookmark** **Answer key/Solution****Option 1 – It is the correct answer.****Option 2 – It is unnecessarily verbose.****Option 3 – It creates a faulty cause-effect reasoning.****Option 4 – The paragraph talks about play being an essential activity, not an essential component of one's daily routine.****FeedBack**

**Q.30**

**Directions for question (30):** The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. And it had made her an object of curiosity, or worse, scorn.
2. She doubted herself, wondering if there was something in her that needed to be fixed.
3. But her misdemeanour had made the news.
4. It had cost her the newfound independence she was savouring after a life in foster homes.

**Solution:**

**Correct Answer : 3142**

'It' in 1 and 4 refer to the 'misdemeanor's news' in 3. So, 1 and 4 have to come after 3.



[Answer key/Solution](#)

The order of 1 and 4 is a little tricky. Both 14 and 41 make sense.

But 'and' at the beginning of 1 shows that 314 is the right sequence. If someone is in the news for the wrong reasons, 'curiosity and scorn' are natural consequences. So, 31 has a "cause – effect" relationship.

2 has to come after 4. It explains how the girl's 'newfound independence' was affected, resulting in self-doubt.

So, 3142 is the correct sequence.

[FeedBack](#)

**Q.31**

**Directions for question (31):** Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. Degradation of the environment is harming the poor and making them even worse off.
2. Scientists need to make sure that people understand that caring for the environment is caring for the poor.
3. Throughout the world the poor are often victims of environmental degradation.
4. So, it is an essential issue for religious people to get engaged in.
5. And one of the most important things that religion teaches us is that what God cares most about, is the poor.

**Solution:****Correct Answer : 2**

The correct order is 3514. It is an easy question. Sentences 1, 3, 4, and 5 talk about religious people and why they should care for environmental degradation. Sentence 2 talks about people in general. So, though the word 'the poor' (a trap) is there in sentence 2, the latter still is the odd one out.

[FeedBack](#)
 [Bookmark](#)
 [Answer key/Solution](#)
**Q.32**

**Directions for question (32):** The passage given below is followed by four summaries. Choose the option that best captures the author's position.

The satirical portraits of the revolutionaries, with their naivety, ludicrous single-mindedness and readiness for murder and destruction, might seem exaggerated – until we consider their all-too-recognisable descendants in the real world ever since. The key figure in the novel, however, is beyond politics. Nicolay Stavrogin, another product of rationalism run wild, exercises his charisma with ruthless authority and total amorality.

- 1  The book portrays both the caricatures of revolutionaries, and the amorality of its political figurehead.
- 2  The protagonist of the novel is a ruthless apolitical character who is surrounded by revolutionaries, who have an exaggerated sense of self-worth.
- 3  The novel portrays satirical exaggeration of the revolutionaries and has a protagonist who is beyond politics.
- 4  The portrayal of the apolitical protagonist is in stark contrast with the satirical portrayal of the political figures.

**Solution:****Correct Answer : 3**

The paragraph has two main points:

- The exaggerated portrayal of the revolutionaries
- The main character Nicolay Stavrogin who is beyond politics

'Beyond politics' doesn't mean being apolitical. So, options 2 and 4 are eliminated.

Option 1 talks about a political figurehead. This counters the second point.

Option 3 is the correct choice.

[FeedBack](#)
 [Bookmark](#)
 [Answer key/Solution](#)

**Q.33**

**Directions for question (33):** The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. For the latter, it's a matter of quantum bits that can assume any arrangement of 0s and 1s.
2. The crucial difference between a supercomputer and a quantum computer is the way they store information.
3. No, this doesn't mean that a quantum bit can, like Schrodinger's cat.
4. For the former it's a matter, as with any conventional computer, of binary bits, 1s and 0s.

**Solution:**

**Correct Answer : 2413**

'Former' and 'latter' make 41 a mandatory pair. Both these sentences talk about the difference between a supercomputer and a quantum computer. So, 241 is a mandatory sequence.

3 has to come the end. It gives a conclusion about the difference observed in the preceding sentences. So, 2413 is the correct sequence.

**FeedBack**

 **Bookmark**

 **Answer key/Solution**

**Q.34**

**Directions for question (34):** The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. Lowering the temperature both at the surface and in the interior means reducing more of the weights.
2. This switch is a phase transition analogous to the freezing of water.
3. As the deep temperature is lowered, DeGiuli sees an abrupt switch from context-free grammars that are random and disorderly to ones that have high information content.
4. He thinks that something like this switch may explain why, at a certain stage of development, a child learns very quickly how to construct grammatical sentences.

**Solution:**

**Correct Answer : 1324**

'This switch' in 2 and 4 refer to 3 which introduces 'an abrupt switch'. So, 324 or 342 is a possible sequence. As 4 refers to a consequence of the switch of the interpretation made by the researcher, 324 is the correct sequence. 2 doesn't make sense after 4.

1 has to be the opening sentence. 3 talks about an impact of the experiment mentioned in 1. So, 1324 is the correct sequence.

**FeedBack**

 **Bookmark**

 **Answer key/Solution**

## Sec 2

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

An online poll was conducted among the English Premier League (EPL) fans about their affinity towards EPL clubs in the 2019-20 season. These fans supported three clubs: Chelsea, Liverpool, and Manchester City. Total number of fans who participated in this survey were 1384.

Following findings were observed after the analysis of the poll:

- i. The ratio of fans who supported only Chelsea and Liverpool, only Chelsea and Manchester City, only Manchester City and Liverpool and all the three clubs was  $2 : 3 : 5 : 7$ .
- ii. The ratio of the fans who supported both Chelsea and Liverpool but not Manchester City and those who supported only Manchester City was  $4 : 7$ .
- iii. The ratio of the fans who supported both Chelsea and Manchester City but not Liverpool and those who supported only Liverpool was  $3 : 5$ .
- iv. The ratio of the fans who supported both Manchester City and Liverpool but not Chelsea and those who supported only Chelsea was  $3 : 2$ .

**Q.35**

Find the number of fans who supported all three clubs.

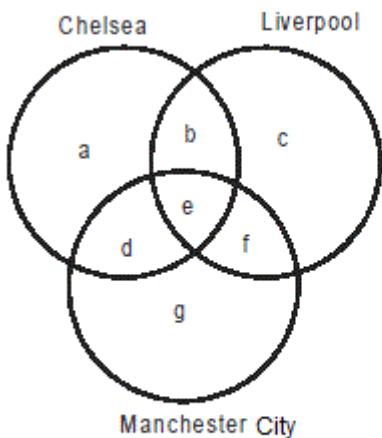
**Solution:**

Correct Answer : 336

 **Bookmark**

 **Answer key/Solution**

Consider the following venn diagram,



According to statement i,

$b : d : f : e = 2 : 3 : 5 : 7$ , so for some  $x$ , we can express the values of the variable as,  $2x$ ,  $3x$ ,  $5x$  and  $7x$ .

$$\text{From statement ii, } \frac{b}{g} = \frac{4}{7} \Rightarrow g = \frac{7x}{2}$$

$$\text{From statement iii, } \frac{d}{c} = \frac{3}{5} \Rightarrow c = 5x$$

$$\text{From statement iv, } \frac{f}{a} = \frac{3}{2} \Rightarrow a = \frac{10x}{3}$$

Total number of students = 1384

Therefore,

$$a + b + c + d + e + f + g = 1384$$

$$2x + 3x + 5x + 7x + \frac{7x}{2} + 5x + \frac{10x}{3} = 1384$$

$$\therefore x = 48$$

The fans who supported all three clubs =  $f = 7x = 336$

FeedBack

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

An online poll was conducted among the English Premier League (EPL) fans about their affinity towards EPL clubs in the 2019-20 season. These fans supported three clubs: Chelsea, Liverpool, and Manchester City. Total number of fans who participated in this survey were 1384.

Following findings were observed after the analysis of the poll:

- i. The ratio of fans who supported only Chelsea and Liverpool, only Chelsea and Manchester City, only Manchester City and Liverpool and all the three clubs was 2 : 3 : 5 : 7.
- ii. The ratio of the fans who supported both Chelsea and Liverpool but not Manchester City and those who supported only Manchester City was 4 : 7.
- iii. The ratio of the fans who supported both Chelsea and Manchester City but not Liverpool and those who supported only Liverpool was 3 : 5.
- iv. The ratio of the fans who supported both Manchester City and Liverpool but not Chelsea and those who supported only Chelsea was 3 : 2.

#### **Q.36**

**Find the number of fans who supported only one club.**

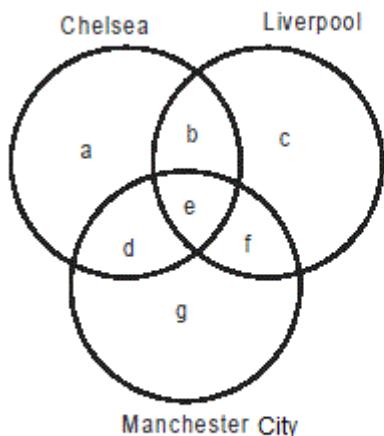
**Solution:**

**Correct Answer : 568**

 **Bookmark**

 **Answer key/Solution**

Consider the following venn diagram,



According to statement i,

$b : d : f : e = 2 : 3 : 5 : 7$ , so for some  $x$ , we can express the values of the variable as,  $2x$ ,  $3x$ ,  $5x$  and  $7x$ .

$$\text{From statement ii, } \frac{b}{g} = \frac{4}{7} \Rightarrow g = \frac{7x}{2}$$

$$\text{From statement iii, } \frac{d}{c} = \frac{3}{5} \Rightarrow c = 5x$$

$$\text{From statement iv, } \frac{f}{a} = \frac{3}{2} \Rightarrow a = \frac{10x}{3}$$

Total number of students = 1384

Therefore,

$$a + b + c + d + e + f + g = 1384$$

$$2x + 3x + 5x + 7x + \frac{7x}{2} + 5x + \frac{10x}{3} = 1384$$

$$\therefore x = 48$$

The number of fans who supported only one club =  $a + c + g = 568$

FeedBack

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

An online poll was conducted among the English Premier League (EPL) fans about their affinity towards EPL clubs in the 2019-20 season. These fans supported three clubs: Chelsea, Liverpool, and Manchester City. Total number of fans who participated in this survey were 1384.

Following findings were observed after the analysis of the poll:

- i. The ratio of fans who supported only Chelsea and Liverpool, only Chelsea and Manchester City, only Manchester City and Liverpool and all the three clubs was 2 : 3 : 5 : 7.
- ii. The ratio of the fans who supported both Chelsea and Liverpool but not Manchester City and those who supported only Manchester City was 4 : 7.
- iii. The ratio of the fans who supported both Chelsea and Manchester City but not Liverpool and those who supported only Liverpool was 3 : 5.
- iv. The ratio of the fans who supported both Manchester City and Liverpool but not Chelsea and those who supported only Chelsea was 3 : 2.

#### **Q.37**

**What is the absolute difference between the number of fans who supported both Chelsea and Manchester City and both Manchester City and Liverpool?**

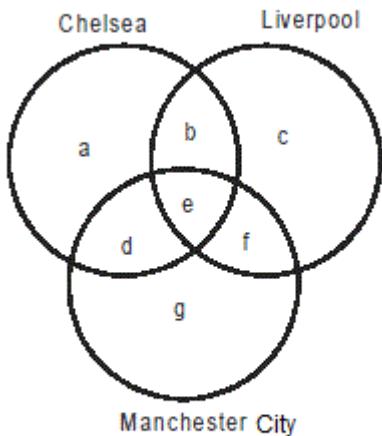
**Solution:**

**Correct Answer : 96**

 **Bookmark**

 **Answer key/Solution**

Consider the following venn diagram,



According to statement i,

$b : d : f : e = 2 : 3 : 5 : 7$ , so for some  $x$ , we can express the values of the variable as,  $2x$ ,  $3x$ ,  $5x$  and  $7x$ .

$$\text{From statement ii, } \frac{b}{g} = \frac{4}{7} \Rightarrow g = \frac{7x}{2}$$

$$\text{From statement iii, } \frac{d}{c} = \frac{3}{5} \Rightarrow c = 5x$$

$$\text{From statement iv, } \frac{f}{a} = \frac{3}{2} \Rightarrow a = \frac{10x}{3}$$

Total number of students = 1384

Therefore,

$$a + b + c + d + e + f + g = 1384$$

$$2x + 3x + 5x + 7x + \frac{7x}{2} + 5x + \frac{10x}{3} = 1384$$

$$\therefore x = 48$$

The absolute difference between the number of fans who supported both Chelsea and Manchester City and both Manchester City and Liverpool is 96.

**FeedBack**

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

An online poll was conducted among the English Premier League (EPL) fans about their affinity towards EPL clubs in the 2019-20 season. These fans supported three clubs: Chelsea, Liverpool, and Manchester City. Total number of fans who participated in this survey were 1384.

Following findings were observed after the analysis of the poll:

- i. The ratio of fans who supported only Chelsea and Liverpool, only Chelsea and Manchester City, only Manchester City and Liverpool and all the three clubs was 2 : 3 : 5 : 7.
- ii. The ratio of the fans who supported both Chelsea and Liverpool but not Manchester City and those who supported only Manchester City was 4 : 7.
- iii. The ratio of the fans who supported both Chelsea and Manchester City but not Liverpool and those who supported only Liverpool was 3 : 5.
- iv. The ratio of the fans who supported both Manchester City and Liverpool but not Chelsea and those who supported only Chelsea was 3 : 2.

#### **Q.38**

If half of the fans who supported only Chelsea start supporting only Liverpool, then what is the difference between the fans who supported Liverpool and the fans who supported only Manchester City?

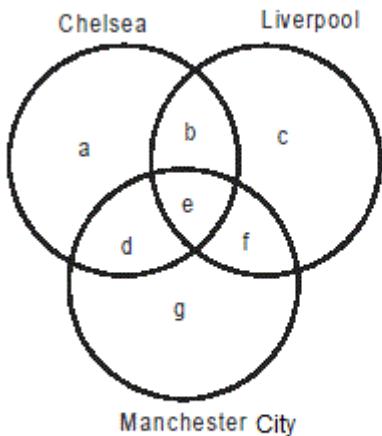
**Solution:**

**Correct Answer : 824**

 **Bookmark**

 **Answer key/Solution**

Consider the following venn diagram,



According to statement i,

$b : d : f : e = 2 : 3 : 5 : 7$ , so for some  $x$ , we can express the values of the variable as,  $2x$ ,  $3x$ ,  $5x$  and  $7x$ .

$$\text{From statement ii, } \frac{b}{g} = \frac{4}{7} \Rightarrow g = \frac{7x}{2}$$

$$\text{From statement iii, } \frac{d}{c} = \frac{3}{5} \Rightarrow c = 5x$$

$$\text{From statement iv, } \frac{f}{a} = \frac{3}{2} \Rightarrow a = \frac{10x}{3}$$

Total number of students = 1384

Therefore,

$$a + b + c + d + e + f + g = 1384$$

$$2x + 3x + 5x + 7x + \frac{7x}{2} + 5x + \frac{10x}{3} = 1384$$

$$\therefore x = 48$$

If half of the fans who supported only Chelsea start supporting only Liverpool, then the difference between the fans who supported Liverpool and the fans who supported only Manchester City is 824.

FeedBack

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

In a recent Interschool cricket tournament the team from KV Saharanpur played three matches – I, II and III - against three different teams and won them. Six of their batsmen – A, B, C, D, E and F - performed extremely well and the coach is planning for a rigorous training camp prior to the next tournament. He has the following score cards for the three matches that they won. It shows the runs scored by four of the six batsmen and the percentage of total runs scored by the four of them in the match. No two players score the same number of runs in the same match and none of these players scored less than 15 runs in any match. The coach calculates two indices for these top six batsmen. The D index = Difference between the highest and second highest score scored by a batsman in the three matches. Also the A index = Average runs scored by a batsman in the three matches.

A - 60	F - 40
80%	
D - 50	C - 90

Match I

A - 75	D - 49
90%	
B - 100	E - 55

Match II

C - 45	B - 52
70%	
E - 60	F - 74

Match III

**Q.39**

For how many players is it possible to calculate the exact D-Index?

- 1  Three
- 2  Four
- 3  Two
- 4  None of these

**Solution:****Correct Answer : 2****Bookmark****Answer key/Solution**

Player	Match I	Match II	Match III	D-Index	A-index(min)	A-Index(max)
A	60	75	-	-	$\frac{60+75+15}{3} = 50$	$\frac{60+75+84}{3} = 73$
B	-	100	52	$100 - 52 = 48$	$\frac{15+100+52}{3} = 55.66$	$\frac{45+100+52}{3} = 65.66$
C	90	-	45	$90 - 45 = 45$	$\frac{90+15+45}{3} = 50$	$\frac{90+16+45}{3} = 50.33$
D	50	49	-	-	$\frac{50+49+15}{3} = 38$	$\frac{50+49+84}{3} = 61$
E	-	55	60	$60 - 55 = 5$	$\frac{15+55+60}{3} = 43.33$	$\frac{45+55+60}{3} = 53.33$
F	40	-	74	$74 - 40 = 34$	$\frac{40+15+74}{3} = 43$	$\frac{40+16+74}{3} = 43.33$
	80% of total = 240	90% of total = 279	70% of total = 231			
Total score	300	310	330			
Remaining runs	$300 - 240 = 60$	$310 - 279 = 31$	$330 - 231 = 99$			

∴ Sum of runs scored by A and D in match III is 99 and no player scored less than 15 runs in any match.

∴ The scores of A and D in match III can be any value from 15 to 84. So, we cannot find exact highest and second highest score of these two players in the three matches. Hence, the D index of A and D cannot be exactly calculated. For all the four other players, the highest and second highest scores are the ones that are shown in the table.

**FeedBack**

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

In a recent Interschool cricket tournament the team from KV Saharanpur played three matches – I, II and III - against three different teams and won them. Six of their batsmen – A, B, C, D, E and F - performed extremely well and the coach is planning for a rigorous training camp prior to the next tournament. He has the following score cards for the three matches that they won. It shows the runs scored by four of the six batsmen and the percentage of total runs scored by the four of them in the match. No two players score the same number of runs in the same match and none of these players scored less than 15 runs in any match. The coach calculates two indices for these top six batsmen. The D index = Difference between the highest and second highest score scored by a batsman in the three matches. Also the A index = Average runs scored by a batsman in the three matches.

A - 60	F - 40
80%	
D - 50	C - 90

A - 75	D - 49
90%	
B - 100	E - 55

C - 45	B - 52
70%	
E - 60	F - 74

Match I

Match II

Match III

**Q.40**

**Among the players mentioned, who cannot have the lowest A-index?**

1  E

2  F

3  B

4  D

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

Player	Match I	Match II	Match III	D-Index	A-index(min)	A-Index(max)
A	60	75	-	-	$\frac{60+75+15}{3} = 50$	$\frac{60+75+84}{3} = 73$
B	-	100	52	$100 - 52 = 48$	$\frac{15+100+52}{3} = 55.66$	$\frac{45+100+52}{3} = 65.66$
C	90	-	45	$90 - 45 = 45$	$\frac{90+15+45}{3} = 50$	$\frac{90+16+45}{3} = 50.33$
D	50	49	-	-	$\frac{50+49+15}{3} = 38$	$\frac{50+49+84}{3} = 61$
E	-	55	60	$60 - 55 = 5$	$\frac{15+55+60}{3} = 43.33$	$\frac{45+55+60}{3} = 53.33$
F	40	-	74	$74 - 40 = 34$	$\frac{40+15+74}{3} = 43$	$\frac{40+16+74}{3} = 43.33$
	80% of total = 240	90% of total = 279	70% of total = 231			
Total score	300	310	330			
Remaining runs	$300 - 240 = 60$	$310 - 279 = 31$	$330 - 231 = 99$			

The minimum A - index possible for player B is 55.66 which is greater than maximum A-index possible for player E (i.e., 53.33) and player F (i.e., 43.33) each. So, player B cannot have the lowest A-index.

**FeedBack**

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

In a recent Interschool cricket tournament the team from KV Saharanpur played three matches – I, II and III - against three different teams and won them. Six of their batsmen – A, B, C, D, E and F - performed extremely well and the coach is planning for a rigorous training camp prior to the next tournament. He has the following score cards for the three matches that they won. It shows the runs scored by four of the six batsmen and the percentage of total runs scored by the four of them in the match. No two players score the same number of runs in the same match and none of these players scored less than 15 runs in any match. The coach calculates two indices for these top six batsmen. The D index = Difference between the highest and second highest score scored by a batsman in the three matches. Also the A index = Average runs scored by a batsman in the three matches.

A - 60	F - 40
80%	
D - 50	C - 90

Match I

A - 75	D - 49
90%	
B - 100	E - 55

Match II

C - 45	B - 52
70%	
E - 60	F - 74

Match III

**Q.41**

**How many players among these six listed definitely had a total score that was less than A's total score in the tournament?**

1  02  13  24  More than 2

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

Player	Match I	Match II	Match III	D-Index	A-index(min)	A-Index(max)
A	60	75	-	-	$\frac{60+75+15}{3} = 50$	$\frac{60+75+84}{3} = 73$
B	-	100	52	$100 - 52 = 48$	$\frac{15+100+52}{3} = 55.66$	$\frac{45+100+52}{3} = 65.66$
C	90	-	45	$90 - 45 = 45$	$\frac{90+15+45}{3} = 50$	$\frac{90+16+45}{3} = 50.33$
D	50	49	-	-	$\frac{50+49+15}{3} = 38$	$\frac{50+49+84}{3} = 61$
E	-	55	60	$60 - 55 = 5$	$\frac{15+55+60}{3} = 43.33$	$\frac{45+55+60}{3} = 53.33$
F	40	-	74	$74 - 40 = 34$	$\frac{40+15+74}{3} = 43$	$\frac{40+16+74}{3} = 43.33$
	80% of total = 240	90% of total = 279	70% of total = 231			
Total score	300	310	330			
Remaining runs	$300 - 240 = 60$	$310 - 279 = 31$	$330 - 231 = 99$			

To find the number of players who definitely had a total score that was less than A's total score, we have to take the minimum possible score of A and maximum possible scores of remaining players.

Minimum possible total score of A =  $60 + 75 + 15 = 150$

Maximum possible total score of B =  $45 + 100 + 52 = 197$

Maximum possible total score of C =  $90 + 16 + 45 = 151$

Maximum possible total score of D =  $50 + 49 + 84 = 183$

Maximum possible total score of E =  $45 + 55 + 60 = 160$

Maximum possible total score of F =  $40 + 16 + 74 = 130$ .

It is clear that player 'F' definitely scored less than A in the tournament.

 **FeedBack**

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

In a recent Interschool cricket tournament the team from KV Saharanpur played three matches – I, II and III - against three different teams and won them. Six of their batsmen – A, B, C, D, E and F - performed extremely well and the coach is planning for a rigorous training camp prior to the next tournament. He has the following score cards for the three matches that they won. It shows the runs scored by four of the six batsmen and the percentage of total runs scored by the four of them in the match. No two players score the same number of runs in the same match and none of these players scored less than 15 runs in any match. The coach calculates two indices for these top six batsmen. The D index = Difference between the highest and second highest score scored by a batsman in the three matches. Also the A index = Average runs scored by a batsman in the three matches.

A - 60	F - 40
80%	
D - 50	C - 90

Match I

A - 75	D - 49
90%	
B - 100	E - 55

Match II

C - 45	B - 52
70%	
E - 60	F - 74

Match III

#### Q.42

For which players is the difference between the maximum and minimum values of A-index the lowest?

1  Only C

2  Both F and C

3  Both D and E

4  Only F

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

Player	Match I	Match II	Match III	D-Index	A-index(min)	A-Index(max)
A	60	75	-	-	$\frac{60+75+15}{3} = 50$	$\frac{60+75+84}{3} = 73$
B	-	100	52	$100 - 52 = 48$	$\frac{15+100+52}{3} = 55.66$	$\frac{45+100+52}{3} = 65.66$
C	90	-	45	$90 - 45 = 45$	$\frac{90+15+45}{3} = 50$	$\frac{90+16+45}{3} = 50.33$
D	50	49	-	-	$\frac{50+49+15}{3} = 38$	$\frac{50+49+84}{3} = 61$
E	-	55	60	$60 - 55 = 5$	$\frac{15+55+60}{3} = 43.33$	$\frac{45+55+60}{3} = 53.33$
F	40	-	74	$74 - 40 = 34$	$\frac{40+15+74}{3} = 43$	$\frac{40+16+74}{3} = 43.33$
	80% of total = 240	90% of total = 279	70% of total = 231			
Total score	300	310	330			
Remaining runs	$300 - 240 = 60$	$310 - 279 = 31$	$330 - 231 = 99$			

From the table, it is clear that difference between the maximum and minimum values of A-index is lowest for player C and F both.

**FeedBack**

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

Four speakers - Arunima, Kaustuv, George and Faulkner were invited to deliver sessions in a four-day summit organized by ICT to promote sustainability in marketing under which four topics viz. Consumer-oriented marketing, Consumer-value marketing, Innovative marketing and Societal marketing were covered. Each speaker was expert in exactly one topic out of those four, in any order. All topics were discussed atleast once by the expert on each day. Each speaker must deliver session (s) on one more topic in which he/she was not expert but just comfortable. No speaker delivered more than six sessions during the summit. The table given below depicts the partial information regarding the number of sessions delivered on a topic during the four-day summit.

Topic \ Day	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Consumer-oriented marketing	3		1	
Consumer-value marketing		4		
Innovative marketing				
Societal marketing	3			

The additional information is as below:-

- (I) The number of session delivered on Consumer- oriented marketing and Consumer-value marketing were equal to each other.
- (II) On 4th day, two sessions were delivered by Kaustuv on the topic in which he was expert.
- (III) George, an expert in Societal marketing was not just comfortable in Consumer-value marketing.

#### Q.43

If the number of sessions delivered by Arunima and Faulkner on the topic in which they were just comfortable, were equal then, the topic in which Kaustuv was just comfortable was

- 1  Consumer-value marketing
- 2  Innovative marketing
- 3  Societal marketing
- 4  Either (1) or (3)

**Solution:**

**Correct Answer : 1**

 **Bookmark**

 **Answer key/Solution**

Maximum number of sessions =  $6 \times 4 = 24$

As all topics were discussed at least once by the expert on each day and as per statement II, on 4th day two sessions were delivered on a topic by the expert, we may therefore conclude that total sessions must be equal to 24 and all blank spaces in the table given in the question must be filled with 1, except the number of sessions delivered on consumer oriented marketing on day 4. [Note:- From statement I and II, we can conclude that two sessions were delivered by the expert on the topic consumer oriented marketing.]

Now, we have the following table:-

Topic \ Day	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Consumer-oriented marketing	3	1	1	2
Consumer-value marketing	1	4	1	1
Innovative marketing	1	1	1	1
Societal marketing	3	1	1	1

[Note:- Each speaker must deliver 6 sessions during the summit from statement III; George must be just comfortable in consumer-oriented marketing as each speaker must deliver session(s) on one more topic.

Now, we can observe that expert in customer oriented marketing must deliver exactly one session on the topic in which he/she was just comfortable. Similarly, expert in innovative marketing must deliver two sessions on the topic in which he/she was just comfortable. From statement II, we can conclude that Kaustuv was expert in consumer-oriented marketing. If only one session was delivered on any topic on any day then that must be delivered by the expert in that topic only. It may also be concluded that Kaustuv had delivered two sessions on customer-oriented marketing on day 4. Further analysis leads to the following cases:-

**Case I:-** Out of three sessions delivered on Customer-oriented marketing (COM) on day 1; one session was delivered by Kaustuv and two sessions were delivered by George. Out of 4 sessions delivered on Consumer-value marketing (CVM) on day 2, two sessions were delivered by expert i.e., either Arunima/Faulkner and other two sessions were delivered by Faulkner/Arunima. Out of 3 session delivered on Societal marketing (SM) on day 1; one session was delivered by expert i.e., George one by Arunima/Faulkner and one by kaustuv. Case I may be represented as below:-

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	CVM (5 sessions)	1 session (SM)
George	SM (4 sessions)	2 sessions (COM)
Kaustuv	COM (5 sessions)	1 session (SM)
Faulkner/Arunima	IM (4 sessions)	2 sessions (CVM)

Hence, two sub cases are possible from here.

Similarly; **Case II:-**

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	IM (4 sessions)	2 sessions (CVM)
George	SM (4 sessions)	2 sessions (COM)
Kaustuv	COM (5 sessions)	1 session (CVM)
Faulkner/Arunima	CVM (4 sessions)	2 sessions (SM)

Hence, two sub cases are possible from here.

**Case III;**

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	CVM (5 sessions)	1 session (COM)
George	SM (5 sessions)	1 session (COM)
Kaustuv	COM (5 sessions)	1 session (SM)
Faulkner/Arunima	IM (4 sessions)	2 sessions (CVM)

Hence, two sub cases are possible from here.

This situation is same as Case II. Hence, Kaustuv was just comfortable in Consumer-value marketing.

FeedBack

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

Four speakers - Arunima, Kaustuv, George and Faulkner were invited to deliver sessions in a four-day summit organized by ICT to promote sustainability in marketing under which four topics viz. Consumer-oriented marketing, Consumer-value marketing, Innovative marketing and Societal marketing were covered. Each speaker was expert in exactly one topic out of those four, in any order. All topics were discussed atleast once by the expert on each day. Each speaker must deliver session (s) on one more topic in which he/she was not expert but just comfortable. No speaker delivered more than six sessions during the summit. The table given below depicts the partial information regarding the number of sessions delivered on a topic during the four-day summit.

Topic \ Day	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Consumer-oriented marketing	3		1	
Consumer-value marketing		4		
Innovative marketing				
Societal marketing	3			

The additional information is as below:-

- (I) The number of session delivered on Consumer- oriented marketing and Consumer-value marketing were equal to each other.
- (II) On 4th day, two sessions were delivered by Kaustuv on the topic in which he was expert.
- (III) George, an expert in Societal marketing was not just comfortable in Consumer-value marketing.

#### Q.44

How many combinations are possible in which speakers would have delivered sessions in the summit?

1  2

2  3

3  4

4  6

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

Maximum number of sessions =  $6 \times 4 = 24$

As all topics were discussed at least once by the expert on each day and as per statement II, on 4th day two sessions were delivered on a topic by the expert, we may therefore conclude that total sessions must be equal to 24 and all blank spaces in the table given in the question must be filled with 1, except the number of sessions delivered on consumer oriented marketing on day 4. [Note:- From statement I and II, we can conclude that two sessions were delivered by the expert on the topic consumer oriented marketing.]

Now, we have the following table:-

Topic \ Day	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Consumer-oriented marketing	3	1	1	2
Consumer-value marketing	1	4	1	1
Innovative marketing	1	1	1	1
Societal marketing	3	1	1	1

[Note:- Each speaker must deliver 6 sessions during the summit from statement III; George must be just comfortable in consumer-oriented marketing as each speaker must deliver session(s) on one more topic.

Now, we can observe that expert in customer oriented marketing must deliver exactly one session on the topic in which he/she was just comfortable. Similarly, expert in innovative marketing must deliver two sessions on the topic in which he/she was just comfortable. From statement II, we can conclude that Kaustuv was expert in consumer-oriented marketing. If only one session was delivered on any topic on any day then that must be delivered by the expert in that topic only. It may also be concluded that Kaustuv had delivered two sessions on customer-oriented marketing on day 4. Further analysis leads to the following cases:-

**Case I:-** Out of three sessions delivered on Customer-oriented marketing (COM) on day 1; one session was delivered by Kaustuv and two sessions were delivered by George. Out of 4 sessions delivered on Consumer-value marketing (CVM) on day 2, two sessions were delivered by expert i.e., either Arunima/Faulkner and other two sessions were delivered by Faulkner/Arunima. Out of 3 session delivered on Societal marketing (SM) on day 1; one session was delivered by expert i.e., George one by Arunima/Faulkner and one by kaustuv. Case I may be represented as below:-

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	CVM (5 sessions)	1 session (SM)
George	SM (4 sessions)	2 sessions (COM)
Kaustuv	COM (5 sessions)	1 session (SM)
Faulkner/Arunima	IM (4 sessions)	2 sessions (CVM)

Hence, two sub cases are possible from here.

Similarly; **Case II:-**

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	IM (4 sessions)	2 sessions (CVM)
George	SM (4 sessions)	2 sessions (COM)
Kaustuv	COM (5 sessions)	1 session (CVM)
Faulkner/Arunima	CVM (4 sessions)	2 sessions (SM)

Hence, two sub cases are possible from here.

**Case III;**

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	CVM (5 sessions)	1 session (COM)
George	SM (5 sessions)	1 session (COM)
Kaustuv	COM (5 sessions)	1 session (SM)
Faulkner/Arunima	IM (4 sessions)	2 sessions (CVM)

Hence, two sub cases are possible from here.

As shown there are total 6 possible cases.

FeedBack

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

Four speakers - Arunima, Kaustuv, George and Faulkner were invited to deliver sessions in a four-day summit organized by ICT to promote sustainability in marketing under which four topics viz. Consumer-oriented marketing, Consumer-value marketing, Innovative marketing and Societal marketing were covered. Each speaker was expert in exactly one topic out of those four, in any order. All topics were discussed atleast once by the expert on each day. Each speaker must deliver session (s) on one more topic in which he/she was not expert but just comfortable. No speaker delivered more than six sessions during the summit. The table given below depicts the partial information regarding the number of sessions delivered on a topic during the four-day summit.

Topic \ Day	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Topic				
Consumer-oriented marketing	3		1	
Consumer-value marketing		4		
Innovative marketing				
Societal marketing	3			

The additional information is as below:-

- (I) The number of session delivered on Consumer- oriented marketing and Consumer-value marketing were equal to each other.
- (II) On 4th day, two sessions were delivered by Kaustuv on the topic in which he was expert.
- (III) George, an expert in Societal marketing was not just comfortable in Consumer-value marketing.

#### Q.45

Which of the following statements must not be true?

- 1  Kaustuv might be just comfortable in either Consumer-value marketing or Societal marketing.
- 2  Arunima might deliver two sessions out of four in which she was just comfortable.
- 3  Faulkner had delivered two sessions on Societal marketing.
- 4  Each of Faulkner and Arunima had delivered two sessions on Consumer-oriented marketing.

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

Maximum number of sessions =  $6 \times 4 = 24$

As all topics were discussed at least once by the expert on each day and as per statement II, on 4th day two sessions were delivered on a topic by the expert, we may therefore conclude that total sessions must be equal to 24 and all blank spaces in the table given in the question must be filled with 1, except the number of sessions delivered on consumer oriented marketing on day 4. [Note:- From statement I and II, we can conclude that two sessions were delivered by the expert on the topic consumer oriented marketing.]

Now, we have the following table:-

Topic \ Day	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Consumer-oriented marketing	3	1	1	2
Consumer-value marketing	1	4	1	1
Innovative marketing	1	1	1	1
Societal marketing	3	1	1	1

[Note:- Each speaker must deliver 6 sessions during the summit from statement III; George must be just comfortable in consumer-oriented marketing as each speaker must deliver session(s) on one more topic.

Now, we can observe that expert in customer oriented marketing must deliver exactly one session on the topic in which he/she was just comfortable. Similarly, expert in innovative marketing must deliver two sessions on the topic in which he/she was just comfortable. From statement II, we can conclude that Kaustuv was expert in consumer-oriented marketing. If only one session was delivered on any topic on any day then that must be delivered by the expert in that topic only. It may also be concluded that Kaustuv had delivered two sessions on customer-oriented marketing on day 4. Further analysis leads to the following cases:-

**Case I:-** Out of three sessions delivered on Customer-oriented marketing (COM) on day 1; one session was delivered by Kaustuv and two sessions were delivered by George. Out of 4 sessions delivered on Consumer-value marketing (CVM) on day 2, two sessions were delivered by expert i.e., either Arunima/Faulkner and other two sessions were delivered by Faulkner/Arunima. Out of 3 session delivered on Societal marketing (SM) on day 1; one session was delivered by expert i.e., George one by Arunima/Faulkner and one by kaustuv. Case I may be represented as below:-

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	CVM (5 sessions)	1 session (SM)
George	SM (4 sessions)	2 sessions (COM)
Kaustuv	COM (5 sessions)	1 session (SM)
Faulkner/Arunima	IM (4 sessions)	2 sessions (CVM)

Hence, two sub cases are possible from here.

Similarly; **Case II:-**

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	IM (4 sessions)	2 sessions (CVM)
George	SM (4 sessions)	2 sessions (COM)
Kaustuv	COM (5 sessions)	1 session (CVM)
Faulkner/Arunima	CVM (4 sessions)	2 sessions (SM)

Hence, two sub cases are possible from here.

**Case III;**

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	CVM (5 sessions)	1 session (COM)
George	SM (5 sessions)	1 session (COM)
Kaustuv	COM (5 sessions)	1 session (SM)
Faulkner/Arunima	IM (4 sessions)	2 sessions (CVM)

Hence, two sub cases are possible from here.

Statement (4) is incorrect.

FeedBack

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

Four speakers - Arunima, Kaustuv, George and Faulkner were invited to deliver sessions in a four-day summit organized by ICT to promote sustainability in marketing under which four topics viz. Consumer-oriented marketing, Consumer-value marketing, Innovative marketing and Societal marketing were covered. Each speaker was expert in exactly one topic out of those four, in any order. All topics were discussed atleast once by the expert on each day. Each speaker must deliver session (s) on one more topic in which he/she was not expert but just comfortable. No speaker delivered more than six sessions during the summit. The table given below depicts the partial information regarding the number of sessions delivered on a topic during the four-day summit.

Topic \ Day	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Topic				
Consumer-oriented marketing	3		1	
Consumer-value marketing		4		
Innovative marketing				
Societal marketing	3			

The additional information is as below:-

- (I) The number of session delivered on Consumer- oriented marketing and Consumer-value marketing were equal to each other.
- (II) On 4th day, two sessions were delivered by Kaustuv on the topic in which he was expert.
- (III) George, an expert in Societal marketing was not just comfortable in Consumer-value marketing.

#### Q.46

How many speaker (s) could have delivered more than one session on the topic in which he/they was/were just comfortable?

1

2

3

4

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

Maximum number of sessions =  $6 \times 4 = 24$

As all topics were discussed at least once by the expert on each day and as per statement II, on 4th day two sessions were delivered on a topic by the expert, we may therefore conclude that total sessions must be equal to 24 and all blank spaces in the table given in the question must be filled with 1, except the number of sessions delivered on consumer oriented marketing on day 4. [Note:- From statement I and II, we can conclude that two sessions were delivered by the expert on the topic consumer oriented marketing.]

Now, we have the following table:-

Topic \ Day	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Consumer-oriented marketing	3	1	1	2
Consumer-value marketing	1	4	1	1
Innovative marketing	1	1	1	1
Societal marketing	3	1	1	1

[Note:- Each speaker must deliver 6 sessions during the summit from statement III; George must be just comfortable in consumer-oriented marketing as each speaker must deliver session(s) on one more topic.

Now, we can observe that expert in customer oriented marketing must deliver exactly one session on the topic in which he/she was just comfortable. Similarly, expert in innovative marketing must deliver two sessions on the topic in which he/she was just comfortable. From statement II, we can conclude that Kaustuv was expert in consumer-oriented marketing. If only one session was delivered on any topic on any day then that must be delivered by the expert in that topic only. It may also be concluded that Kaustuv had delivered two sessions on customer-oriented marketing on day 4. Further analysis leads to the following cases:-

**Case I:-** Out of three sessions delivered on Customer-oriented marketing (COM) on day 1; one session was delivered by Kaustuv and two sessions were delivered by George. Out of 4 sessions delivered on Consumer-value marketing (CVM) on day 2, two sessions were delivered by expert i.e., either Arunima/Faulkner and other two sessions were delivered by Faulkner/Arunima. Out of 3 session delivered on Societal marketing (SM) on day 1; one session was delivered by expert i.e., George one by Arunima/Faulkner and one by kaustuv. Case I may be represented as below:-

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	CVM (5 sessions)	1 session (SM)
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Kaustuv	COM (5 sessions)	1 session (SM)
Faulkner/Arunima	IM (4 sessions)	2 sessions (CVM)

Hence, two sub cases are possible from here.

Similarly; **Case II:-**

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	IM (4 sessions)	2 sessions (CVM)
George	SM (4 sessions)	2 sessions (COM)
Kaustuv	COM (5 sessions)	1 session (CVM)
Faulkner/Arunima	CVM (4 sessions)	2 sessions (SM)

Hence, two sub cases are possible from here.

**Case III;**

Expert	Topic of expertise	Topic of comfort
Arunima/Faulkner	CVM (5 sessions)	1 session (COM)
George	SM (5 sessions)	1 session (COM)
Kaustuv	COM (5 sessions)	1 session (SM)
Faulkner/Arunima	IM (4 sessions)	2 sessions (CVM)

Hence, two sub cases are possible from here.

Only Kaustuv must deliver only one session on the topic in which s/he was just comfortable. All three others could have delivered more than one session on topics they were just comfortable in.

FeedBack

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

**A company generated a series of five-digit employee code for their new joinees in accordance with the following rules:**

The codes use the digits 0, 1, 3, 6, and 9, and no others.

- Each digit occurs exactly once in any code.
- The second digit has a value exactly thrice that of the first digit.
- The value of the third digit is less than the value of the fifth digit.

#### **Q.47**

If digit 1 appears in some position before the digit 6, then how many of the following statements can be true?

- (I) Fifth digit is either 9 or 6.
- (II) At most five codes will be generated.
- (III) There are at most two digits between the digit 1 and the digit 9.

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

The code of five digits that is, A B C D E, where (D, E) can take values of either (3, 1) or (9, 3).

And since, value of third is less than the value of fifth digit, therefore, A cannot be 0.

Case 1: if (D, E) = (3, 1), then possible combinations for (A, B, C) are:

- (9, 6, 0)
- (6, 9, 0)
- (9, 0, 6)

Case 2: if (D, E) = (9, 3), then possible combinations for (A, B, C) are:

- (6, 1, 0)
- (1, 6, 0)
- (6, 0, 1)

If digit 1 appears in some position before 6, then

**Statement I:** Fifth digit is either 9 or 6, can be true.

**Statement II:** At most five codes will be generated, can be true.

**Statement III:** In case 1, there are 3 digits between 9 and 1, so not true.

**FeedBack**

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

**A company generated a series of five-digit employee code for their new joinees in accordance with the following rules:**

The codes use the digits 0, 1, 3, 6, and 9, and no others.

- Each digit occurs exactly once in any code.
- The second digit has a value exactly thrice that of the first digit.
- The value of the third digit is less than the value of the fifth digit.

**Q.48**

If the third digit of an acceptable employee code is not 0, which one of the following must be true?

- 1  The second digit of the employee code is 3.
- 2  The third digit of the employee code is 6.
- 3  The fourth digit of the employee code is 0.
- 4  The fifth digit of the employee code is 6.

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

The code of five digits that is, A B C D E, where (D, E) can take values of either (3, 1) or (9, 3).

And since, value of third is less than the value of fifth digit, therefore, A cannot be 0.

Case 1: if (D, E) = (3, 1), then possible combinations for (A, B, C) are:

- (9, 6, 0)
- (6, 9, 0)
- (9, 0, 6)

Case 2: if (D, E) = (9, 3), then possible combinations for (A, B, C) are:

- (6, 1, 0)
- (1, 6, 0)
- (6, 0, 1)

If the third digit of an acceptable employee code is not 0, then option 3, that is, fourth digit of the employee code will be 0, must be true.

**FeedBack**

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

**A company generated a series of five-digit employee code for their new joinees in accordance with the following rules:**

**The codes use the digits 0, 1, 3, 6, and 9, and no others.**

- **Each digit occurs exactly once in any code.**
- **The second digit has a value exactly thrice that of the first digit.**
- **The value of the third digit is less than the value of the fifth digit.**

**Q.49**

**Any of the following pairs could be the third and fourth digits, respectively, of an acceptable employee code, EXCEPT:**

- 1  0, 1
- 2  0, 6

3  6, 04  6, 9**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**

The code of five digits that is, A B C D E, where (D, E) can take values of either (3, 1) or (9, 3).

And since, value of third is less than the value of fifth digit, therefore, A cannot be 0.

Case 1: if (D, E) = (3, 1), then possible combinations for (A, B, C) are:

(9, 6, 0)

(6, 9, 0)

(9, 0, 6)

Case 2: if (D, E) = (9, 3), then possible combinations for (A, B, C) are:

(6, 1, 0)

(1, 6, 0)

(6, 0, 1)

EXCEPT (6, 9), any of the following pairs could be the third and fourth digits, respectively, of an acceptable employee code.

 **FeedBack**

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

**A company generated a series of five-digit employee code for their new joinees in accordance with the following rules:**

**The codes use the digits 0, 1, 3, 6, and 9, and no others.**

- **Each digit occurs exactly once in any code.**
- **The second digit has a value exactly thrice that of the first digit.**
- **The value of the third digit is less than the value of the fifth digit.**

**Q.50**

**Which one of the following must be true about any acceptable employee code?**

1  **There are at most two digits between the digit 1 and the digit 6.**

2  **There is exactly one digit between the digit 1 and the digit 3.**

3  **There are at most two digits between the digit 3 and the digit 9.**

4  **There are at most two digits between the digit 3 and the digit 6.**

**Solution:****Correct Answer : 3** **Bookmark** **Answer key/Solution**

The code of five digits that is, A B C D E, where (D, E) can take values of either (3, 1) or (9, 3).

And since, value of third is less than the value of fifth digit, therefore, A cannot be 0.

Case 1: if (D, E) = (3, 1), then possible combinations for (A, B, C) are:

(9, 6, 0)

(6, 9, 0)

(9, 0, 6)

Case 2: if (D, E) = (9, 3), then possible combinations for (A, B, C) are:

(6, 1, 0)

(1, 6, 0)

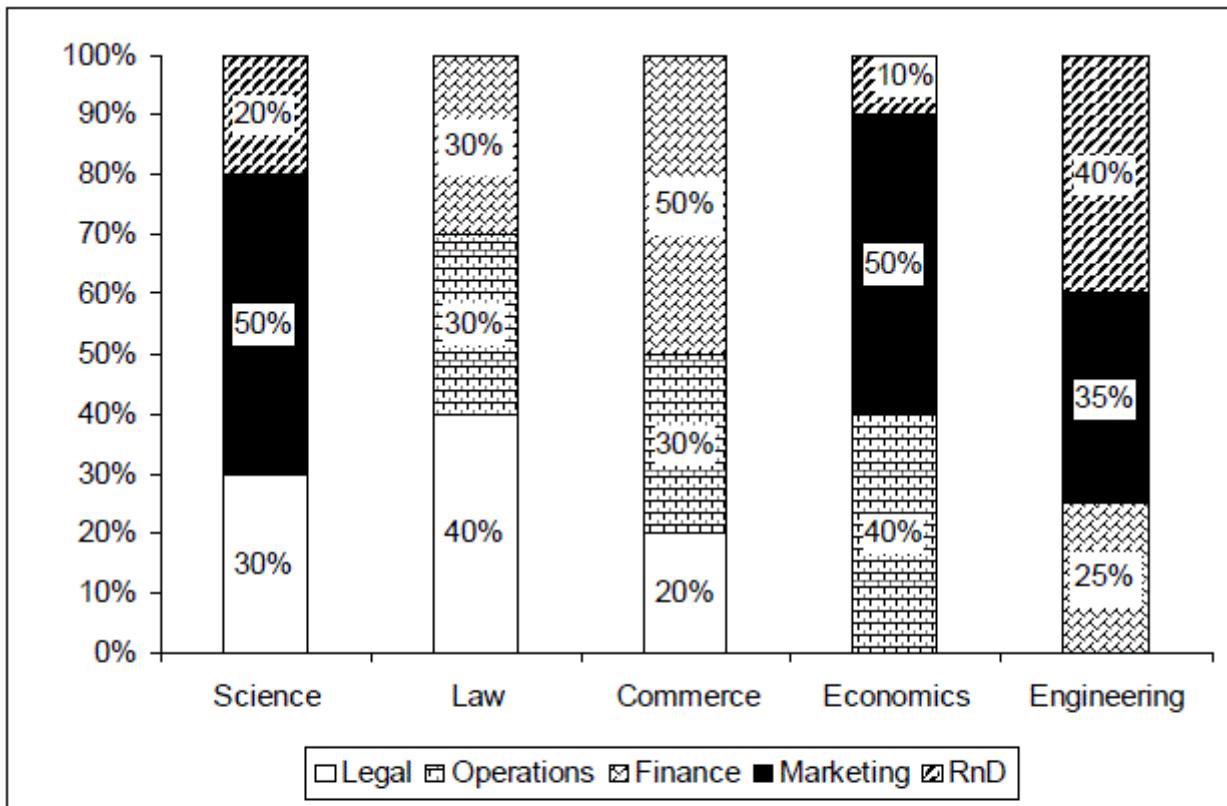
(6, 0, 1)

Statement that, 'There are at most two digits between digit 3 and digit 9', must be true.

 **FeedBack**

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

Recently XYZ Ltd has went through a recruitment process of selecting students for five of its departments i.e., Legal, Operations, Finance, Marketing and Research and Development (RnD). The following bar graph provides the information about the percentage of students selected from different streams of their graduation for different departments and table below gives the total number of students selected for different departments.



Department	Applicant selected
Legal	170
Operations	201
Finance	212
Marketing	272
RnD	145

**The number of students selected from Law stream is 10 less than the average of all the departments.**

#### Q.51

**What is the difference of number of science stream students in Legal department and Marketing department?**

**Solution:****Correct Answer : 36**
 **Bookmark**
 **Answer key/Solution**

Let the number of students selected from Science, Law, Commerce, Economics and Engineering streams be S, L, C, E and X. We know that the number of law student is 10 less than the average number of students selected by all departments. So,  $100L = \frac{1000}{5} - 10 = 190$

$$= \frac{1000}{5} - 10 = 190$$

$$\therefore L = 1.9$$

From the graph we can form following equations

$$30S + 40L + 20C = 170 \quad \dots \text{(i)}$$

$$50S + 50E + 35X = 272 \quad \dots \text{(ii)}$$

$$30L + 50C + 25X = 212 \quad \dots \text{(iii)}$$

$$30L + 30C + 40E = 201 \quad \dots \text{(iv)}$$

$$20S + 10E + 40X = 145 \quad \dots \text{(v)}$$

On adding all five and solving we get

$$S + L + C + E + X = 10 \quad \dots \text{(vi)}$$

Also adding (ii) and (iii) and subtracting from (vi) we can reach to equation  $20L - 10X = 16$

From these we can conclude  $X = 2.2$

Further we can find all the values as  $S = 1.8$ ,  $C = 2.0$ ,  $E = 2.1$

So, total number of students selected from each of the streams as follows.

Science – 180, Law – 190, Commerce – 200

Economics – 210, Engineering – 220.

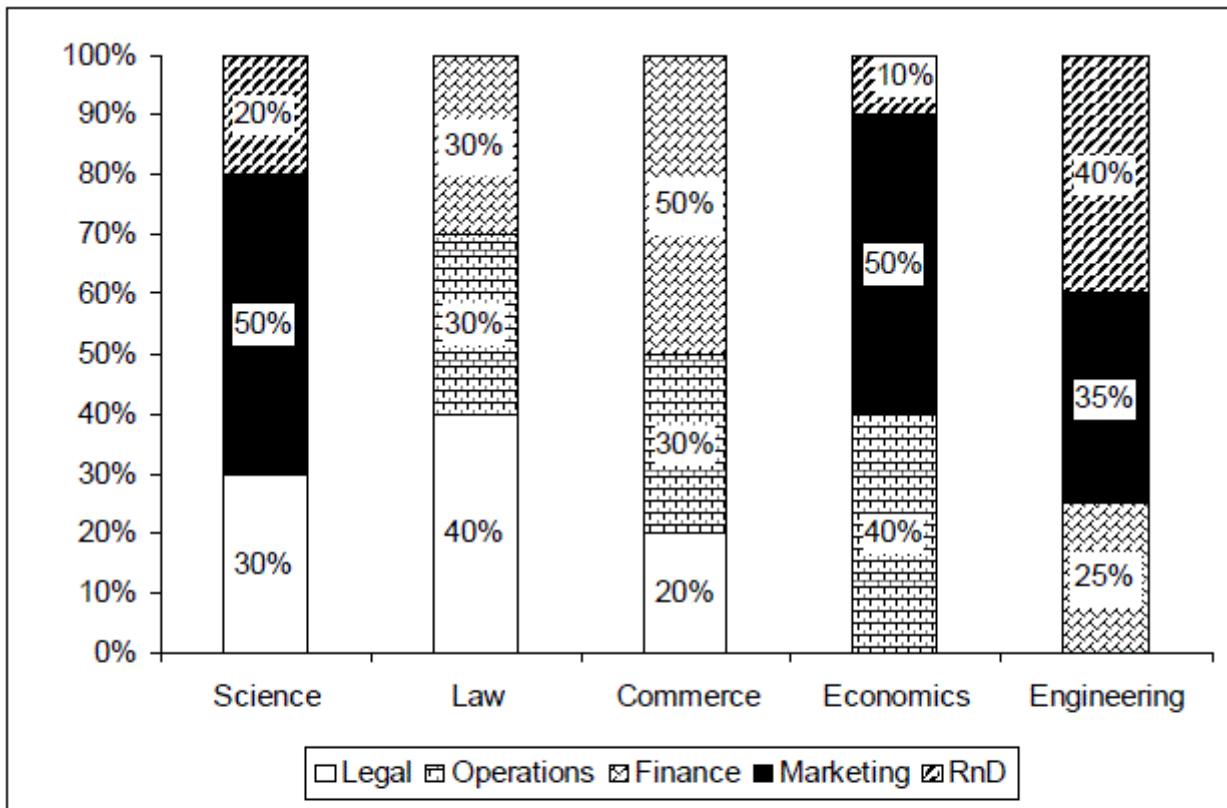
Required difference =  $(50\% - 30\%)$  of 180 = 20% of 180 = 36.

 **FeedBack**


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

**Recently XYZ Ltd has went through a recruitment process of selecting students for five of its departments i.e., Legal, Operations, Finance, Marketing and Research and Development (RnD). The following bar graph provides the information about the percentage of students selected from different streams of their graduation for different departments and table below gives the total number of students selected for different departments.**



Department	Applicant selected
Legal	170
Operations	201
Finance	212
Marketing	272
RnD	145

**The number of students selected from Law stream is 10 less than the average of all the departments.**

**Q.52**

**What is the percentage (approx.) of Commerce students selected by Legal department?**

1  20

2  22

3  24

4  18

**Solution:****Correct Answer : 3** **Bookmark** **Answer key/Solution**

Let the number of students selected from Science, Law, Commerce, Economics and Engineering streams be S, L, C, E and X. We know that the number of law student is 10 less than the average number of students selected by all departments. So,  $100L = \frac{1000}{5} - 10 = 190$

$$\therefore L = 1.9$$

From the graph we can form following equations

$$3S + 40L + 20C = 170 \quad \dots \text{(i)}$$

$$50S + 50E + 35X = 272 \quad \dots \text{(ii)}$$

$$30L + 50C + 25X = 212 \quad \dots \text{(iii)}$$

$$30L + 30C + 40E = 201 \quad \dots \text{(iv)}$$

$$20S + 10E + 40X = 145 \quad \dots \text{(v)}$$

On adding all five and solving we get

$$S + L + C + E + X = 10 \quad \dots \text{(vi)}$$

Also adding (ii) and (iii) and subtracting from (vi) we can reach to equation  $20L - 10X = 16$

From these we can conclude  $X = 2.2$

Further we can find all the values as  $S = 1.8$ ,  $C = 2.0$ ,  $E = 2.1$

So, total number of students selected from each of the streams as follows.

Science – 180, Law – 190, Commerce – 200

Economics – 210, Engineering – 220.

20% of commerce student is 40

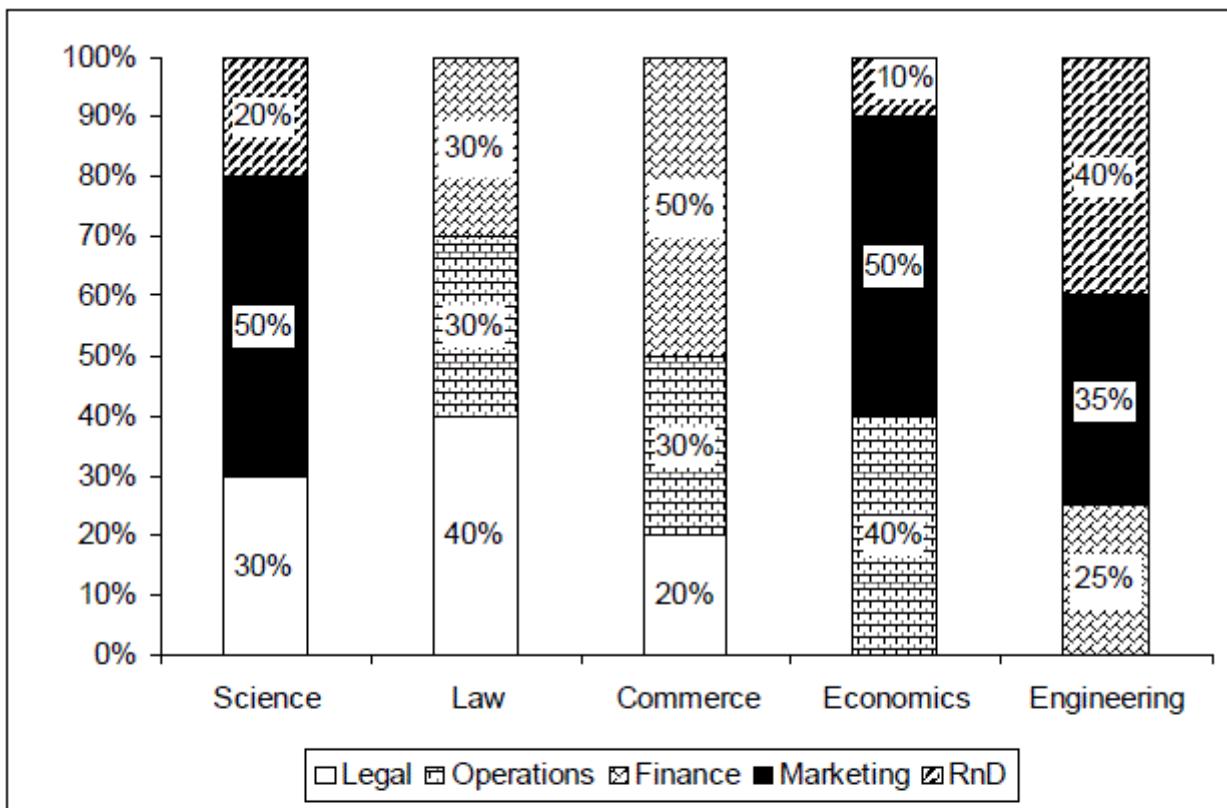
$$\text{So, } \frac{40}{170} = 24\%.$$

**FeedBack**


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

Recently XYZ Ltd has went through a recruitment process of selecting students for five of its departments i.e., Legal, Operations, Finance, Marketing and Research and Development (RnD). The following bar graph provides the information about the percentage of students selected from different streams of their graduation for different departments and table below gives the total number of students selected for different departments.



Department	Applicant selected
Legal	170
Operations	201
Finance	212
Marketing	272
RnD	145

**The number of students selected from Law stream is 10 less than the average of all the departments.**

**Q.53**

**How many students from Engineering stream joined RnD department?**

**Solution:****Correct Answer : 88****Bookmark****Answer key/Solution**

Let the number of students selected from Science, Law, Commerce, Economics and Engineering streams be S, L, C, E and X. We know that the number of law student is 10 less than the average number of students selected by all departments. So,  $100L = \frac{1000}{5} - 10 = 190$

$$= \frac{1000}{5} - 10 = 190$$

$$\therefore L = 1.9$$

From the graph we can form following equations

$$30S + 40L + 20C = 170 \quad \dots \text{(i)}$$

$$50S + 50E + 35X = 272 \quad \dots \text{(ii)}$$

$$30L + 50C + 25X = 212 \quad \dots \text{(iii)}$$

$$30L + 30C + 40E = 201 \quad \dots \text{(iv)}$$

$$20S + 10E + 40X = 145 \quad \dots \text{(v)}$$

On adding all five and solving we get

$$S + L + C + E + X = 10 \quad \dots \text{(vi)}$$

Also adding (ii) and (iii) and subtracting from (vi) we can reach to equation  $20L - 10X = 16$

From these we can conclude  $X = 2.2$

Further we can find all the values as  $S = 1.8$ ,  $C = 2.0$ ,  $E = 2.1$

So, total number of students selected from each of the streams as follows.

Science – 180, Law – 190, Commerce – 200

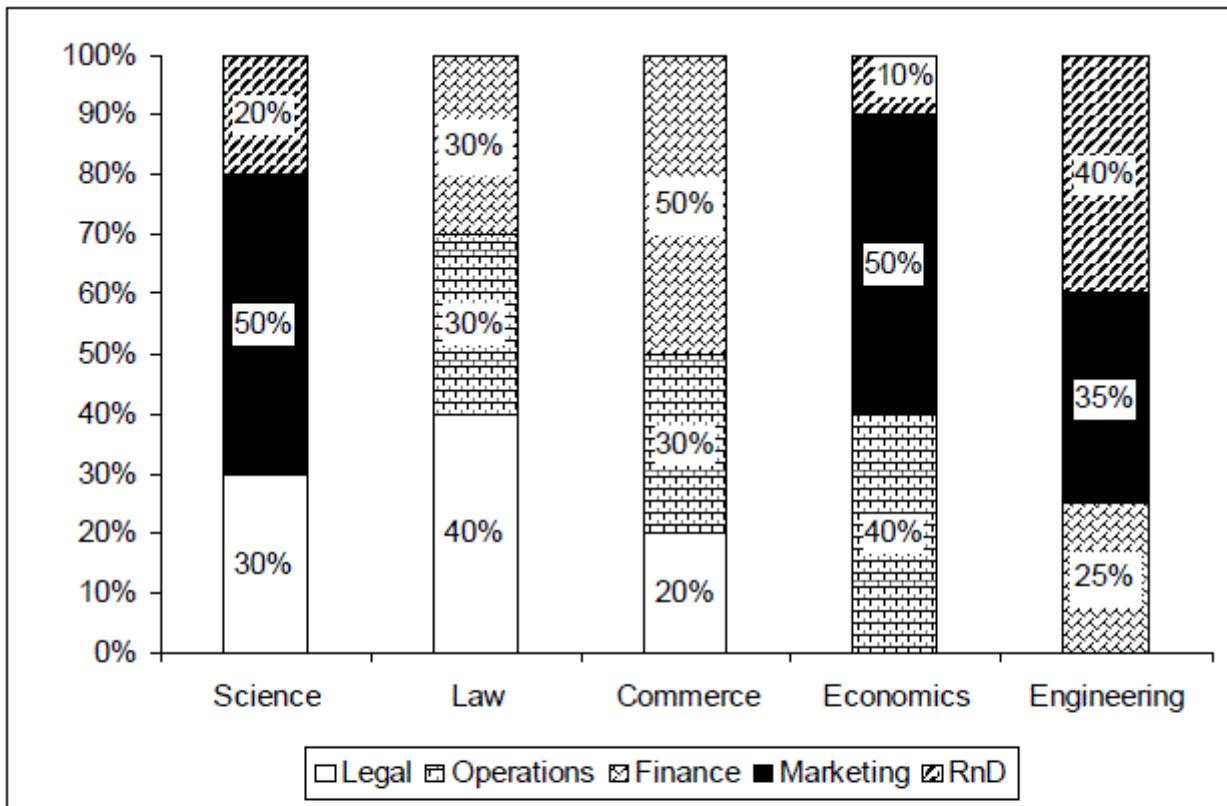
Economics – 210, Engineering – 220.

$$\frac{40}{100} \times 220 = 88.$$

**FeedBack**

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

Recently XYZ Ltd has went through a recruitment process of selecting students for five of its departments i.e., Legal, Operations, Finance, Marketing and Research and Development (RnD). The following bar graph provides the information about the percentage of students selected from different streams of their graduation for different departments and table below gives the total number of students selected for different departments.



Department	Applicant selected
Legal	170
Operations	201
Finance	212
Marketing	272
RnD	145

**The number of students selected from Law stream is 10 less than the average of all the departments.**

#### Q.54

**What is the total number of Economics students selected?**

**Solution:****Correct Answer : 210****Bookmark****Answer key/Solution**

Let the number of students selected from Science, Law, Commerce, Economics and Engineering streams be S, L, C, E and X. We know that the number of law student is 10 less than the average number of students selected by all departments. So,  $100L = \frac{1000}{5} - 10 = 190$

$$\therefore L = 1.9$$

From the graph we can form following equations

$$3S + 40L + 20C = 170 \quad \dots (i)$$

$$50S + 50E + 35X = 272 \quad \dots (ii)$$

$$30L + 50C + 25X = 212 \quad \dots (iii)$$

$$30L + 30C + 40E = 201 \quad \dots (iv)$$

$$20S + 10E + 40X = 145 \quad \dots (v)$$

On adding all five and solving we get

$$S + L + C + E + X = 10 \quad \dots (vi)$$

Also adding (ii) and (iii) and subtracting from (vi) we can reach to equation  $20L - 10X = 16$

From these we can conclude  $X = 2.2$

Further we can find all the values as  $S = 1.8$ ,  $C = 2.0$ ,  $E = 2.1$

So, total number of students selected from each of the streams as follows.

Science – 180, Law – 190, Commerce – 200

Economics – 210, Engineering – 220.

Total selected Economics students = 210.

**FeedBack**

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

**Five MBA students - Azim, Dilip, Lakshmi, Mukesh and Shiv, whose home cities are Berhampur, Bhagalpur, Kanpur, Kharagpur and Udaipur, not necessarily in the same order, are standing in a queue at Ahmedabad Railway Station to buy train tickets to go to their respective home cities. The ticket price (in Rs.) for each of them is a different integer among 651, 652, 653, 654 and 655. It is also known that:**

- (i) Mukesh, who is not from Bhagalpur, pays more for the ticket than Dilip, who is not from Berhampur.
- (ii) The students standing immediately in front of Azim is from Kanpur and the one immediately behind Azim is from Udaipur.
- (iii) The ticket of Lakshmi, who is standing between Dilip and Shiv, is cheaper than that of exactly three students. Lakshmi is from neither Berhampur nor Udaipur.
- (iv) The students who pay Rs.651 and Rs. 655 for the tickets are from Kanpur and Bhagalpur respectively.
- (v) The first student in the queue pays Rs. 654 for the ticket and he is not Mukesh.

**Q.55**

**From the front of the queue, what are the positions of Azim and Dilip respectively?**

1  2nd and 3rd

2  2nd and 4th

4th and 3rd

3rd and 4th

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

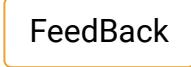
From statements (iv) and (iii), Lakshmi's ticket is of Rs.652 and his home city is Kharagpur. From statements (v), (iv) and (i), Mukesh's home city is not Bhagalpur and his ticket is costlier than that of Dilip, but it does cost him Rs.654. Therefore, ticket price of Mukesh must be Rs.653 and that of Dilip must be Rs.651. From statement (ii), Azim is not the first student in the queue. Therefore, his ticket must be of Rs.655.

From statement (ii), the student from Udaipur is standing behind Azim, so he cannot be the first student in the queue. Therefore, the home city of the first student is Berhampur.

Further analysis leads to the table shown below.

Position number from front	Student	Ticket price (in Rs.)	Home City
1	Shiv	654	Berhampur
2	Lakshmi	652	Kharagpur
3	Dilip	651	Kanpur
4	Azim	655	Bhagalpur
5	Mukesh	653	Udaipur

**From the front of the queue, the positions of Azim and Dilip are 4th and 3rd respectively.**

 **FeedBack**

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

Five MBA students - Azim, Dilip, Lakshmi, Mukesh and Shiv, whose home cities are Berhampur, Bhagalpur, Kanpur, Kharagpur and Udaipur, not necessarily in the same order, are standing in a queue at Ahmedabad Railway Station to buy train tickets to go to their respective home cities. The ticket price (in Rs.) for each of them is a different integer among 651, 652, 653, 654 and 655. It is also known that:

- (i) Mukesh, who is not from Bhagalpur, pays more for the ticket than Dilip, who is not from Berhampur.
- (ii) The students standing immediately in front of Azim is from Kanpur and the one immediately behind Azim is from Udaipur.
- (iii) The ticket of Lakshmi, who is standing between Dilip and Shiv, is cheaper than that of exactly three students. Lakshmi is from neither Berhampur nor Udaipur.
- (iv) The students who pay Rs.651 and Rs. 655 for the tickets are from Kanpur and Bhagalpur respectively.
- (v) The first student in the queue pays Rs. 654 for the ticket and he is not Mukesh.

**Q.56**

**Whose home city is Udaipur?**

Azim

2  Dilip

3  Mukesh

4  Shiv

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

From statements (iv) and (iii), Lakshmi's ticket is of Rs.652 and his home city is Kharagpur. From statements (v), (iv) and (i), Mukesh's home city is not Bhagalpur and his ticket is costlier than that of Dilip, but it does cost him Rs.654. Therefore, ticket price of Mukesh must be Rs.653 and that of Dilip must be Rs.651. From statement (ii), Azim is not the first student in the queue. Therefore, his ticket must be of Rs.655.

From statement (ii), the student from Udaipur is standing behind Azim, so he cannot be the first student in the queue. Therefore, the home city of the first student is Berhampur.

Further analysis leads to the table shown below.

Position number from front	Student	Ticket price (in Rs.)	Home City
1	Shiv	654	Berhampur
2	Lakshmi	652	Kharagpur
3	Dilip	651	Kanpur
4	Azim	655	Bhagalpur
5	Mukesh	653	Udaipur

**Mukesh's home city is Udaipur.**

[FeedBack](#)

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

**Five MBA students - Azim, Dilip, Lakshmi, Mukesh and Shiv, whose home cities are Berhampur, Bhagalpur, Kanpur, Kharagpur and Udaipur, not necessarily in the same order, are standing in a queue at Ahmedabad Railway Station to buy train tickets to go to their respective home cities. The ticket price (in Rs.) for each of them is a different integer among 651, 652, 653, 654 and 655. It is also known that:**

- (i) Mukesh, who is not from Bhagalpur, pays more for the ticket than Dilip, who is not from Berhampur.
- (ii) The students standing immediately in front of Azim is from Kanpur and the one immediately behind Azim is from Udaipur.
- (iii) The ticket of Lakshmi, who is standing between Dilip and Shiv, is cheaper than that of exactly three students. Lakshmi is from neither Berhampur nor Udaipur.
- (iv) The students who pay Rs.651 and Rs. 655 for the tickets are from Kanpur and Bhagalpur respectively.
- (v) The first student in the queue pays Rs. 654 for the ticket and he is not Mukesh.

**Q.57**

**Which of the following is the correct order of the ticket prices (in Rs.) for Azim, Dilip, Lakshmi, Mukesh and Shiv respectively?**

1  654, 651, 652, 653 and 655

2  655, 651, 652, 653 and 654

3  653, 654, 652, 651 and 655

4  None of these

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

From statements (iv) and (iii), Lakshmi's ticket is of Rs.652 and his home city is Kharagpur. From statements (v), (iv) and (i), Mukesh's home city is not Bhagalpur and his ticket is costlier than that of Dilip, but it does cost him Rs.654. Therefore, ticket price of Mukesh must be Rs.653 and that of Dilip must be Rs.651. From statement (ii), Azim is not the first student in the queue. Therefore, his ticket must be of Rs.655.

From statement (ii), the student from Udaipur is standing behind Azim, so he cannot be the first student in the queue. Therefore, the home city of the first student is Berhampur.

Further analysis leads to the table shown below.

Position number from front	Student	Ticket price (in Rs.)	Home City
1	Shiv	654	Berhampur
2	Lakshmi	652	Kharagpur
3	Dilip	651	Kanpur
4	Azim	655	Bhagalpur
5	Mukesh	653	Udaipur

**The correct order of the ticket prices (in Rs.) for Azim, Dilip, Lakshmi, Mukesh and Shiv is Rs. 655, Rs.651, Rs.652, Rs.653 and Rs.654 respectively.**

**FeedBack**

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

Five MBA students - Azim, Dilip, Lakshmi, Mukesh and Shiv, whose home cities are Berhampur, Bhagalpur, Kanpur, Kharagpur and Udaipur, not necessarily in the same order, are standing in a queue at Ahmedabad Railway Station to buy train tickets to go to their respective home cities. The ticket price (in Rs.) for each of them is a different integer among 651, 652, 653, 654 and 655. It is also known that:

- (i) Mukesh, who is not from Bhagalpur, pays more for the ticket than Dilip, who is not from Berhampur.
- (ii) The students standing immediately in front of Azim is from Kanpur and the one immediately behind Azim is from Udaipur.
- (iii) The ticket of Lakshmi, who is standing between Dilip and Shiv, is cheaper than that of exactly three students. Lakshmi is from neither Berhampur nor Udaipur.
- (iv) The students who pay Rs.651 and Rs. 655 for the tickets are from Kanpur and Bhagalpur respectively.
- (v) The first student in the queue pays Rs. 654 for the ticket and he is not Mukesh.

**Q.58**

Which of the following statements is/are correct?

- I. Azim is not from Berhampur.
- II. The 4th student in the queue pays Rs.651 for the ticket.
- III. Lakshmi is 2nd from the front of the queue.

1  Only I

2  Only III

3  Both I and II

4  Both I and III

**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**

From statements (iv) and (iii), Lakshmi's ticket is of Rs.652 and his home city is Kharagpur. From statements (v), (iv) and (i), Mukesh's home city is not Bhagalpur and his ticket is costlier than that of Dilip, but it does cost him Rs.654. Therefore, ticket price of Mukesh must be Rs.653 and that of Dilip must be Rs.651. From statement (ii), Azim is not the first student in the queue. Therefore, his ticket must be of Rs.655.

From statement (ii), the student from Udaipur is standing behind Azim, so he cannot be the first student in the queue. Therefore, the home city of the first student is Berhampur.

Further analysis leads to the table shown below.

Position number from front	Student	Ticket price (in Rs.)	Home City
1	Shiv	654	Berhampur
2	Lakshmi	652	Kharagpur
3	Dilip	651	Kanpur
4	Azim	655	Bhagalpur
5	Mukesh	653	Udaipur

**Both I and III are correct.**


 FeedBack

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

In a local body tournament, 8 people - Anuj, Chirag, Mandeep, Puneet, Baneet, Dhruv, Nitin, and Om - from clubs of different cities participated in men's single tennis tournament including the person from club Delhi. Surnames of eight of them are Agarwal, Singh, Deewan, Sharma, Prakash, Lal, Seth and Patel, not necessarily in the same order. The tournament consisted of 3 knockout rounds such that in the first round, each person was paired against any other person among four matches of the round. In the second round, winners of the four matches of the first round advanced to semi-final pairings, and then the two winners of the second round played against each other for the title, in the third round.

Further, some additional information known to us is as follows:

1. Mandeep, defeated Lal in the first round, also defeated the person from club Pune, who is not Anuj.
2. Person with the surname Agarwal won against Om only.
3. The person from club Jamshedpur, who is not Agarwal, lost to Puneet in one match.
4. Chirag beats club Hyderabad in a round and then lost the match against the player from Club Chandigarh in the next round.
5. Sharma knocked out Deewan in one match and also won against the person of club Bangalore in the next match.
6. Baneet and the person from club Chennai were out in the first round only.
7. In one of the matches, Singh defeated Nitin.
8. Anuj Sharma defeated Patel in one of the matches.
9. Dhruv was eliminated by the person from club Mumbai.
10. In one of the matches, club Bangalore beats club Chennai, and beats Agarwal in another match.
11. Om's surname is not Seth.

#### **Q.59**

**Which of the following club is the winner of the tournament?**

- 1  Chandigarh
- 2  Mumbai
- 3  Bangalore
- 4  Pune

**Solution:****Correct Answer : 1** **Bookmark** **Answer key/Solution**

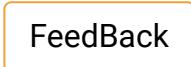
We know that in the first round, there are four matches and four winners and in 2<sup>nd</sup> round, there are 2 winners, so the winner of the tournament won three matches.

From statement 1, we can conclude that Mandeep must have reached final and also from statement 5, Sharma have won two matches, so Mandeep and Sharma have played the final of the tournament. From statements 5<sup>th</sup> and 8<sup>th</sup>, Anuj Sharma has won 3 matches and he is the winner of tournament. We can also conclude from statement 10<sup>th</sup> that the person from Bangalore won two matches and lost one match against Sharma. Further from statements 1<sup>st</sup> and 10<sup>th</sup>, we can conclude that Mandeep is from Bangalore and Lal is from Chennai. From statements 5<sup>th</sup> and 8<sup>th</sup>, we can say that Anuj must have beaten Patel in first match, Deewan in 2<sup>nd</sup> match and Mandeep from Bangalore in 3<sup>rd</sup> match. From statements 3<sup>rd</sup> and 4<sup>th</sup>, Chirag is not Agarwal and he lost to Anu in 2<sup>nd</sup> round. So, he is Chirag Deewan. Further, we can conclude that Puneet is Agarwal and he is from Pune. From statement 7<sup>th</sup>, Mandeep must be Singh and Nitin is Lal. From statement 4<sup>th</sup>, Anuj is from Chandigarh. Nitin is from Chennai and Baneet is Patel from statement 8<sup>th</sup>.

So final table will be like this

Winner	Loser
<b>Round 1</b>	
Anuj Sharma (Chandigarh)	Baneet Patel (Delhi)
Chirag Deewan (Mumbai)	Dhruv Seth (Hyderabad)
Mandeep Singh (Bangalore)	Nitin Lal (Chennai)
Puneet Agarwal (Pune)	Om Prakash (Jamshedpur)
<b>Round 2</b>	
Mandeep Singh (Bangalore)	Puneet Agarwal (Pune)
Anuj Sharma (Chandigarh)	Chirag Deewan (Mumbai)
<b>Round 3</b>	
Anuj Sharma (Chandigarh)	Mandeep Singh (Bangalore)

Clearly, Chandigarh club is the winner of the tournament.

 **FeedBack**

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

In a local body tournament, 8 people - Anuj, Chirag, Mandeep, Puneet, Baneet, Dhruv, Nitin, and Om - from clubs of different cities participated in men's single tennis tournament including the person from club Delhi. Surnames of eight of them are Agarwal, Singh, Deewan, Sharma, Prakash, Lal, Seth and Patel, not necessarily in the same order. The tournament consisted of 3 knockout rounds such that in the first round, each person was paired against any other person among four matches of the round. In the second round, winners of the four matches of the first round advanced to semi-final pairings, and then the two winners of the second round played against each other for the title, in the third round.

Further, some additional information known to us is as follows:

1. Mandeep, defeated Lal in the first round, also defeated the person from club Pune, who is not Anuj.
2. Person with the surname Agarwal won against Om only.
3. The person from club Jamshedpur, who is not Agarwal, lost to Puneet in one match.
4. Chirag beats club Hyderabad in a round and then lost the match against the player from Club Chandigarh in the next round.
5. Sharma knocked out Deewan in one match and also won against the person of club Bangalore in the next match.
6. Baneet and the person from club Chennai were out in the first round only.
7. In one of the matches, Singh defeated Nitin.
8. Anuj Sharma defeated Patel in one of the matches.
9. Dhruv was eliminated by the person from club Mumbai.
10. In one of the matches, club Bangalore beats club Chennai, and beats Agarwal in another match.
11. Om's surname is not Seth.

#### **Q.60**

**Which of the following names is incorrectly paired with its surname?**

1  Anuj Sharma

2  Dhruv Seth

3  Puneet Agarwal

4  Baneet Lal

**Solution:****Correct Answer : 4**
 **Bookmark**
 **Answer key/Solution**

We know that in the first round, there are four matches and four winners and in 2<sup>nd</sup> round, there are 2 winners, so the winner of the tournament won three matches.

From statement 1, we can conclude that Mandeep must have reached final and also from statement 5, Sharma have won two matches, so Mandeep and Sharma have played the final of the tournament. From statements 5<sup>th</sup> and 8<sup>th</sup>, Anuj Sharma has won 3 matches and he is the winner of tournament. We can also conclude from statement 10<sup>th</sup> that the person from Bangalore won two matches and lost one match against Sharma. Further from statements 1<sup>st</sup> and 10<sup>th</sup>, we can conclude that Mandeep is from Bangalore and Lal is from Chennai. From statements 5<sup>th</sup> and 8<sup>th</sup>, we can say that Anuj must have beaten Patel in first match, Deewan in 2<sup>nd</sup> match and Mandeep from Bangalore in 3<sup>rd</sup> match. From statements 3<sup>rd</sup> and 4<sup>th</sup>, Chirag is not Agarwal and he lost to Anu in 2<sup>nd</sup> round. So, he is Chirag Deewan. Further, we can conclude that Puneet is Agarwal and he is from Pune. From statement 7<sup>th</sup>, Mandeep must be Singh and Nitin is Lal. From statement 4<sup>th</sup>, Anuj is from Chandigarh. Nitin is from Chennai and Baneet is Patel from statement 8<sup>th</sup>.

So final table will be like this

Winner	Loser
<b>Round 1</b>	
Anuj Sharma (Chandigarh)	Baneet Patel (Delhi)
Chirag Deewan (Mumbai)	Dhruv Seth (Hyderabad)
Mandeep Singh (Bangalore)	Nitin Lal (Chennai)
Puneet Agarwal (Pune)	Om Prakash (Jamshedpur)
<b>Round 2</b>	
Mandeep Singh (Bangalore)	Puneet Agarwal (Pune)
Anuj Sharma (Chandigarh)	Chirag Deewan (Mumbai)
<b>Round 3</b>	
Anuj Sharma (Chandigarh)	Mandeep Singh (Bangalore)

From the final table, we can see that the surname of Baneet is Patel not Lal.

 **FeedBack**

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

In a local body tournament, 8 people - Anuj, Chirag, Mandeep, Puneet, Baneet, Dhruv, Nitin, and Om - from clubs of different cities participated in men's single tennis tournament including the person from club Delhi. Surnames of eight of them are Agarwal, Singh, Deewan, Sharma, Prakash, Lal, Seth and Patel, not necessarily in the same order. The tournament consisted of 3 knockout rounds such that in the first round, each person was paired against any other person among four matches of the round. In the second round, winners of the four matches of the first round advanced to semi-final pairings, and then the two winners of the second round played against each other for the title, in the third round.

Further, some additional information known to us is as follows:

1. Mandeep, defeated Lal in the first round, also defeated the person from club Pune, who is not Anuj.
2. Person with the surname Agarwal won against Om only.
3. The person from club Jamshedpur, who is not Agarwal, lost to Puneet in one match.
4. Chirag beats club Hyderabad in a round and then lost the match against the player from Club Chandigarh in the next round.
5. Sharma knocked out Deewan in one match and also won against the person of club Bangalore in the next match.
6. Baneet and the person from club Chennai were out in the first round only.
7. In one of the matches, Singh defeated Nitin.
8. Anuj Sharma defeated Patel in one of the matches.
9. Dhruv was eliminated by the person from club Mumbai.
10. In one of the matches, club Bangalore beats club Chennai, and beats Agarwal in another match.
11. Om's surname is not Seth.

#### **Q.61**

**Which of the following persons won at least two matches?**

- 1  Chirag
- 2  Singh
- 3  Patel
- 4  Prakash

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

We know that in the first round, there are four matches and four winners and in 2<sup>nd</sup> round, there are 2 winners, so the winner of the tournament won three matches.

From statement 1, we can conclude that Mandeep must have reached final and also from statement 5, Sharma have won two matches, so Mandeep and Sharma have played the final of the tournament. From statements 5<sup>th</sup> and 8<sup>th</sup>, Anuj Sharma has won 3 matches and he is the winner of tournament. We can also conclude from statement 10<sup>th</sup> that the person from Bangalore won two matches and lost one match against Sharma. Further from statements 1<sup>st</sup> and 10<sup>th</sup>, we can conclude that Mandeep is from Bangalore and Lal is from Chennai. From statements 5<sup>th</sup> and 8<sup>th</sup>, we can say that Anuj must have beaten Patel in first match, Deewan in 2<sup>nd</sup> match and Mandeep from Bangalore in 3<sup>rd</sup> match. From statements 3<sup>rd</sup> and 4<sup>th</sup>, Chirag is not Agarwal and he lost to Anu in 2<sup>nd</sup> round. So, he is Chirag Deewan. Further, we can conclude that Puneet is Agarwal and he is from Pune. From statement 7<sup>th</sup>, Mandeep must be Singh and Nitin is Lal. From statement 4<sup>th</sup>, Anuj is from Chandigarh. Nitin is from Chennai and Baneet is Patel from statement 8<sup>th</sup>.

So final table will be like this

Winner	Loser
<b>Round 1</b>	
Anuj Sharma (Chandigarh)	Baneet Patel (Delhi)
Chirag Deewan (Mumbai)	Dhruv Seth (Hyderabad)
Mandeep Singh (Bangalore)	Nitin Lal (Chennai)
Puneet Agarwal (Pune)	Om Prakash (Jamshedpur)
<b>Round 2</b>	
Mandeep Singh (Bangalore)	Puneet Agarwal (Pune)
Anuj Sharma (Chandigarh)	Chirag Deewan (Mumbai)
<b>Round 3</b>	
Anuj Sharma (Chandigarh)	Mandeep Singh (Bangalore)

Among the options, Mandeep Singh won atleast two matches.

**FeedBack**

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

In a local body tournament, 8 people - Anuj, Chirag, Mandeep, Puneet, Baneet, Dhruv, Nitin, and Om - from clubs of different cities participated in men's single tennis tournament including the person from club Delhi. Surnames of eight of them are Agarwal, Singh, Deewan, Sharma, Prakash, Lal, Seth and Patel, not necessarily in the same order. The tournament consisted of 3 knockout rounds such that in the first round, each person was paired against any other person among four matches of the round. In the second round, winners of the four matches of the first round advanced to semi-final pairings, and then the two winners of the second round played against each other for the title, in the third round.

Further, some additional information known to us is as follows:

1. Mandeep, defeated Lal in the first round, also defeated the person from club Pune, who is not Anuj.
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5. Sharma knocked out Deewan in one match and also won against the person of club Bangalore in the next match.
6. Baneet and the person from club Chennai were out in the first round only.
7. In one of the matches, Singh defeated Nitin.
8. Anuj Sharma defeated Patel in one of the matches.
9. Dhruv was eliminated by the person from club Mumbai.
10. In one of the matches, club Bangalore beats club Chennai, and beats Agarwal in another match.
11. Om's surname is not Seth.

#### **Q.62**

**Which of the following pairs must have played against each other?**

1  Chandigarh Vs Hyderabad

2  Pune Vs Delhi

3  Chandigarh Vs Delhi

4  Pune Vs Chennai

**Solution:****Correct Answer : 3****Bookmark****Answer key/Solution**

We know that in the first round, there are four matches and four winners and in 2<sup>nd</sup> round, there are 2 winners, so the winner of the tournament won three matches.

From statement 1, we can conclude that Mandeep must have reached final and also from statement 5, Sharma have won two matches, so Mandeep and Sharma have played the final of the tournament. From statements 5<sup>th</sup> and 8<sup>th</sup>, Anuj Sharma has won 3 matches and he is the winner of tournament. We can also conclude from statement 10<sup>th</sup> that the person from Bangalore won two matches and lost one match against Sharma. Further from statements 1<sup>st</sup> and 10<sup>th</sup>, we can conclude that Mandeep is from Bangalore and Lal is from Chennai. From statements 5<sup>th</sup> and 8<sup>th</sup>, we can say that Anuj must have beaten Patel in first match, Deewan in 2<sup>nd</sup> match and Mandeep from Bangalore in 3<sup>rd</sup> match. From statements 3<sup>rd</sup> and 4<sup>th</sup>, Chirag is not Agarwal and he lost to Anu in 2<sup>nd</sup> round. So, he is Chirag Deewan. Further, we can conclude that Puneet is Agarwal and he is from Pune. From statement 7<sup>th</sup>, Mandeep must be Singh and Nitin is Lal. From statement 4<sup>th</sup>, Anuj is from Chandigarh. Nitin is from Chennai and Baneet is Patel from statement 8<sup>th</sup>.

So final table will be like this

Winner	Loser
<b>Round 1</b>	
Anuj Sharma (Chandigarh)	Baneet Patel (Delhi)
Chirag Deewan (Mumbai)	Dhruv Seth (Hyderabad)
Mandeep Singh (Bangalore)	Nitin Lal (Chennai)
Puneet Agarwal (Pune)	Om Prakash (Jamshedpur)
<b>Round 2</b>	
Mandeep Singh (Bangalore)	Puneet Agarwal (Pune)
Anuj Sharma (Chandigarh)	Chirag Deewan (Mumbai)
<b>Round 3</b>	
Anuj Sharma (Chandigarh)	Mandeep Singh (Bangalore)

From the final table, Chandigarh club played against Delhi club.

**FeedBack**

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

**A  $n \times n$  matrix is filled with distinct consecutive numbers such that the numbers in each column, row and diagonal add up to the same value and this value is called magic number and the matrix thus formed is called magic square.**

**Q.63**

**What is the magic number of a magic square of order 5 filled with successive numbers starting from 1?**

 1  325

 2  625

 3  65

 4  125

**Solution:****Correct Answer : 3**

In the magic square of  $5 \times 5$ ; numerals from 1 to 25 are filled.

$$\text{Sum of all numbers of grid} = 1 + 2 + 3 + \dots + 25 = \frac{25 \times 26}{2} = 325$$

$$\text{Magic number} = \frac{325}{5} = 65 \quad (\because \text{There are 5 rows/columns})$$

[FeedBack](#)
 **Bookmark**
 **Answer key/Solution**

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

A  $n \times n$  matrix is filled with distinct consecutive numbers such that the numbers in each column, row and diagonal add up to the same value and this value is called magic number and the matrix thus formed is called magic square.

**Q.64**

How many magic square(s) is/are possible filled with numbers from 1 to 9, if the partial information regarding the square is as below?

	9	
		7
8		

 1 

 2 

 3 

 4 
**Solution:****Correct Answer : 1**

4	9	2
3	5	7
8	1	6

$$\left( \because \text{magic number} = \frac{1+2+3+\dots+8+9}{3} = 15 \right)$$

 **Bookmark**
 **Answer key/Solution**
[FeedBack](#)

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

A  $n \times n$  matrix is filled with distinct consecutive numbers such that the numbers in each column, row and diagonal add up to the same value and this value is called magic number and the matrix thus formed is called magic square.

#### Q.65

A magic square of order 3 is filled with consecutive integers without repetition and its magic number is 36. What is the least number that is filled in the magic square?

1  7

2  8

3  9

4  6

**Solution:**

**Correct Answer : 2**

Sum of all numerals =  $3 \times 36 = 108$

We can see that the sum of numbers from 8 to 16 is 108.

Hence, the least number is 8.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

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

A  $n \times n$  matrix is filled with distinct consecutive numbers such that the numbers in each column, row and diagonal add up to the same value and this value is called magic number and the matrix thus formed is called magic square.

#### Q.66

In the below incomplete magic square of  $4 \times 4$ , the sum of numbers in each possible grid of  $2 \times 2$  is also same as the magic number of magic square of order  $4 \times 4$ .

8			1
	16		
10			15

**How many such grid(s) of  $4 \times 4$  is/are possible?**

1  1

2  23  34  4**Solution:****Correct Answer : 2**

$$\text{Magic number} = \frac{1+2+\dots+15+16}{4} = 34.$$

Let the blank boxes in the grid be filled with a, b, c, ...

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

8	c	f	1
a	d	g	j
b	16	h	k
10	e	i	15

$$g = 34 - (10 + 16 + 1) = 7$$

$$e + i = 34 - (10 + 15) = 9$$

$$\therefore h = 34 - (16 + e + i) = 34 - 16 - 9 = 9.$$

$$\text{Now, } d = 34 - (8 + h + 15)$$

$$= 34 - 8 - 9 - 15 = 2.$$

$$b + e = 34 - (10 + 16) = 8$$

$$\therefore b = 3/5 \text{ and } e = 5/3$$

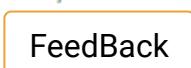
Case I:- b = 3 and e = 5

8	11	14	1
13	2	7	12
3	16	9	6
10	5	4	15

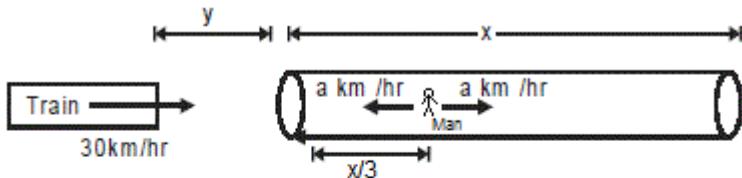
Case II: b = 5 and e = 3

8	13	12	1
11	2	7	14
5	16	9	4
10	3	6	15

Hence, there are two grids possible.

 **FeedBack**
**Sec 3****Q.67**

A man jogging inside a railway tunnel at a constant speed hears a train approaching the tunnel from behind at a speed of 30 km per hour, when he is one third of the way inside the tunnel. Whether he keeps running forward or turns back, he will reach the end of the tunnel at the same time the train reaches that end. The speed (in km/hr) at which the man is running is

**Solution:****Correct Answer : 10****Bookmark****Answer key/Solution**

Let  $x$  be the length of tunnel,  $y$  be the distance between train and tunnel and  $a$  be the speed of the person.

$$\text{Then, } \frac{\frac{1}{3}x}{a} = \frac{y}{30}$$

$$\Rightarrow \frac{x}{3a} = \frac{y}{30}$$

$$\Rightarrow \frac{x}{3a} = \frac{y}{30}$$

$$\Rightarrow 10x = ay$$

$$\text{Also, } \frac{\frac{2}{3}x}{a} = \frac{x+y}{30}$$

$$\Rightarrow \frac{2}{3}x(30) = a(x+y)$$

$$\Rightarrow 20x = ax + ay$$

$$\Rightarrow 20x = ax + 10x$$

$$\Rightarrow 10x = ax$$

$$\Rightarrow a = 10 \text{ km/hr}$$

**FeedBack**

**Q.68**

How many positive integral values of  $P$  are possible if  $f(x) = x^2 - 8x + P$  and  $f(1)$  and  $f(2)$  are opposite in sign?

1  2

2  4

3  3

4  6

**Solution:****Correct Answer : 2**

$$f(1) = 1 - 8 + P = P - 7$$

$$f(2) = 4 - 16 + P = P - 12$$

Since, both are opposite in sign

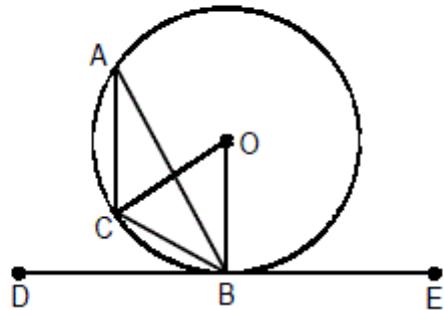
$$\therefore P - 7 > 0 \text{ and } P - 12 < 0$$

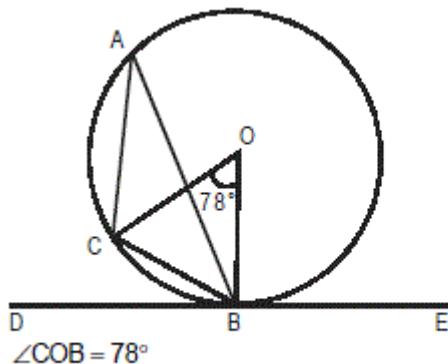
$$P > 7 \text{ and } P < 12.$$

$$\therefore P = 8, 9, 10, 11.$$

**Bookmark****Answer key/Solution****FeedBack****Q.69**

In the figure given below, O is the centre of the circle and DE is tangent to it. AC = BC and  $\angle COB = 78^\circ$ . Find measure of  $\angle ABE$  (in degrees).



**Solution:****Correct Answer : 102****Bookmark****Answer key/Solution**

$$\therefore \angle CAB = \frac{78}{2} = 39^\circ \text{ (Angle made by a chord at the circumference of a circle is half of that made by the same chord at the centre).}$$

And as  $AC = BC$ ,

$$\therefore \angle ABC = 39^\circ.$$

$OC = OB$  (radius)

$$\therefore \angle OBC = \frac{180 - 78}{2} = 51^\circ.$$

$$\therefore \angle OBA = 51 - 39 = 12^\circ.$$

and  $\angle OBE = 90^\circ$  (As DE is tangent to the circle at point B)

$$\therefore \angle ABE = \angle OBA + \angle OBE = 12 + 90 = 102^\circ.$$

**FeedBack****Q.70**

If  $a_1, a_2, a_3, \dots, a_n$  are in AP and  $a_1 = 0$ , then the value of

$$\left[ \frac{a_3}{a_2} + \frac{a_4}{a_3} + \dots + \frac{a_n}{a_{n-1}} \right] - a_2 \left[ \frac{1}{a_2} + \frac{1}{a_3} + \dots + \frac{1}{a_{n-2}} \right]$$

is equal to

1   $n + \frac{1}{n}$

2   $n + \frac{1}{n-1}$

3   $(n-1) + \frac{1}{(n-1)}$

4   $(n-2) + \frac{1}{(n-2)}$

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

$$\begin{aligned} a_3 &= a_2 + r \\ a_2 &= r \end{aligned}$$

$$\begin{aligned} &\left[ \frac{a_3}{a_2} + \frac{a_4}{a_3} + \dots + \frac{a_n}{a_{n-1}} \right] - a_2 \left[ \frac{1}{a_2} + \frac{1}{a_3} + \dots + \frac{1}{a_{n-2}} \right] \\ &\Rightarrow \left[ \frac{a_2 + r}{a_2} + \frac{a_3 + r}{a_3} + \dots + \frac{a_{n-1} + r}{a_{n-1}} \right] - a_2 \left[ \frac{1}{a_2} + \frac{1}{a_3} + \dots + \frac{1}{a_{n-2}} \right] \\ &\Rightarrow \left[ 1 + \frac{r}{a_2} + 1 + \frac{r}{a_3} + \dots + 1 + \frac{r}{a_{n-1}} \right] - a_2 \left[ \frac{1}{a_2} + \frac{1}{a_3} + \dots + \frac{1}{a_{n-2}} \right] \\ &\Rightarrow (n-2) + r \left[ \frac{1}{a_2} + \frac{1}{a_3} + \dots + \frac{1}{a_{n-1}} \right] - a_2 \left[ \frac{1}{a_2} + \frac{1}{a_3} + \dots + \frac{1}{a_{n-2}} \right] \\ &\Rightarrow (n-2) + (r - a_2) \left[ \frac{1}{a_2} + \dots + \frac{1}{a_{n-2}} \right] + \frac{r}{a_{n-1}} \\ &\Rightarrow (n-2) + \frac{r}{a_{n-1}} \\ &\Rightarrow (n-2) + \frac{1}{(n-2)} \end{aligned}$$

**Bookmark****Answer key/Solution****FeedBack****Q.71****If the equation;  $x^3 - 9x^2 + ax - 27 = 0$  has equal and positive real roots, then the value of 'a' is**1  **9**2  **18**3  **27**4  **36**

**Solution:****Correct Answer : 3** **Bookmark** **Answer key/Solution**

Let that equal root be  $p$ .

According to the question,

$$p + p + p = 9 \dots \text{(i)}$$

$$p^3 = 27 \dots \text{(ii)}$$

Now, we can observe that equation (i) and (ii) are satisfied only when  $p = 3$

$a$  is the sum of roots taken two at a time

$$\therefore a = p^2 + p^2 + p^2 = 27.$$

**FeedBack****Q.72**

An artist has painted one fourth of a rectangular oil painting. When he will paint another 100 sq. cm of the painting, he would complete three quarters of the painting. If the breadth of the oil painting is 10 cm, determine the length (in sq. cm) of the oil painting.

**Solution:****Correct Answer : 20**

Let the total area of the rectangular oil painting be ' $x$ '.

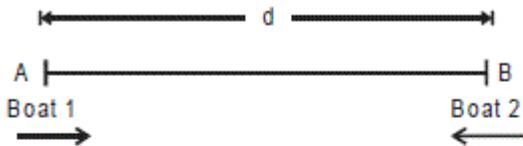
$$\text{Therefore, } \frac{x}{4} + 100 = \frac{3x}{4} \Rightarrow x = 200 \text{ cm}^2$$

$$\text{So, the length of the oil painting is } \frac{200}{10} = 20 \text{ cm.}$$

**Bookmark** **Answer key/Solution****FeedBack****Q.73**

Two boats start from the opposite banks of a river simultaneously. They meet at a distance of 410 m from one of the banks and continue sailing further till they reach the opposite banks. They take rest for 1 hour each and start off the return journey. Now they meet at a distance of 230 m from the other bank. Find the distance between the two banks. (Note: Assume that river water is almost still.)

1  750 m2  840 m3  1100 m

4  1000 m**Solution:****Correct Answer : 4****Bookmark****Answer key/Solution**

Let the distance between the two banks A and B be 'd' m and  $s_A$  and  $s_B$  are the speeds of two boats in m/s from bank A and B respectively.

According to the question, the two boats meet at a distance of 410m from bank A.

$$\frac{410}{s_A} = \frac{d - 410}{s_B} \quad \dots (1)$$

In the return journey, they meet at a distance of 230m from bank B.

$$\frac{d}{s_A} + 3600 + \frac{230}{s_A} = \frac{d}{s_B} + 3600 + \frac{d - 230}{s_B} \quad \dots (2)$$

$$\frac{d + 230}{s_A} = \frac{d + d - 230}{s_B}$$

$$\frac{s_A}{s_B} = \frac{d + 230}{2d - 230}$$

$$\frac{s_A}{s_B} = \frac{410}{d - 410}$$

From (1) and (2)

$$\frac{d + 230}{2d - 230} = \frac{410}{d - 410}$$

$$(d + 230)(d - 410) = 410(2d - 230)$$

$$d^2 - 410d + 230d - 94300 = 820d - 94300$$

$$d^2 - 1000d = 0$$

$$d(d - 1000) = 0$$

$$d = 1000\text{m.}$$

### Q.74

If x, y, and z are the lengths of the sides of a triangle and  $xyz = x + y + z$ , which of the following cannot be the value of  $(x + y + z)^2 - (x^2 + y^2 + z^2)$ ?

1  112  133  144

4  1024**Solution:****Correct Answer : 1**It is given that  $xyz = x + y + z$ 

$$\therefore x + y = xyz - z$$

By the triangle inequality, we get  $x + y > z$ 

$$xyz - z > z$$

$$\Rightarrow z(xy - 2) > 0$$

$$\therefore z > 0, \text{ so } xy - 2 > 0 \Rightarrow xy > 2$$

Similarly, we can conclude that  $yz > 2$  and  $xz > 2$ 

$$\text{Now, } (x + y + z)^2 - (x^2 + y^2 + z^2) = 2(xy + yz + zx)$$

$$\therefore 2(xy + yz + zx) > 12$$

Hence the choice is 1.

**Bookmark****Answer key/Solution****FeedBack****Q.75**

An amount was lent for a year at  $2r\%$  per annum compounded annually. If the interest were calculated half-yearly then the interest accrued would be Rs.  $r$  more than that if it were calculated annually. Which of the following statements is correct?

1  Amount of Rs. 1,000 was lent at 5% per annum.2  Amount of Rs. 2,500 was lent at 8% per annum.3  Amount of Rs. 2,000 was lent at 5% per annum.4  Amount of Rs. 4,000 was lent at 6% per annum.**Solution:****Correct Answer : 2****Bookmark****Answer key/Solution**Let the principal be Rs.  $P$ .

According to the question,

$$P \left[ \left( 1 + \frac{r}{100} \right)^2 - 1 \right] - \left[ P \left\{ \left( 1 + \frac{2r}{100} \right) - 1 \right\} \right] = r$$

$$\Rightarrow P + \frac{Pr^2}{10000} + \frac{2Pr}{100} - P - \frac{2Pr}{100} = r \Rightarrow \frac{Pr^2}{10000} = r \Rightarrow Pr = 10000 \quad \dots (1)$$

Now, check by putting options:

Options 1, 3 and 4 do not satisfy the given condition except option 2.

$$\therefore 2r = 8 \Rightarrow r = 4 \text{ and } P = \text{Rs. } 2500$$

$$\therefore P \times r = 2500 \times 4 = 10000 \text{ which satisfies equation (1).}$$

Hence, option 2 is correct.

**FeedBack**

**Q.76**

If  $f(x - 1) = x^2 + 3a + b - 1$  and  $f(x^3 - 8) = 4(3b - xa)$  where,  $a, b \neq 0$  then find the value of  $\left(\frac{1}{a} - \frac{1}{b}\right)$ .

**Solution:****Correct Answer : 0**

$$\therefore f(x - 1) = x^2 + 3a + b - 1$$

Put  $x = 1$

$$f(0) = 3a + b \quad \dots \text{(i)}$$

$$\text{and } f(x^3 - 8) = 4(3b - xa)$$

Put  $x = 2$

$$f(0) = 4(3b - 2a)$$

$$= 12b - 8a \quad \dots \text{(ii)}$$

Equating (i) and (ii)

$$3a + b = 12b - 8a$$

$$11a = 11b$$

$$a = b$$

$$\therefore \frac{1}{a} - \frac{1}{b} = 0$$

 **Bookmark**
 **Answer key/Solution**
 **FeedBack**
**Q.77**

Nine red pipes and twelve blue pipes provide water to a swimming pool. A red pipe can fill the pool in 36 hours whereas a blue pipe can fill it in 48 hours. There was some problem with the water supply and some of the pipes did not supply water as per original plan. As a result it took 50% more time to fill the swimming pool. Which of the following statements could be true regarding the given situation?

- I: Five red pipes and three blue pipes did not supply water to the pool.
- II: Three red pipes and four blue pipes did not supply water as per plan.
- III: Six red pipes and nine blue pipes supplied water as per plan.

1  Only I

2  Only II

3  Only III

4  Both I and III

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

A red pipe can fill the pool in 36 hours and a blue pipe can fill the pool in 48 hours.

$\therefore$  Total volume of the pool = LCM (36, 48) = 144 units.

Therefore, each red pipe fills  $\frac{144}{36} = 4$  units in 1 hour and each blue pipe fills  $\frac{144}{48} = 3$  units in 1 hour.

According to the question, initially there were 9 red pipes and 12 blue pipes.

$\therefore$  In 1 hour, 9 red pipes will fill 36 units of water and 12 blue pipes will also fill 36 units of water in the pool i.e., total 72 units in 1 hour.

Total capacity is 144 litres.

Hence, initial time taken by 9 red pipes and 12 blue pipes to fill the pool completely is  $\frac{144}{72} = 2$  hours.

Because some of the pipes did not supply water, so it took 50% more time, i.e., now it takes 3 hours.

Now check each statement,

From statement I, 5 red pipes and 3 blue pipes did not supply water, implies only 4 red pipes and 9 blue pipes supplied the water.

$\therefore$  In 1 hour, they supplied  $= (4 \times 4 + 9 \times 3) = 43$  units of water

$\therefore$  In 3 hours, they supplied  $= 43 \times 3 = 129$  units.

Hence, statement I is incorrect.

Similarly, statement III is also incorrect.

Now, check statement II, 3 red pipes and 4 blue pipes did not supply water, implies only 6 red pipes and 8 blue pipes supplied water to the pool.

$\therefore$  In 1 hour, they together supplied  $(6 \times 4 + 8 \times 3) = 48$  units of water.

$\therefore$  In 3 hours, they supplied  $= 48 \times 3 = 144$  units.

Hence, only statement II is correct.

**FeedBack**

**Q.78**

Two points A (4, -2) and B (5, 5) lie on the circumference of a circle of radius 5 units. If P is another point lying on the circumference of the same circle, find the maximum possible area (in sq. units) of triangle PAB.

1   $\frac{25}{4}(\sqrt{2} + 1)$

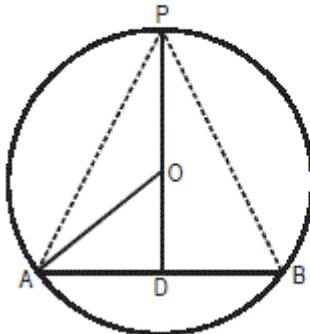
2   $\frac{25}{2}(\sqrt{2} + 1)$

3   $\frac{25}{2}(\sqrt{2} - 1)$

4  25

**Solution:****Correct Answer : 2****Bookmark****Answer key/Solution**

As the area of  $\triangle PAB$  is maximum, we can conclude that P is farthest from the line joining A and B and lies on the perpendicular to AB through O (the center). Hence,  $\triangle PAB$  is an isosceles triangle.



The distance between  $AB = \sqrt{(5-4)^2 + (5+2)^2} = \sqrt{50} = 5\sqrt{2}$ .

The perpendicular distance of the center of the circle from the line AB

$$= OD = \sqrt{OA^2 - \left(\frac{AB}{2}\right)^2} = \sqrt{5^2 - \left(\frac{\sqrt{50}}{2}\right)^2} = \frac{5}{\sqrt{2}}$$

$$\text{The height of the triangle } PAB = PO + OD = 5 + \frac{5}{\sqrt{2}} = \frac{5(\sqrt{2} + 1)}{\sqrt{2}}$$

$$\text{Area of the triangle } PAB = \frac{1}{2} (AB)(PD) = \frac{1}{2} (\sqrt{50}) \left[ \frac{5(\sqrt{2} + 1)}{\sqrt{2}} \right] = \frac{25}{2} (\sqrt{2} + 1)$$

**FeedBack**
**Q.79**

If  $\log_b a + \log_a b = 2$ , where  $a, b > 0$ , then find the value of  $\log_{ab^2} a^2 b$ .

**Solution:****Correct Answer : 1**Let  $\log_b a = m$ 

$$\therefore m + \frac{1}{m} = 2$$

$$m^2 + 1 = 2m$$

$$m^2 - 2m + 1 = 0$$

$$(m - 1)^2 = 0$$

$$m - 1 = 0$$

$$\therefore m = 1$$

$$\Rightarrow \log_b a = 1$$

$$\therefore a = b.$$

$$\Rightarrow \log_{ab^2} \frac{a^2b}{ab^2} = \log_{a^3} a^3 = 1.$$

**Bookmark****Answer key/Solution****FeedBack****Q.80**

**A fruit vendor professes to sell fruits at the cost price, but uses false weights. He gains 30% in this manner. What weight does he substitute for one kilogram?**

1   $645\frac{1}{3}$  grams2  750 grams3   $769\frac{3}{13}$  grams4  800 grams**Solution:****Correct Answer : 3**

Let the cost price of 1 kg be Rs. 100.

But he uses false weight. Let the weight be  $x$  kgThen, selling price of  $x$  kg = Rs. 100

$$\text{Selling price of 1 kg} = \text{Rs. } \frac{100}{x}$$

$$\text{Given that } \frac{100}{x} = 130$$

$$\Rightarrow x = \frac{100}{130} \text{ kg}$$

$$= 769\frac{3}{13} \text{ gm}$$

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

**Q.81**

**How many even numbers are there with 3 digits, such that if 3 is one of the digits then 7 is the next digit?**

**Solution:**

**Correct Answer : 365**

Even numbers mean units place can take values 0, 2, 4, 6, and 8.

According to the question, there are two cases:

**Case 1:** If 3 is there, then it is followed by 7.

370, 372, 374, 376 and 378.

These 5 even numbers are possible.

**Case 2:** If 3 is not there.

0/2/4/6/8

— — —  
8 ways × 9 ways

∴ Total ways in this case is  $8 \times 9 \times 5 = 360$

Hence, total  $(360 + 5) = 365$  even numbers are possible.

**Bookmark**

**Answer key/Solution**

**FeedBack**

**Q.82**

**Anand, a mathematician, had a strange wish of finding out the number of ways in which she could express her mobile number '9898989898' as the difference between the squares of two natural numbers and she observed that it can be done in x ways. What was the value of x arrived at by her?**

1  0

2  1

3  2

4  More than 3

**Solution:**

**Correct Answer : 1**

**Bookmark**

**Answer key/Solution**

Let  $a^2 - b^2 = 98\ 98\ 98\ 98\ 98$  where a, b are natural numbers

$\Rightarrow (a + b)(a - b) = 98\ 98\ 98\ 98\ 98$

We will get integral values of a and b only when both  $(a - b)$  and  $(a + b)$  are odd OR when both  $(a - b)$  and  $(a + b)$  are even.

Now, since her mobile no. is even, both  $(a - b)$  and  $(a + b)$  cannot be odd.

Again if both  $(a - b)$  and  $(a + b)$  are even then number must be divisible by 4, which again is not true.

Hence, x is 0.

**FeedBack**

**Q.83**

Solve for x:  $\frac{|x-3|}{|x+3|} < 4$ .

1   $\left(\frac{7}{8}, \infty\right)$

2   $\left(-\infty, -\frac{9}{5}\right)$

3   $\left(\frac{9}{5}, \infty\right)$

4   $\left(-\infty, -\frac{7}{8}\right)$

**Solution:**

**Correct Answer : 1**

Solving through the options directly:-

At  $x = -3$ , the function is not defined  
 $\therefore$  option 2 and 4 are cancelled.

At  $x = 1$ , the inequality is satisfied.

So, only option 1 is satisfying the inequality i. e  $x \in \left(\frac{7}{8}, \infty\right)$

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Q.84**

In a tank of 1000 litres, there are 2 inlet pipes which are equally efficient and one outlet pipe. If the outflow rate is 45% of inflow rate of one inlet pipe, what should be the inflow rate of one inlet pipe so that the tank takes 19 hours to completely fill? (to nearest integer in litre/hour)

1  34

2  96

3  29

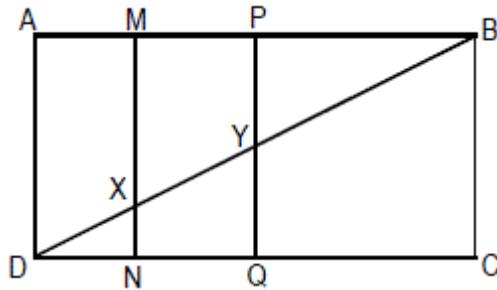
4  None of these

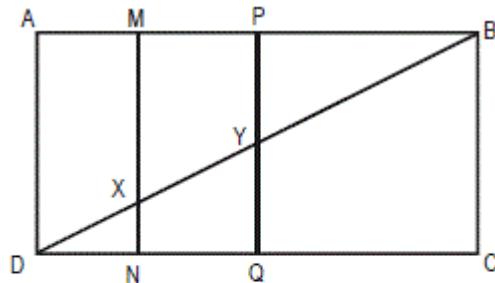
**Solution:****Correct Answer : 1**

Let the inflow rate of one pipe be  $a$   
 Then,  $(2a - 0.45a) \times 19 = 1000$   
 $\Rightarrow 1.55a \times 19 = 1000$   
 $\Rightarrow a = 33.95$   
 $= 34$  litre/hour.

**Bookmark****Answer key/Solution****FeedBack****Q.85**

ABCD is a rectangle where MN and PQ divide the diagonal DB in the ratio of 1 : 2 : 3. If the area of rectangle is 432 sq. cm and length of DC is 24 cm, then find the area (in sq. cm) of quadrilateral YBCQ.

**Solution:****Correct Answer : 162****Bookmark****Answer key/Solution**



$\therefore$  BD is a diagonal  
 $\therefore$  Area of rectangle ABCD =  $2 \times$  Area of right angled triangle BCD  
 $\therefore$  Area of  $\triangle BCD = \frac{1}{2} \times 432 = 216$  sq. cm.  
 $\therefore \frac{1}{2} \times DC \times BC = 216.$

$$\therefore BC = \frac{2 \times 216}{24} = 18\text{ cm}$$

In  $\triangle BCD$ ,  $DC^2 + BC^2 = BD^2$

$$\therefore BD = \sqrt{(24)^2 + (18)^2} = 30\text{ cm}$$

$\therefore DX : XY : YB = 1 : 2 : 3$

$$\therefore DX = \frac{1}{6} \times DB = \frac{1}{6} \times 30 = 5\text{ cm}$$

$$XY = \frac{2}{6} \times DB = \frac{2}{6} \times 30 = 10\text{ cm.}$$

$$DY = DX + XY = 5 + 10 = 15\text{ cm}$$

In  $\triangle DYQ$  and  $\triangle DBC$

$$\frac{DY}{DB} = \frac{YQ}{BC} = \frac{DQ}{DC} \dots (\because \text{similar triangles})$$

$$\frac{15}{30} = \frac{YQ}{18} \text{ and } \frac{15}{30} = \frac{DQ}{24}$$

$$\therefore YQ = 9\text{ cm and } DQ = 12\text{ cm}$$

$$\text{Area of } \triangle DYQ = \frac{1}{2} \times DQ \times YQ = \frac{1}{2} \times 12 \times 9 = 54\text{ sq.cm.}$$

$$\text{Area of quadrilateral BCQY} = (\text{Area of } \triangle BCD) - (\text{Area of } \triangle DYQ) = 216 - 54 = 162\text{ sq. cm.}$$

**FeedBack**

### Q.86

When a natural number x is divided by 5, the remainder is 2. When a natural number y is divided by 5, the remainder is 4. The remainder is z when  $x + y$  is divided by 5. The value of  $\frac{2z - 5}{3}$  is

1  -1

2  1

3  -2

4  2

**Solution:****Correct Answer : 1**

$$x = 5m + 2$$

$$y = 5n + 4$$

$$\therefore x + y = 5(m + n) + 6 \\ = 5(m + n + 1) + 1$$

But given that when  $x + y$  is divided by 5 remainder is  $z$ .

$$\therefore z = 1$$

$$\text{Now, } \frac{2z - 5}{3} = \frac{2 \times 1 - 5}{3} = -1$$

 **Bookmark**
 **Answer key/Solution**
**Q.87**

**A coaching institute has 144 students numbered from 1 to 144, in which all the even numbered students are preparing for MBA, those students whose numbers are divisible by 3 are preparing for UPSC, those students whose numbers are divisible by 5 are preparing for Law and rest are preparing for BBA. How many students are preparing for BBA?**

1  39

2  43

3  47

4  51

**Solution:****Correct Answer : 1**
 **Bookmark**
 **Answer key/Solution**

The number of students preparing for MBA =  $144/2 = 72$

The number of students preparing for UPSC =  $144/3 = 48$

The number of students preparing for Law =  $144/5$  implies 28

The number of students preparing for MBA and UPSC =  $144/6 = 24$

The number of students preparing for MBA and Law =  $144/10$  implies 14

The number of students preparing for UPSC and Law =  $144/15$  implies 9

The number of students preparing for all three (i.e., MBA, UPSC and Law) =  $144/30$  implies 4

Therefore, the total number of students preparing for MBA or UPSC or Law =  $72 + 48 + 28 - 24 - 14 - 9 + 4 = 105$

Hence, number of students preparing for BBA =  $144 - 105 = 39$ .

**Q.88**

According to the recipe for a special cake a baker requires to add butter, eggs and flour in the ratio of 3 : 5 : 4 respectively by volume. The weight of an egg is 50 g and seven eggs are equal to two measuring cups by volume. A bag of flour weighs 750 g and it is equal to twelve and a half measuring cups by volume. 250 g of butter is equal to two measuring cups by volume. What should be the ratio according to weight of butter, eggs and flour respectively for the recipe of the special cake?

1  150 : 125 : 96

2  75 : 250 : 48

3  75 : 175 : 48

4  75 : 125 : 96

**Solution:**

**Correct Answer : 3**

$$\text{Weight of butter in one measuring cup} = \frac{250}{2} = 125 \text{ g}$$

$$\text{Weight of eggs in one measuring cup} = \frac{350}{2} = 175 \text{ g}$$

$$\text{Weight of flour in one measuring cup} = \frac{750}{12.5} = 60 \text{ g}$$

$$\begin{aligned} \therefore \text{Ratio of 3 cups of butter : 5 cups of eggs : 4 cups of flour by weight} \\ = (3 \times 125) : (5 \times 175) : (4 \times 60) = 375 : 875 : 240 = 75 : 175 : 48. \end{aligned}$$

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Q.89**

An infinite geometric progression  $t_1, t_2, t_3, \dots$  has the property that  $t_{n-1} = 2(t_n + t_{n+1} + \dots)$  for  $n \geq 2$ . If the sum  $t_1 + t_2 + t_3 + \dots = 27$ , then find  $t_6$ .

1  1/27

2  2/27

3  3/27

4  4/27

**Solution:****Correct Answer : 2**For  $n = 2$ 

$$t_1 = 2(t_2 + t_3 + \dots)$$

$$\text{Let } t_2 + t_3 + \dots = x$$

$$\text{Then, } t_1 = 2x$$

$$\text{Therefore, } t_1 + t_2 + t_3 + \dots = 3x$$

$$\Rightarrow 27 = 3x \Rightarrow x = 9$$

$$\text{Therefore, } t_1 = 18$$

For  $n = 3$ 

$$t_2 = 2(t_3 + t_4 + \dots)$$

$$\text{Let } t_3 + t_4 + \dots = y$$

$$\text{Then, } t_2 = 2y$$

$$\text{Therefore, } t_2 + t_3 + t_4 + \dots = 3y$$

$$\Rightarrow 9 = 3y \Rightarrow y = 3$$

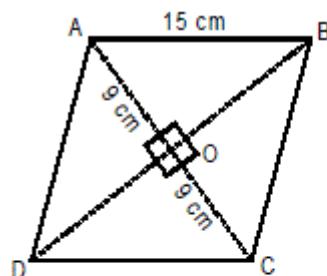
$$\text{Therefore, } t_2 = 6$$

As  $t_1 = 18$  and  $t_2 = 6$ 

$$\text{Hence, } t_6 = 18 \times \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} = \frac{2}{27}$$

**FeedBack****Bookmark****Answer key/Solution****Q.90**

The side and one diagonal of a rhombus are 15 cm and 18 cm respectively. Find the area (in sq. cm) of the rhombus.

**Solution:****Correct Answer : 216**In  $\triangle AOD$ ,

$$AD^2 = OA^2 + OD^2$$

$$\Rightarrow OD = \sqrt{15^2 - 9^2} = 12 \text{ cm}$$

$$\therefore BD = 2 \times 12 = 24 \text{ cm}$$

$$\therefore \text{Area of the rhombous} = \frac{1}{2} \times 18 \times 24 = 216 \text{ cm}^2$$

**Bookmark****Answer key/Solution****Q.91**

Container P contains alcohol and water in the ratio of 6 : 7. Container Q contains alcohol and water in the proportion 7 : 2. In what proportion should quantities be taken from P and Q to form a mixture in which alcohol and water are in the ratio of 7 : 6?

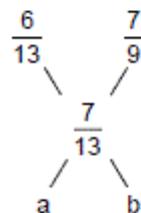
1  28 : 92  9 : 283  1 : 34  3 : 1**Solution:****Correct Answer : 1**

In container P, the proportion of alcohol is  $\frac{6}{6+7} = \frac{6}{13}$

In container Q, the proportion of alcohol is  $\frac{7}{7+2} = \frac{7}{9}$

The amount of alcohol in the mixture =  $\frac{7}{7+6} = \frac{7}{13}$

Using alligation,



$$a = \frac{7}{9} - \frac{7}{13} = 7\left(\frac{13-9}{13 \times 9}\right) = \frac{28}{117}$$

$$b = \frac{7}{13} - \frac{6}{13} = \frac{1}{13}$$

$$\text{Hence, required ratio} = 28 : \frac{1}{13} = \frac{28}{9}.$$

**Bookmark**
**Answer key/Solution**
**FeedBack**
**Q.92**

If the roots of the equation  $2ax^2 + 2ax + 1 = 0$  are real and distinct, then the number of possible integer value(s) 'a' can take between 1 and 4 (inclusive) is

1  12  43  34  2

**Solution:****Correct Answer : 4**For roots to be real and distinct  $D > 0$ 

$$\Rightarrow (2a)^2 - 4 \times 2a > 0$$

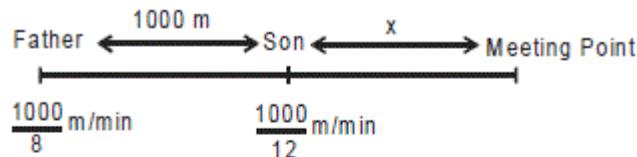
$$a > 2 \text{ or } a > 0$$

$$1 \leq a \leq 4 \text{ (given)}$$

$$2 < a \leq 4 \Rightarrow a = 3, 4$$

**Bookmark****Answer key/Solution****FeedBack****Q.93**

A father runs after his son, who is 1000 meters ahead. The father runs at a speed of 1 kilometer every 8 minutes, and the son runs at a speed of 1 kilometer every 12 minutes. How much distance (in meters) has the son covered at the point when the father overtakes him?

**Solution:****Correct Answer : 2000****Bookmark****Answer key/Solution**

Now,

$$\frac{1000+x}{\left(\frac{1000}{8}\right)} = \frac{x}{\left(\frac{1000}{12}\right)}$$

$$\Rightarrow 8(1000 + x) = 12x$$

$$\Rightarrow 4x = 8000$$

$$\Rightarrow x = 2000 \text{ m.}$$

**FeedBack****Q.94**

A carpenter makes a triangular table, the lengths of whose sides are in Arithmetic Progression. If the area of the table is 6 sq. ft., then the perimeter of one such table is

1  6 ft.2  24 ft.3  12 ft.4  36 ft.

**Solution:****Correct Answer : 3** **Bookmark** **Answer key/Solution**

A right angled triangle whose sides are in Arithmetic progression are 3, 4 and 5 ft. respectively will have an area of 6 sq. ft. and perimeter of 12 ft.

**FeedBack****Q.95**

**Aman, Baman, and Raman jointly invested Rs. 60,000 in a small services firm. They decided to share the profits from this investment in the ratio of their investments. The firm had a very successful first year and recorded profit of Rs. 1,00,000. Aman and Baman received Rs. 40,000 and Rs. 25,000 as their respective share of the profit. The respective investments (in Rs.) of Aman, Baman, and Raman were**

- 1  30,000; 10,000; 20,000
- 2  21,000; 15,000; 24,000
- 3  24,000; 15,000; 21,000
- 4  25,000; 12,000; 23,000

**Solution:****Correct Answer : 3** **Bookmark** **Answer key/Solution**

Profit received by Raman = Rs.100000 – (Rs.40000 + Rs.25000) = Rs.35000

Ratio of the profits received by Aman, Baman and Raman = 8 : 5 : 7 respectively.

Therefore, the money invested by them will also be in the same ratio 8:5:7.

Hence, the money invested by Aman, Baman and Raman will be Rs. 24,000, Rs. 15,000 and Rs. 21,000 respectively.

**FeedBack****Q.96**

**If the square of a natural number (N) has 35 factors, the number of factors of N may be equal to**

- 1  15
- 2  12
- 3  16

4 ● 20

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

Since  $N^2$  have 35 factors,  $N^2$  must be of the form  $a^{34}$  or  $a^4 \times b^6$ . [where a, b are prime numbers].

If  $N^2 = a^{34}$ ;  $N = a^{17}$  :- Number of factors of N = 18.

$N^2 = a^4 \times b^6$ ;  $N = a^2 \times b^3$  :- Number of factors of N =  $(2 + 1)(3 + 1) = 12$ .

**FeedBack****Q.97**

If  $\log_3(4 + \log_2 x) = 2$  and  $\log_7(x + 13 + \log_3 y) = 2$ , then  $y - x$  is equal to

**Solution:****Correct Answer : 49**

$$\log_3(4 + \log_2 x) = 2$$

$$\Rightarrow 4 + \log_2 x = 3^2$$

$$\Rightarrow \log_2 x = 5$$

$$\Rightarrow x = 2^5$$

$$\Rightarrow x = 32$$

$$\log_7(x + 13 + \log_3 y) = 2$$

$$\Rightarrow x + 13 + \log_3 y = 7^2$$

$$\Rightarrow \log_3 y = 49 - 32 - 13$$

$$\Rightarrow \log_3 y = 4 \Rightarrow y = 3^4 \Rightarrow y = 81$$

Hence,  $y - x = 81 - 32 = 49$ .

**Bookmark** **Answer key/Solution** **FeedBack****Q.98**

P and Q are two sets such that  $P \Delta Q$  denotes the set of elements which belong to P or Q but not both. If  $A = \{2, 3, 5, 7, 9\}$ ,  $B = \{1, 5, 7, 8\}$ ,  $C = \{2, 4, 5, 6, 8\}$  and  $D = \{3, 4, 6, 8, 9, 10\}$ , then find the number of elements in  $\{(A \Delta B) \Delta C\} \Delta \{(C \Delta D) \Delta A\}$ .

**Solution:****Correct Answer : 8**

$$A \Delta B = \{1, 2, 3, 8, 9\} \text{ and } (A \Delta B) \Delta C = \{1, 3, 4, 5, 6, 9\}$$

$$C \Delta D = \{2, 3, 5, 9, 10\} \text{ and } (C \Delta D) \Delta A = \{7, 10\}$$

$$\text{Therefore, } \{(A \Delta B) \Delta C\} \Delta \{(C \Delta D) \Delta A\} = \{1, 3, 4, 5, 6, 7, 9, 10\}$$

Hence, required number of elements = 8.

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

**Q.99**

In two arithmetic progressions  $A_1$  and  $A_2$ , their respective first terms  $a_1$  and  $a_2$  are in ratio of 2 : 5 respectively and their common differences are  $d_1$  and  $d_2$  respectively. The sum of first 5 terms of

these two arithmetic progressions are in ratio of 1 : 2 respectively. Find the value of  $\frac{2d_1 - d_2}{a_2}$ .

1  1 : 5

2  1 : 10

3  4 : 5

4  1 : 20

**Solution:**

**Correct Answer : 2**

$$\frac{a_1}{a_2} = \frac{2}{5}$$

**Bookmark**

**Answer key/Solution**

$$\frac{\frac{5}{2}[2a_1 + (5-1)d_1]}{\frac{5}{2}[2a_2 + (5-1)d_2]} = \frac{1}{2}$$

$$\Rightarrow \frac{2a_1 + 4d_1}{2a_2 + 4d_2} = \frac{1}{2}$$

$$\Rightarrow 2a_1 + 4d_1 = a_2 + 2d_2$$

$$\Rightarrow 4d_1 - 2d_2 = a_2 - 2a_1$$

$$\Rightarrow \frac{2d_1 - d_2}{a_2} = \frac{1}{2} \left[ 1 - 2 \left( \frac{a_1}{a_2} \right) \right] = \frac{1}{2} \left[ 1 - 2 \left( \frac{4}{5} \right) \right] = \frac{1}{10}$$

**FeedBack**

**Q.100**

A large private airline increased the price of their air tickets by 20 percent to compensate for the increase in airport charges. Due to increasing cost of Aviation Turbine fuel, the airline had to increase further the price of the ticket by 30 percent. By approximately what percentage the ticket prices have gone up as a result of two price hikes by the airline.

**Solution:**

**Correct Answer : 56**

Let the price of air ticket be Rs. 100.

Then, price after increase in airport charges = Rs. 120.

Price after increase in turbine fuel cost =  $1.3 \times 120 = \text{Rs. } 156$

**Bookmark**

**Answer key/Solution**

$$\text{Net increase in air ticket} = \frac{156 - 100}{100} \times 100 = 56\%$$

**FeedBack**

