



Mock CAT – 03 2019

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VARC

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QA

Sec 1

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 1

In 1972, the Convention concerning the Protection of the World Cultural and Natural Heritage, or World Heritage Convention, was adopted at the seventeenth session of UNESCO's General Conference. Building on key institutions in world society, the Convention's aims to identify, protect and preserve "cultural and natural heritage of outstanding universal value" have rapidly diffused throughout the world and achieved near universal acceptance in the decades since. Indeed, when the Bahamas ratified in 2014 it became the 191st State Party to adhere to the World Heritage Convention, furthering its status as the most widely accepted UNESCO convention. Yet just as the World Heritage List has expanded to include over one thousand cultural and natural heritage sites, the concerns and challenges associated with successfully preserving world heritage have multiplied as well. Among those concerns are the sustainability of an ever-expanding number of inscribed sites and the social, economic, and environmental impacts of tourism on cultural and natural properties. Although the World Heritage Convention predates the concept of sustainable tourism, Labadi suggests that it is implied in Article 4, which places responsibility with each state party to ensure the "presentation and transmission to future generations".

Today, such concerns have been formally incorporated into UNESCO's World Heritage and Sustainable Tourism Program, as well as sustainable development initiatives, which seek to balance the interests of world heritage's diverse stakeholders. Efforts to promote sustainable tourism have inspired a great deal of scholarly analysis, debate, and even scepticism. In fact, the role of two official advisory bodies—the International Council on Monuments and Sites (ICOMOS) and the International Union for the Conservation of Nature and Natural Resources (IUCN)—in assessing and articulating concerns about sustainability and tourism of over 800 cultural and natural sites that have been nominated for inscription in the World Heritage List, is tremendous.

Many observers have understandably criticized heritage tourism as either a profit-making tool of the tourism (or heritage) industry; a means of identity construction and self-aggrandizement for nation-states that reflects elite interests; or a Eurocentric imposition by Western countries and international agencies. Among other things, such efforts to commoditize, politicize, or universalize heritage are seen as a threat to the authenticity of cultural and natural properties. Yet scholars have also shown that inscription on the World Heritage List is neither a guaranteed boon to tourism nor a process that is always driven by elites. Other studies highlight the problems with conceptualizing the tourism industry as a monolithic entity and demonstrate the role of local influences in heritage outcomes and interpretations. Thus, while power imbalances are clearly evident in the world heritage arena, a wide range of stakeholders potentially shape the development, interpretation, and inscription of cultural and natural sites. Although the cultural and natural heritage experts who assess the value of nominated world heritage sites are among these stakeholders, they are rarely the subjects of scholarly analysis despite theoretical reasons for doing so.

Q.1

According to the passage, for which of the following is the heritage tourism criticized?

- 1 For being non-commercial
- 2 For practicing self-vilification
- 3 For intending philanthropy
- 4 For practicing self-glorification

Solution:

Correct Answer : 4

Genre: Tourism / History

Word Count: 482

 **Bookmark**

 **Answer key/Solution**

The last paragraph states—"Many observers have understandably criticized heritage tourism as either a profit-making tool of the tourism (or heritage) industry; a means of identity construction and self-aggrandizement for nation-states that reflects elite interests". Hence, option 4 is the answer. Options 1 and 2 state exactly the opposite of what is mentioned.

Option 3 is beyond the scope of the passage.

 **FeedBack**

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Q.2

Which of the following is factually true about the World Heritage List?

- 1 **World Heritage List is a tremendous piece of work.**
- 2 **World Heritage List is governed by the nobility.**
- 3 **Inclusion in the World Heritage List isn't a blessing.**
- 4 **Inclusion in the World Heritage List is a matter of intense scholarly work and debate.**

X

Solution:

Correct Answer : 3

Your Answer : 4

Genre: Tourism / History

Word Count: 482

Option 1 – The author never categorically praises the list. The author in fact mildly criticizes the same.

Option 2 – It is not supported by the passage. 'Elites' is not necessarily 'nobility'.

Option 3 – Refer to the line: 'Yet scholars have also shown that inscription on the World Heritage List is neither a guaranteed boon to tourism nor a process that is always driven by elites.' So, this is the answer.

Option 4 – It is contradicted by the passage as not necessarily being true.

 **Bookmark**

 **Answer key/Solution**

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Q.3

Which of the following is the author's concern in the above passage?

- 1 **To point how issues of world heritage sustainability have changed over time**
- 2 **To question why some nominated world heritage sites are not studied by the scholars**
- 3 **To question the emergence of sustainability and tourism in the world heritage arena**
- 4 **To point out why cultural wealth cannot be converted into economic and political wealth**



Solution:

Correct Answer : 2

Your Answer : 2

Genre: Tourism / History

Word Count: 482

This is a main idea question. The author takes a critical as well as analytical attitude towards the World Heritage List. So, option 2 best captures this idea. The last paragraph makes this even more apparent where the author expresses his concerns over the lack of scholarly analysis of nominated world heritage sites.

Option 1 is incorrect as the author doesn't discuss this transition.

Option 3 is incorrect as the author simply tells the emergence pattern but he does not question it.

Option 4 is beyond the scope of the passage.

Bookmark

Answer key/Solution

FeedBack

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Q.4

What does the author point towards when he states “responsibility with each state party to ensure the presentation and transmission to future generations”?

- 1 S/he highlights the difficult balance between cultural wealth and its preservation.
- 2 S/he highlights the difficult balance between the central and the state government in having a charge over the cultural bodies.
- 3 S/he highlights the difficult balance between preserving the world heritage and making it accessible to posterity.
- 4 S/he highlights the difficult balance between preserving the cultural heritage and establishing the global status and prestige of a nation.

Solution:

Correct Answer : 3

Genre: Tourism / History

Word Count: 482

 **Bookmark**

 **Answer key/Solution**

Refer to the lines: “Among those concerns are the sustainability.....future generations. They show that the author’s concern is with the difficulty in preserving the world heritage and its availability to the next generation. This is rightly explained in 3.

Option 1 is incomplete as it mentions only the preservation part.

Option 2 is unrelated.

Similarly 4 does not talk about its access for the next generation. So, it doesn’t answer the given question.

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 2

We all know smart people who do stupid things. At work we see people with brilliant minds make the most simple mistakes. At home we might live with someone who is intellectually gifted but also has no idea. We all have friends who have impressive IQs but lack basic common sense. Clearly I had a personal interest in trying to work out why I, and millions of others like me, could be so stupid so much of the time. After looking back at my own experiences and reading the rapidly growing body of work on why humans fail to think, my co-author and I started to come to some conclusions.

Having a high IQ score does not mean that someone is intelligent. IQ tests only capture analytical intelligence; this is the ability to notice patterns and solve analytical problems. Most standard IQ tests miss out two other aspects of human intelligence: creative and practical intelligence. Creative intelligence is our ability to deal with novel situations. Practical intelligence is our ability to get things done. For the first 20 years of life, people are rewarded for their analytical intelligence. Then we wonder why the "best and brightest" are uncreative and practically useless.

Most intelligent people make mental short cuts all the time. One of the most powerful is self-serving bias: we tend to think we are better than others. Most people think they are above average drivers. If you ask a class of students whether they are above the class average in intelligence, the vast majority of hands shoot up. Even when you ask people who are objectively among the worst in a certain skill, they tend to say they are above average. Not everyone can be above average – but we can all have the illusion that we are. We desperately cling to this illusion even when there is devastating evidence to the contrary. We collect all the information we can find to prove ourselves right and ignore any information that proves us wrong. We feel good, but we overlook crucial facts. As a result the smartest people ignore the intelligence of others so they make themselves feel smarter.

Being smart can come at a cost. Asking tricky questions, doing the research and carefully thinking things through takes time. It's also unpleasant. Most of us would rather do anything than think. A recent study found that when left alone in a room, people preferred to give themselves electric shocks than quietly sit and think. Being smart can also upset people. Asking tough questions can quickly make you unpopular.

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Q.5

Which of the following is the main point of the author in this passage?

- 1 **The faulty IQ tests that make stupid people look smart**
- 2 **The price intelligent people pay for being above average**
- 3 **The reasons why intelligent people may behave otherwise**
- 4 **The length to which intelligent people go to hide their smartness**

X

Solution:

Correct Answer : 3

Your Answer : 1

Genre: Psychology

Word Count# 533



Answer key/Solution

This is a main idea question. In this passage, the author talks about the problems faced by smart people. These problems are practical: the relevance and accuracy of IQ tests, the definition of intelligence, and the dilemma faced by smart peoples to 'belong' etc. So, option 3 is the correct answer.

Option 1 – This option has two issues: the author never says that people who are termed intelligent by IQ tests are actually stupid; the author never says that all IQ tests are faulty.

Option 2 – The author only discusses the problems intelligent people face. 'Prices' is a loaded term and it can have multiple interpretations. In fact, most likely, this option means that intelligent people have to suffer a lot because of their intelligence. This doesn't match the tone of the passage.

Option 4 – This is a complete distortion of a certain part of the passage. It is also quite narrow in its scope.

FeedBack

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Q.6

Which of the following is the real danger of intelligent people following the crowd, as per the author?

- 1 Their behaviour may lead them to jump off a cliff or take unnecessary risks.
- 2 Their avoidance of their own cognition can be eventually catastrophic.
- 3 They end up being under too much pressure to please others.
- 4 Their behaviour pays off only in the short term.

Solution:

Correct Answer : 2

Genre: Psychology

Word Count# 533



[Answer key/Solution](#)

The answer to this question lies in the sentence “But in the long term it can create poor decisions and lay the foundations for disaster.” So, option 2 is the clear answer.

Option 1 – It is too literal an interpretation of a line given in the passage. The author was being sarcastic in those lines.

Options 3 and 4 – These are clearly undesirable consequences. But the author doesn't recognize these as the main issue.

[FeedBack](#)

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Q.7

What can be inferred from the sentence “my own idiocy probably came with a payoff”?

- 1 **The author is reiterating the idea that people may behave stupidly in order to assimilate.**
- 2 **The author is happy about being part of the crowd.**
- 3 **The author is relieved at having been able to avoid the tedious task of analyzing a decision.**
- 4 **The author is trying to justify the fact that one's stupidity can just be a coping mechanism.**

Solution:

Correct Answer : 1

Genre: Psychology

Word Count# 533

The author doesn't mention this in a literal sense. Refer to the explanation to Q5. The main idea of the passage is discussed there. The last sentence of the passage gives the author the opportunity to reiterate the main idea. So, option 1 is the answer.

Options 2, 3, and 4 don't match the tone of the passage.

 **Bookmark**

 **Answer key/Solution**

FeedBack

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Q.8

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

- 1 The best and the brightest people on earth have the toughest time in dealing with practical situations.
- 2 Our definition of the word 'stupidity' is problematic as it hinders our ability to judge true intelligence.
- 3 Practical and creative intelligence make us really smart; analytical intelligence is useless.
- 4 Many popular IQ tests are not holistic in their detection of intelligence.

Solution:

Correct Answer : 4

Genre: Psychology

Word Count# 533

This is an inference based question. So, it is best to apply the method of elimination.

Option 1 – The author doesn't discuss the 'practical' problems faced by the 'bright' and the 'best'. Similarly, 'toughest' doesn't sound logical. So, the author may or may not agree with this option.

Option 2 – The definition of intelligence, not stupidity, is part of the crux of the passage. So, this is a distorted option.

Option 3 – The author questions our over reliance on analytical intelligence. But the author never calls this 'useless'. This is an extreme option.

Option 4 – It is the correct choice. The author questions the efficacy of these tests. S/he states that majority of these tests don't take into account a holistic definition of intelligence.

 **Bookmark**

 **Answer key/Solution**

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Intelligent people quickly learn these lessons. Instead of using their intelligence, they just stay quiet and follow the crowd – even if it is off the side of a cliff. In the short term this pays off. Things get done, everyone's lives are easier and people are happy. But in the long term it can create poor decisions and lay the foundations for disaster.

Next time I find myself banging my own head and asking myself "Why are you so stupid?", I will try to remind myself that I'm trapped in the same situation as many millions of others: my own idiocy probably came with a payoff.

Q.9

Who, among the following, would be considered to be truly intelligent by the author of this passage?

- 1 Archie, who scored the highest in majority of the IQ tests he took and who is popular for his practical problem solving skills
- 2 Veronica, who scored the highest in an IQ test of analytical, creative, and practical intelligence
- 3 Betty, who scored the highest in majority of the IQ tests where she displayed high creative and practical skills
- 4 Kevin, who scored the highest in all the IQ tests he took and who is considered to be the most pragmatic guy around

Solution:

Correct Answer : 2

Genre: Psychology

Word Count# 533



[Answer key/Solution](#)

The author of the passage would call that person intelligent who shows all the three types of intelligence: analytical, practical, and creative. Thus, option 2 is the correct choice.

None of the other options clearly mention all the three types of intelligence.

[FeedBack](#)

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 3

It is curious that so harrowing and ubiquitous a crime has left so little mark on history. Perhaps because infanticide was mostly women's business, specifically poor women's business, very few first-person accounts survive. But then there exist very few contemporary accounts of any kind. Writers are most comfortable discussing it as a rare and shocking crime, or a heinous practice of foreigners, even when it is actually a perennial occurrence in their own neighbourhoods. Occasionally, there are attempts to revise history; to argue, for instance, that ancient Greeks didn't really engage in infanticide, or that it was very rare, even though every Greek reference to the practice treats it as absolutely commonplace. As the historian Josephine Quinn at the University of Oxford told *The Guardian* recently when discussing her work on Carthaginian child sacrifice: 'The feeling that some ultimate taboo is being broken is very strong. It was striking how often colleagues, when they asked what I was working on, reacted in horror and said: "Oh no, that's simply not possible, you must have got it wrong."

Quinn's work on child sacrifice leads us to an interesting exception to all the 'rules' of infanticide discussed thus far. Using children as human sacrifices was common throughout pre-Columbian South America, as well as in ancient Carthage. Here, rather than being deformed or sickly, the preferred victims were unblemished and of unusual beauty. They were seldom newborns; they could even be adolescents. People engaging in child sacrifice tended to be high-ranking and affluent; the rituals often opulent. Victims chosen for the Incan *capacocha* ritual, which marked festivals and important events in the life of the emperor, were kept in luxury by the state, sometimes for years, before being ritually killed and mummified. They were fed so well that archaeologists can pinpoint how long a particular victim was supported post-selection by examining the mummy's hair. These Incan sacrifices were poor children being used by a wealthy bureaucracy – but, according to Quinn, the Carthaginians sacrificed their own children and, since the ritual was costly, such parents were by definition rich.

This, finally, is a practice that seems so distant from us as to be completely incomprehensible. Yet, if we assume the Carthaginians sincerely believed in their gods and feared the willingness of those gods to punish them for ingratitude, it's part and parcel of the same phenomenon: one child is sacrificed so the rest of the family might thrive.

Q.10

Which of the following is the thematic highlight of the passage?

- 1 The complex history of infanticide and child sacrifice
- 2 The reluctance of scholars to acknowledge the reality of child sacrifice
- 3 The difficulty faced by academicians in breaking religious taboos

4 **The commendable work done by Quinn in exposing the reality of child sacrifice in affluent countries**

Solution:

Correct Answer : 1

Genre: Anthropology / History

Word Count# 404

 **Bookmark**

 **Answer key/Solution**

This is an easy main idea question. As all the options look relevant to the passage, the method of elimination is needed.

Option 2 – It is too narrow as it constitutes only a part of the passage.

Option 3 – This is too broad. 'Religious taboos' is too vast a term to be the main idea of this discussion.

Option 4 – It is both narrow and distorted. Quinn never mentions the role of 'affluent countries'. Secondly, Quinn talks about the reluctance of scholars and elites to accept the harsh reality of the history of child sacrifice, not the role of affluent countries.

Option 1 – This best captures the main focus of the author. The author starts by talking about the history of infanticide. Then s/he goes on to discuss how Quinn has exposed a certain flaw in the historical narrative of the issue. Then, the author gives the examples of certain past event and cultural practices of the ancient era. So, 1 best captures the main aim of the author.

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 3

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Q.11

Why did Quinn's colleagues react with horror when they learnt about her work on child sacrifice?

- 1 It failed to strike a chord with them as infanticide primarily belonged to the narrative of poor women.
- 2 They found it difficult to accept the reality of such an uncomfortable topic.

3 They were unaware of the reality of infanticide due to lack of historical accounts of the same.

4 It broke their ultimate social taboo of not discussing something so unpleasant.

Solution:

Correct Answer : 2

Genre: Anthropology / History

Word Count# 404

 **Bookmark**

 **Answer key/Solution**

Refer to the lines: As the historian Josephine Quinn at the University of Oxford told The Guardian recently when discussing her work on Carthaginian child sacrifice: 'The feeling that some ultimate taboo is being broken is very strong. It was striking how often colleagues, when they asked what I was working on, reacted in horror and said: "Oh no, that's simply not possible, you must have got it wrong.'" So, option 2 is the clear answer.

 **FeedBack**

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 3

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Q.12

Which of the following is definitely not true about the Incan *capacocha* ritual?

- 1 It celebrated festivals and important events in the life of the emperor.
- 2 The victims of these rituals were killed and mummified.
- 3 According to Quinn, rich parents sacrificed their children for personal gains during these rituals.

- 4 Sometimes, the victims chosen for these rituals were adolescents who were kept in luxury for years before being sacrificed.

Solution:

Correct Answer : 3

Genre: Anthropology / History

Word Count# 404

 **Bookmark**

 **Answer key/Solution**

Options 1, 2, and 4 can be verified by the last two paragraphs.

Option 3 – It is distorted. According to Quinn, “the Carthaginians sacrificed their own children and, since the ritual was costly, such parents were by definition rich.” So, this option is about the Carthaginians, not the ritual mentioned in the question.

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

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Q.13

All of the following are mentioned in the passage EXCEPT:

- 1 Infants were sometimes sacrificed by their parents so that their remaining family could survive.
- 2 Josephine Quinn, who works for the *Guardian*, has done a commendable research in breaking certain myths about child sacrifice.

3 Writers have avoided discussing infanticide as a crime that occurred in their vicinity.

4 Historical narratives have failed to do justice to a crime as heinous as child sacrifice.

Solution:

Correct Answer : 2

Genre: Anthropology / History

Word Count# 404

Josephine Quinn has been mentioned as an academician. Refer to the part: 'As the historian Josephine Quinn at the University of Oxford ...' So, Quinn doesn't work for The Guardian. Thus, option 2 is the answer.

The other three options are clearly mentioned in the passage.

 **Bookmark**

 **Answer key/Solution**

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 3

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Q.14

Why does the author mention the Greeks in the passage?

- 1 To show how History distorts the truth by subverting the fact that even evolved races indulged in child sacrifices
- 2 To show how the Greeks didn't or rarely engaged in child sacrifice
- 3 To show the reluctance of humans in accepting uncomfortable historical facts

4 ● To show that infanticide was common in ancient Greece

Solution:

Correct Answer : 3

Genre: Anthropology / History

Word Count# 404

Bookmark

Answer key/Solution

The author gives any example in a passage to strengthen his/her main point. The main point of the passage is that in many modern societies, scholars (and to some extent the general public) are reluctant to accept the historical truth about infanticide and child sacrifice. This distorted historical narrative has been exposed by scholars like Quinn. Option 3 comes the closest to this. So, it is the correct answer.

Option 1 – As per Quinn, scholars refuse to accept the truth as they are not ready to face the harsh reality. This doesn't mean that History, the discipline, 'subverts' the truth. It has just avoided discussing the truth.

Options 3 and 4 – They don't answer the question.

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 4

If you take Apple's word for it, removing the headphone jack from the iPhone 7 was a pure expression of its desire for technological progress. "Some people have asked why we would remove the analogue headphone jack from the iPhone," Phil Schiller, Apple's marketing chief, said yesterday. "It really comes down to one word: courage. The courage to move on to do something new that betters all of us."

Already Apple's defenders have been echoing that sentiment. The headphone jack is century-old technology — why not get rid of it the same way Apple killed the CD drive and Ethernet port on laptops? After all, this is just another connector that can be replaced by something wireless.

But there were clear and tangible benefits to those changes (namely, much thinner and lighter laptops), whereas this change comes littered with downsides. Most headphones in existence are incompatible. You can't charge the phone and listen to wired headphones at the same time. And if you do want to use old headphones, you need to keep a small adapter handy. And that's just to name a few of the many drawbacks.

The benefits, on the other hand, are surprisingly few. Removing the headphone jack frees up a small amount of space inside the iPhone. And while it's true that audio over Lightning can produce a higher sound quality, that's been an option on iPhones for years — now Apple is just forcing everyone into choosing it. There's no actual improvement to sound in the iPhone 7.

While it's tough to make the case that dropping the headphone jack is better for consumers, the benefits for Apple are much easier to see. The iPhone 7 will be bought by tens of millions of people during the next few months alone, and its lack of a headphone jack is going to make many of them consider buying Lightning or Bluetooth headphones. Apple profits from both.

Any company that wants to make a pair of Lightning headphones has to go through Apple's licensing program. Though its fees are kept a secret, past reports have indicated that Apple charges a flat fee for every device sold using one of its connectors. So a bump in the likely low popularity of Lightning headphones is a win for Apple, since it's getting a cut no matter who sells them. Apple did not respond to a request for comment on its licensing fees.

And that's just Lightning. More likely is that the lack of a headphone jack on the iPhone — and increasingly, on Android phones as well — will lead to an uptick in sales of Bluetooth headphones. And it just so happens that Apple owns the number one Bluetooth headphone company, Beats.

Beats brings in more revenue from Bluetooth headphones than LG, Bose, or Jaybird, according to NPD figures released in July. In terms of unit sales, it controls over a quarter of the Bluetooth headphone market.

Bluetooth headphones are also disproportionately profitable among headphones. NPD has them accounting for 54 percent of all dollars spent in the market, despite representing only 17 percent of units sold in the US. These headphones sell at high prices with high margins, and Apple's company is making the best of it so far.

Sales of Bluetooth headphones are already growing, with units up 64 percent year over year according to NPD's US figures. And Apple's removal of the headphone jack is likely to give them another boost.

"It certainly benefits the entire market because lots of people are using different brands of headphones with their iPhones," says Ben Arnold, an industry analyst at NPD. "But I think it certainly benefits Beats the most as the market leader and being able to capitalize on marketing adjacencies at the Apple store and things like that."

Not surprisingly, Apple is already prepared to do that. During its iPhone announcement on Wednesday, Apple introduced its first-ever pair of wireless headphones, called the AirPods. They sell for \$159 (and seem to have the sound quality of the \$29 EarPods they're modeled after). Apple also gave some stage time to Beats, which announced three new sets of wireless headphones: the Solo 3 Wireless (\$299.95), the Powerbeats 3 sport earbuds (\$199.95), and a neck-wraparound called the Beats X (\$149.95)

Q.15

Which of the following has been mentioned by the author as a benefit of removing the headphone jack?

- 1 The push to the sales of AirPods which produce superior sound quality

- 2 The eradication of an obsolete and unnecessary technology
- 3 The quality of sound is clearer in the wireless medium
- 4 The ability to free space and allow multi tasking while listening to music



Solution:

Correct Answer : 3

Your Answer : 3

Genre: Business and Economics

Word Count# 707



[Answer key/Solution](#)

Option 1 is mentioned as an advantage but it is not the most concrete one. Option 4 is mentioned to be something which is not directly a step ahead as it does not give a sound justification of the advantage enjoyed by wireless headphones. Option 2 is mentioned with respect to the CD drive example. Option 3 is clearly the best choice, since it represents the core essence of a headphone.

[FeedBack](#)

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Q.16

Which of the following best captures the author's opinion on Apple's decision to remove the headphone jack?

- 1 It will help empower the mobile phone technology.
- 2 It is a courageous move which will find a wide range of supporters.
- 3 It will help the music lovers the most as the sound quality of AirPods and Beats headphones are the clearest.
- 4 It was primarily made with monetary profit in mind.

X

Solution:

Correct Answer : 4

Your Answer : 2

Genre: Business and Economics

Word Count# 707

 **Bookmark**

 **Answer key/Solution**

The author says that the main benefit Apple will have from the removal of headphone jack is the push to wireless headphones. As Apple (and its subsidiary companies) has (an almost) monopoly over the market, it will result in huge profit for the company. So, this is the most important benefit of the technology. Hence, option 4 is the correct answer.

Option 1 – The author, in fact, states the opposite. S/he uses the phrase 'surprisingly little benefit' to describe the situation.

Option 2 – This is not supported by the facts presented in the passage.

Option 3 – The author categorically says that the sound qualities of these headphones are almost similar to those of cheaper headphones.

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

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Q.17

It can be inferred that Apple benefits from the sale of Lightning headphones because:

- 1 it gives selling license to these headphones and rise in demand is a profitable scenario for Apple.
- 2 it controls the major share of the market and, thus, gains the most by giving license to the manufacturers.
- 3 the headphones are a new innovation and most musicians invest heavily on them, whose major share Apple receives.
- 4 Apple sells them and, thus, it will profit by forcing users to adopt them.

Solution:

Correct Answer : 1

Genre: Business and Economics

Word Count# 707



Answer key/Solution

In the passage, it is clearly mentioned that, 'Any company that wants to make a pair of Lightning headphones has to go through Apple's licensing program. Though its fees are kept a secret, past reports have indicated that Apple charges a flat fee for every device sold using one of its connectors. So a bump in the likely low popularity of Lightning headphones is a win for Apple, since it's getting a cut no matter who sells them'. So, option 1 is the clear answer.

Option 2 – The author says that the licensing doesn't matter. So, this is a distorted option.

Option 3 – 'Most musicians' distorts the option.

Option 4 – Apple doesn't directly sell these. So, this is also a distorted option.

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 4

If you take Apple's word for it, removing the headphone jack from the iPhone 7 was a pure expression of its desire for technological progress. "Some people have asked why we would remove the analogue headphone jack from the iPhone," Phil Schiller, Apple's marketing chief,

said yesterday. "It really comes down to one word: courage. The courage to move on to do something new that betters all of us."

Already Apple's defenders have been echoing that sentiment. The headphone jack is century-old technology — why not get rid of it the same way Apple killed the CD drive and Ethernet port on laptops? After all, this is just another connector that can be replaced by something wireless.

But there were clear and tangible benefits to those changes (namely, much thinner and lighter laptops), whereas this change comes littered with downsides. Most headphones in existence are incompatible. You can't charge the phone and listen to wired headphones at the same time. And if you do want to use old headphones, you need to keep a small adapter handy. And that's just to name a few of the many drawbacks.

The benefits, on the other hand, are surprisingly few. Removing the headphone jack frees up a small amount of space inside the iPhone. And while it's true that audio over Lightning can produce a higher sound quality, that's been an option on iPhones for years — now Apple is just forcing everyone into choosing it. There's no actual improvement to sound in the iPhone 7.

While it's tough to make the case that dropping the headphone jack is better for consumers, the benefits for Apple are much easier to see. The iPhone 7 will be bought by tens of millions of people during the next few months alone, and its lack of a headphone jack is going to make many of them consider buying Lightning or Bluetooth headphones. Apple profits from both.

Any company that wants to make a pair of Lightning headphones has to go through Apple's licensing program. Though its fees are kept a secret, past reports have indicated that Apple charges a flat fee for every device sold using one of its connectors. So a bump in the likely low popularity of Lightning headphones is a win for Apple, since it's getting a cut no matter who sells them. Apple did not respond to a request for comment on its licensing fees.

And that's just Lightning. More likely is that the lack of a headphone jack on the iPhone — and increasingly, on Android phones as well — will lead to an uptick in sales of Bluetooth headphones. And it just so happens that Apple owns the number one Bluetooth headphone company, Beats.

Beats brings in more revenue from Bluetooth headphones than LG, Bose, or Jaybird, according to NPD figures released in July. In terms of unit sales, it controls over a quarter of the Bluetooth headphone market.

Bluetooth headphones are also disproportionately profitable among headphones. NPD has them accounting for 54 percent of all dollars spent in the market, despite representing only 17 percent of units sold in the US. These headphones sell at high prices with high margins, and Apple's company is making the best of it so far.

Sales of Bluetooth headphones are already growing, with units up 64 percent year over year

according to NPD's US figures. And Apple's removal of the headphone jack is likely to give them another boost.

"It certainly benefits the entire market because lots of people are using different brands of headphones with their iPhones," says Ben Arnold, an industry analyst at NPD. "But I think it certainly benefits Beats the most as the market leader and being able to capitalize on marketing adjacencies at the Apple store and things like that."

Not surprisingly, Apple is already prepared to do that. During its iPhone announcement on Wednesday, Apple introduced its first-ever pair of wireless headphones, called the AirPods. They sell for \$159 (and seem to have the sound quality of the \$29 EarPods they're modeled after). Apple also gave some stage time to Beats, which announced three new sets of wireless headphones: the Solo 3 Wireless (\$299.95), the Powerbeats 3 sport earbuds (\$199.95), and a neck-wraparound called the Beats X (\$149.95)

Q.18

Which of the following is true according to the passage?

- 1 Bluetooth headphones are disproportionately profitable among smartphone users.
- 2 The US market witnessed a 64% growth in the sale of Bluetooth headphones in one year.
- 3 Bluetooth headphones account for 17% of the market globally.
- 4 Apple gave Beats a platform during an event in order to push the struggling company ahead.



Solution:

Correct Answer : 2

Your Answer : 2

Genre: Business and Economics

Word Count# 707

Refer to the lines: "Sales of Bluetooth headphones are already growing, with units up 64 percent year over year according to NPD's US figures." So, option 2 is clearly true.

Option 1 – There is no data to support the phrase 'disproportionately profitable' in the passage.

Option 3 – The data of 17% is mentioned with respect to the US market.

Option 4 – Beats has been mentioned as a profitable venture. Calling it a struggling company distorts the facts presented in the passage.

Bookmark

Answer key/Solution

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 4

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Q.19

Which of the following can be inferred about the future of Bluetooth headphones?

-
- 1 Apple is going to find it tough to maintain its position as the market leader in innovation.
 - 2 Apple's move to boost the sales of Bluetooth headphones is likely to backfire due to the drawbacks which outweigh the benefits.
 - 3 Apple is going to attract a record number of new users thanks to the popularity of new technologies.
 - 4 Apple is going to profit due to the consolidated position of Beats and Lightning as market leaders.
-



Solution:**Correct Answer : 4****Your Answer : 4****Genre: Business and Economics****Word Count# 707**

Option 1 – The author states the opposite. S/he clearly states that Apple will find it beneficial as the company has a sole lead in this segment.

Option 2 – There is hardly any competition for Apple, as per the author. So, predicting a rise in stiff competition to Apple is illogical.

Option 3 – ‘Record number’ can’t be inferred. The passage also talks about Bluetooth headphone technology not being too new. So, this is an incorrect inference.

Option 4 – This is the correct answer. In a way, this is the main aim of the passage.

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

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 5

Cultural studies is a discursive formation, in Foucault's sense. It has no simple origins, though some of us were present at some point when it first named itself in that way. Much of the work out of which it grew, in my own experience, was already present in the work of other people. Raymond Williams has made the same point, charting the roots of cultural studies in the early adult education movement in his essay on "The Future of Cultural Studies". "The relation between a project and a formation is always decisive," he says, because they are "different ways of materializing . . . then of describing a common disposition of energy and direction." Cultural studies has multiple discourses; it has a number of different histories. It is a whole set of formations; it has its own different conjunctures and moments in the past. It included many different kinds of work. I want to insist on that! It always was a set of unstable formations. It was "centered" only in quotation marks, in a particular kind of way which I want to define in a moment. It had many trajectories; many people had and have different trajectories through it; it was constructed by a number of different methodologies and theoretical positions, all of them in contention. Theoretical work in the Centre for Contemporary Cultural Studies was more appropriately called theoretical noise. It was accompanied by a great deal of bad feeling, argument, unstable anxieties, and angry silences.

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Q.20

What could be the major reason behind Theoretical work in the Centre for Contemporary Cultural Studies being called theoretical noise?

-
- 1 The lack of policing or imposing discipline to this subject
 - 2 The conflicting nature of the subject's origin which makes the subject difficult to manage
 - 3 The confusion which ensues due to the open ended nature of the subject
 - 4 The difficulty of prescribing one approach due to the subject's conflicting nature
-

Solution:

Correct Answer : 4

Genre: Cultural Studies / Education

Word Count# 540



[Answer key/Solution](#)

Refer to the lines: "It had many trajectories; many people had and have different trajectories through it; it was constructed by a number of different methodologies and theoretical positions, all of them in contention. Theoretical work in the Centre for Contemporary Cultural Studies was more appropriately called theoretical noise. It was accompanied by a great deal of bad feeling, argument, unstable anxieties, and angry silences." So, option 4 has been attributed to be the cause of this phrasing.

Option 1 – The author asks this question in the next paragraph in a rhetorical manner.

Option 2 – The origin of the subject has never been a point of discussion.

Option 3 – It is partially correct. Option 4 is more complete in its scope.

[FeedBack](#)

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 5

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Q.21

How has the author structured the given passage?

-
- 1 By pointing out the conflict in the determination of the ambit of a subject without drawing a definitive conclusion
-
- 2 By elaborating upon an idea, then countering the same , and then providing a resolution to the conflict
-
- 3 By pointing out the conflict in the study of a subject and then trying to justify the conflict through evidence and reason
-
- 4 By elaborating upon a premise and then undermining the same by carefully analyzing the premise's pros and cons

Solution:

Correct Answer : 2

Genre: Cultural Studies / Education

Word Count# 540

 **Bookmark**

 **Answer key/Solution**

This can be answered by the process of elimination. The author talks about the idea of Cultural studies not being an exact science in the first paragraph. Then comes the discussion on the conflicting idea of how not anything and everything can fall within the ambit of Cultural Studies in the second paragraph. There is a strong conclusion about the premise in the last paragraph. Keeping all these in mind, option 2 is the most accurate answer.

Option 1 – The author does draw a conclusion.

Option 3 – The author challenges this conflict; s/he doesn't justify the same.

Option 4 – This is a misleading option. The author never undermines or contradicts his/her initial stance.

 **FeedBack**

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 5

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Q.22

What does the author mean by "it was centered only in quotation marks"?

- 1 A lot of authors said a lot of different things about it.

- 2 **Different trajectories to it made one definition impossible.**
- 3 **A lot of conflict arose as a result of its being open ended.**
- 4 **Different methodologies and theoretic positions made finding a common link very hard.**

Solution:

Correct Answer : 4

Genre: Cultural Studies / Education

Word Count# 540

Refer to the line: "It had many trajectories; many people had and have different trajectories through it; it was constructed by a number of different methodologies and theoretical positions, all of them in contention." Option 4 is the most complete answer.

The other options are either misleading or partially correct.

 **Bookmark**

 **Answer key/Solution**

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 5

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Q.23

What is the major cause of conflict that has arisen in Cultural Studies?

-
- 1 A difficulty in giving the subject a certain direction arising out of its origin in different works and diverse trajectories
-
- 2 A tension between a refusal to close the field and a determination to stake out some positions within it and argue for them
-
- 3 A conflict regarding whether the science should be closed or should remain open ended
-
- 4 An uncertainty as to how to maintain a balance between allowing it to be flexible along with monitoring its flexibility
-

Solution:

Correct Answer : 1

Genre: Cultural Studies / Education

Word Count# 540

 **Bookmark**

 **Answer key/Solution**

The author in the passage states that the conflict that arises in the ambit of Cultural Studies is whether to close it or let it remain open ended. As per the author, the major cause of that conflict is its vastness and an uncertainty in determining a definite path. Option 1 is the clear answer.

Option 2 – The two sides and their mutual tension is a distortion of the points mentioned in the passage.

Option 3 – This is partially correct. It misses the point about the vastness of the subject.

Option 4 – Monitoring the scope and flexibility of the subject have not been discussed in the passage.

FeedBack

Direction for questions (1-24): Read the given passages and answer the questions that follow.

Passage 5

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Q.24

What is the attitude of the author regarding cultural studies not being considered an exact science?

-
- 1 He is critical of it and says that not everything can come under the umbrella of Cultural Studies.
- 2 He believes that Cultural Studies should be flexible in order to accommodate the dynamic nature of culture but there should be certain limitations.
-
- 3 He is appreciative of it as Cultural Studies is vast and has its origin in works in various fields.
-
- 4 He believes that a balance should be maintained wherein there needs to be a check on what can and cannot be considered to be part of the ambit of Cultural Studies.

Solution:

Correct Answer : 2

Genre: Cultural Studies / Education

Word Count# 540

 **Bookmark**

 **Answer key/Solution**

This question can be answered by the method of elimination.

Option 1 – The author is not critical of this issue. The author never states this opinion. S/he mentions the scope of the subject in a different context.

Option 2 – This is clearly advocated in the last paragraph.

Option 3 – The tone of the author is neutral. So, s/he doesn't show any appreciation towards the topic.

Option 4 – This is a very misleading option. It looks correct but the author never really advocates any balance.

FeedBack

Directions for question (25): 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.

Q.25

1. There was something comical about it at first sight, like watching a drunken person walking around in circles.
2. It was an eagle or a hawk, I don't know the difference.
3. It was pirouetting mid-air, covering a small arc over and over again, its body at such an angle that its outstretched wings were almost perpendicular to the ground below.
4. The unseen line might have freaked out the bird as it flew around it.
5. But this moment of levity passed soon for even though I couldn't see it, I knew there was a wire or a string up there, a stray utility line that refused to reflect sunlight and thus reveal itself.

Solution:**Correct Answer : 4**

2315 form a mandatory sequence. 4 is the odd one out. 4 talks about the possibility that the bird might have freaked out because of the unseen wire which it regarded as a threat. On the contrary, 2315 talk about how the bird was trapped in a line.

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

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.

Q.26

1. The beneficial effect of humor on experienced emotions is based on the mechanism that humorous processing requires attentional resources so that people are distracted from negative stimuli.
2. But research on the effects of humor on later memory about negative stimuli is lacking.
3. Among various strategies to regulate emotion, cognitive reappraisal has been shown to modulate both emotional experience and emotional memory.
4. In particular, the suggested mechanisms that may underlie the effects of humor on experienced emotions make rather different predictions about how humor may affect later memory.
5. The effects of humor on the strength of elicited negative emotions when confronted with negative stimuli have been examined in previous research.

Solution:**Correct Answer : 3****Your Answer : 4**

The correct order is 5241. 3 doesn't match the tone of the paragraph. The entire paragraph is about humour, not all human emotions. Secondly, the author simply describes the effect of humour on the human psyche. Sentence 3 is too critical to be part of this paragraph

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

Q.27

Directions for question (27): 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. The sheen of the steely body and the jet black hues of the hair would never go haywire, was my belief.
2. Once, a semi-bald professor with some thin grey remnants on his head remarked in our class that we should calmly accept the inevitable and irreversible truth of old age.
3. In our bubbly youthful days, it had never occurred to me that the army of age would invade me too one day.
4. But one fine morning in my mid-30s, the heavens fell apart for me.
5. Without the Google devta at my disposal then, I remained unsettled for some days.



Solution:

Correct Answer : 5

Your Answer : 5

The correct order is 2314. This sequence talks about ageing. 5 talks about Google devta and is not clearly related to 2314.

Bookmark

Answer key/Solution

FeedBack

Directions for question (28): The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Q.28

Unity in variety is the plan of creation. However men and women may vary individually, there is unity in the background. The different individual characters and classes of men and women are natural variations in creation. Hence we ought not to judge them by the same standard or put the same ideal before them. Such a course creates only an unnatural struggle, and the result is that a man begins to hate himself and is hindered from becoming religious and good. Our duty is to encourage everyone in his struggle to live up to his own highest ideal, and strive at the same time to make that ideal as near as possible to the truth.

- 1 Judging everyone by the same parameter is a mistake; it makes an individual hateful of himself.
- 2 One should not judge everyone using a single yardstick; one should encourage others to achieve their own highest ideal.
- 3 As nature has itself created a variety of individuals, judging them by the same standards will create an unnatural struggle of living up to an unrealistic ideal which can have detrimental effect on the ecosystem.

- 4 Diversity should be accepted; different people can have different ideals.

Solution:

Correct Answer : 2

Option 3 is a close choice. However, the usage of the word 'ecosystem' at the end of the sentence makes it an incorrect option. Option 2 is the correct answer.

Option 4 is wrong because the author is not talking about accepting the diversity. He is just telling that diversity is there and due to this reason, people cannot be judged using the same standard.

Option 1 is too farfetched.

 **Bookmark**

 **Answer key/Solution**

FeedBack

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

Q.29

Most of us agree that the presumption of innocence is an important standard. We are taught early on that it's essential to see all sides, to give everyone a chance to explain and to check for exculpatory evidence that may have been missed. At a time when improper interactions between men and women, particularly in the workplace, are part of a national conversation, we must find a way to ensure that everyone – the public, private and public institutions, and the accusers and alleged accused – is given the opportunity for a swift and fair review.

- 1 Everyone must be treated fairly and under no circumstance should an innocent be prosecuted.
- 2 It is important to uphold the law of 'presumption of innocence' in order to check the prosecution of an innocent man.
- 3 Everyone must be given a chance to prove his/her innocence and no one must be tried by media.
- 4 The logic behind the teaching of 'presumption of innocence' needs to be upheld, especially now.

Solution:

Correct Answer : 4

The paragraph talks about two main points: why we were taught about the 'presumption of innocence' and why it is relevant today. Only 4 talks about both the issues. Hence, it is the correct summary.

 **Bookmark**

 **Answer key/Solution**

FeedBack

Directions for question (30): The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Q.30

According to Mlodinow, the unconscious is not there as a defence mechanism against inappropriate desires, but is "a gift of evolution that is crucial to our survival as a species". His study reveals how the hidden structures of the unconscious mind influence our view of self and the world, from the taste of beer (yes, price and packaging really do affect how it tastes) to how "branding a child a poor learner will contribute to making the child exactly that". A fascinating insight into our "inner unknown self" and its role in shaping the world we know!

- 1 According to Mlodinow and his study, the human unconscious mind is not a defence mechanism but a way of building our self-confidence.
- 2 Mlodinow believes that with dire criticism, our subconscious mind will end up forming a poor view of the world.
- 3 Mlodinow believes that the unconscious mind doesn't simply curb our immoral tendencies but rather helps us build our internal and external perceptions.
- 4 According to Mlodinow, the human subconscious mind is a proof of the brilliance of evolution that advocates the survival of the fittest.

x

Solution:

Correct Answer : 3

Your Answer : 1

The paragraph makes two main points: the subconscious is not just a defence mechanism; the subconscious affects the way we view ourselves and the world around us. Only option 3 mentions both these points.

Option 4 is a farfetched conclusion.

Option 2 is narrow as it only mentions the second point.

Option 1 is misleading as the subconscious, with criticism, can view the self in a negative light. So, it need not always build one's confidence.

 **Bookmark**

 **Answer key/Solution**

FeedBack

Directions for question (31): 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.

Q.31

1. In 1974, for example, Art Fry who worked at the manufacturing firm 3M had the brainwave of combining a weak glue the company had previously developed – which served no apparent function – with a bookmark he used in church.
2. How do you make a new idea? Try combining some old ones.
3. The result was the Post-It Note.
4. Einstein said “combinatory play seems to be the essential component in productive thought”; while as Steve Jobs put it: “Creativity is just connecting things”.

Solution:

Correct Answer : 2413

2 is the opening sentence. ‘The result’ in 3 refers to the experiment in 1. So, 13 is a pair. 4 gives further example of the origin of new ideas. ‘For example’ in 1 refers to 4. So, 41 is a pair.

Thus, 2413 is the correct sequence.

FeedBack

 **Bookmark**

 **Answer key/Solution**

Directions for question (32): 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.

Q.32

1. It has the ability to be extremely accurate if you get all the scientific variables entered correctly.
2. I am a serious saltwater fisherman who started at age 5, now I'm 69.
3. You may have to do some online research to find the longitude of the geographical location of where you fish, the lunar phase factor, the correct time zone, and the Lunitidal Interval.
4. It's a shame I had to wait this long for such a valuable addition to my fishing tackle.

X

Solution:

Correct Answer : 2413

Your Answer : 2314

The author's tone is clearly sarcastic here. 2 introduces the narrator.

‘This long’ in 4 refers to ‘start at 5...now I'm 69’ in 2. The first person narration is another hint. So, 24 is a pair.

‘It’ in 1 refers to ‘such a valuable addition’ in 4. So, 41 is a pair.

3 is the concluding sentence as it explains ‘all the scientific variables’ as mentioned in 1. So, 2413 is the correct sequence.

FeedBack

 **Bookmark**

 **Answer key/Solution**

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.

Q.33

1. But, in a statement, she made no mention of the Rohingya who have fled.
2. In a rare letter to the UN Security Council yesterday, secretary-general Antonio Guterres expressed concern that the violence could spiral into a "humanitarian catastrophe".
3. Myanmar leader Aung San SuuKyi blamed "terrorists" for "a huge iceberg of misinformation" on the strife in the northwestern state of Rakhine.
4. She has come under increasing pressure from countries with Muslim populations, including Indonesia.

X

Solution:

Correct Answer : 3142

Your Answer : 2314

3142 is the correct sequence. 'But' in 1 contradicts the idea mentioned in 3. So, 31 is a pair. 'She' in 4 refers to both 3 and 1. 2 explains 'under increasing pressure' mentioned in 4 by giving an example. So, 42 is a pair. Thus, 3142 is the correct sequence.

 **Bookmark**

 **Answer key/Solution**

FeedBack

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.

Q.34

1. But I also want to write books that will change how people think about a certain subject.
2. For as a ghostwriter I enjoy taking on different voices – it's like being an actor assuming different roles.
3. The moment I saw you explaining what your life was like with dementia, in a video you'd recorded for a charity, I knew that I wanted to ghost a book about what it was like to look at the world through your eyes.
4. I approached you, and together we decided to write the book which became your memoir, "Somebody I Used to Know".

X

Solution:**Correct Answer : 3214****Your Answer : 2314****3 opens the paragraph. 2 adds to it by giving an example.****Narrative sequence wise, 1 and 4 follows. So, 3214 is the correct answer.** **Bookmark** **Answer key/Solution****FeedBack**

Sec 2

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

Patanjali launched its own retail store in Delhi and as an inaugural offer, they launched a scheme of "Buy 2 Get 1 Free". According to the scheme, if a person buys any 2 items of any single sub-brand, he gets 1 item of any of the 10 single sub-brands for free. When the new store manager received the price sheet, he calculated some of the values and missed some values knowingly. Navdeep, the employee of the store, being inquisitive, decided to calculate the value of each item.

Further, the total marked price of three products bought by a customer was calculated in a way such that the marked prices of the two most expensive items were added and the third one was made free of cost. For example, in the table, Rs. 1770 depicts the total marked price when 2 pieces of sub brand 7 and one piece of sub-brand 5 are bought, which means that if the sum of the prices of 2 pieces of sub-brand 7 is equal to Rs. 1770 then one piece of sub-brand 5 is made free else if the sum of the prices of sub-brands 5 and 7 is equal to Rs. 1770 then one piece of sub-brand 7 is made free. Further it is known that, all the prices in the table are calculated after marking up the cost price by 50%.

Marked price (in Rs.)		Two Pieces									
		Sub-brand 1	Sub-brand 2	Sub-brand 3	Sub-brand 4	Sub-brand 5	Sub-brand 6	Sub-brand 7	Sub-brand 8	Sub-brand 9	Sub-brand 10
Single piece	Sub-brand 1										
	Sub-brand 2			2280							
	Sub-brand 3										
	Sub-brand 4	1395									
	Sub-brand 5							1770			
	Sub-brand 6			2355							1815
	Sub-brand 7				1455						
	Sub-brand 8		1125						1170		
	Sub-brand 9										
	Sub-brand 10					1890				1260	

Q.35

If a customer does not wish to avail the offer, then what is the maximum money (in Rs.) he needs to spend to buy three different items?

1 3300

2 3570

3 3645

4 3420

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

From the table, we can see that the total marked price of 3 pieces of sub-brand 8 is 1170, therefore according to the discount scheme one of the piece is free and hence, we can conclude the marked price of Sub-brand 8 is 585.

Now since we have marked price of sub-brand 8, we can calculate the marked price of other sub-brands. For example, from total marked price of 2 pieces of sub-brand 2 and 1 piece of sub-brand 8 we can conclude that the marked price of sub-brand 2 is 540. From 1 piece of sub-brand 2 and 2 piece of sub-brand 3 the marked price of sub-brand 3 will be 1140 and so on we can conclude the price of each sub-brand as follows.

	Marked price	Cost price
Sub-Brand 1	697.5	465
Sub-Brand 2	540	360
Sub-Brand 3	1140	760
Sub-Brand 4	630	420
Sub-Brand 5	945	630
Sub-Brand 6	1215	810
Sub-Brand 7	825	550
Sub-Brand 8	585	390
Sub-Brand 9	630	420
Sub-Brand 10	600	400

The maximum price the customer needs to spend on three different products is $(1215 + 945 + 1140) = 3300$.

Note: All the amounts mentioned are in Rupees(Rs.).

 **FeedBack**

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

Patanjali launched its own retail store in Delhi and as an inaugural offer, they launched a scheme of "Buy 2 Get 1 Free". According to the scheme, if a person buys any 2 items of any single sub-brand, he gets 1 item of any of the 10 single sub-brands for free. When the new store manager received the price sheet, he calculated some of the values and missed some values knowingly. Navdeep, the employee of the store, being inquisitive, decided to calculate the value of each item.

Further, the total marked price of three products bought by a customer was calculated in a way such that the marked prices of the two most expensive items were added and the third one was made free of cost. For example, in the table, Rs. 1770 depicts the total marked price when 2 pieces of sub brand 7 and one piece of sub-brand 5 are bought, which means that if the sum of the prices of 2 pieces of sub-brand 7 is equal to Rs. 1770 then one piece of sub-brand 5 is made free else if the sum of the prices of sub-brands 5 and 7 is equal to Rs. 1770 then one piece of sub-brand 7 is made free. Further it is known that, all the prices in the table are calculated after marking up the cost price by 50%.

Marked price (in Rs.)		Two Pieces									
		Sub- brand 1	Sub- brand 2	Sub- brand 3	Sub- brand 4	Sub- brand 5	Sub- brand 6	Sub- brand 7	Sub- brand 8	Sub- brand 9	Sub- brand 10
Single piece	Sub- brand 1										
	Sub- brand 2			2280							
	Sub- brand 3										
	Sub- brand 4	1395									
	Sub- brand 5						1770				
	Sub- brand 6			2355							1815
	Sub- brand 7				1455						
	Sub- brand 8		1125					1170			
	Sub- brand 9										
	Sub- brand 10					1890				1260	

Q.36

If the store decides to replace the offer of "Buy 2 Get 1 Free" to a discount of 33.33%, then maximum how many pieces of distinct sub-brands a customer can buy with Rs. 2,800?

1 7

2 6

3 54 4**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

From the table, we can see that the total marked price of 3 pieces of sub-brand 8 is 1170, therefore according to the discount scheme one of the piece is free and hence, we can conclude the marked price of Sub-brand 8 is 585.

Now since we have marked price of sub-brand 8, we can calculate the marked price of other sub-brands. For example, from total marked price of 2 pieces of sub-brand 2 and 1 piece of sub-brand 8 we can conclude that the marked price of sub-brand 2 is 540. From 1 piece of sub-brand 2 and 2 piece of sub-brand 3 the marked price of sub-brand 3 will be 1140 and so on we can conclude the price of each sub-brand as follows.

	Marked price	Cost price
Sub-Brand 1	697.5	465
Sub-Brand 2	540	360
Sub-Brand 3	1140	760
Sub-Brand 4	630	420
Sub-Brand 5	945	630
Sub-Brand 6	1215	810
Sub-Brand 7	825	550
Sub-Brand 8	585	390
Sub-Brand 9	630	420
Sub-Brand 10	600	400

A customer after getting a discount of 33.33% will be getting it at cost price. So, in 2800 he will be able to buy maximum of 6 articles.

Note: All the amounts mentioned are in Rupees(Rs.).

 **FeedBack**

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

Patanjali launched its own retail store in Delhi and as an inaugural offer, they launched a scheme of "Buy 2 Get 1 Free". According to the scheme, if a person buys any 2 items of any single sub-brand, he gets 1 item of any of the 10 single sub-brands for free. When the new store manager received the price sheet, he calculated some of the values and missed some values knowingly. Navdeep, the employee of the store, being inquisitive, decided to calculate the value of each item.

Further, the total marked price of three products bought by a customer was calculated in a way such that the marked prices of the two most expensive items were added and the third one was made free of cost. For example, in the table, Rs. 1770 depicts the total marked price when 2 pieces of sub brand 7 and one piece of sub-brand 5 are bought, which means that if the sum of the prices of 2 pieces of sub-brand 7 is equal to Rs. 1770 then one piece of sub-brand 5 is made free else if the sum of the prices of sub-brands 5 and 7 is equal to Rs. 1770 then one piece of sub-brand 7 is made free. Further it is known that, all the prices in the table are calculated after marking up the cost price by 50%.

Marked price (in Rs.)		Two Pieces									
		Sub-brand 1	Sub-brand 2	Sub-brand 3	Sub-brand 4	Sub-brand 5	Sub-brand 6	Sub-brand 7	Sub-brand 8	Sub-brand 9	Sub-brand 10
Single piece	Sub-brand 1										
	Sub-brand 2			2280							
	Sub-brand 3										
	Sub-brand 4	1395									
	Sub-brand 5							1770			
	Sub-brand 6			2355							1815
	Sub-brand 7				1455						
	Sub-brand 8		1125						1170		
	Sub-brand 9										
	Sub-brand 10					1890				1260	

Q.37

If a customer buys 2 units of sub-brand 7, then how many different combinations are possible for buying a third free unit without incurring any extra cost?

1 6

2 7

3 84 5**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

From the table, we can see that the total marked price of 3 pieces of sub-brand 8 is 1170, therefore according to the discount scheme one of the piece is free and hence, we can conclude the marked price of Sub-brand 8 is 585.

Now since we have marked price of sub-brand 8, we can calculate the marked price of other sub-brands. For example, from total marked price of 2 pieces of sub-brand 2 and 1 piece of sub-brand 8 we can conclude that the marked price of sub-brand 2 is 540. From 1 piece of sub-brand 2 and 2 piece of sub-brand 3 the marked price of sub-brand 3 will be 1140 and so on we can conclude the price of each sub-brand as follows.

	Marked price	Cost price
Sub-Brand 1	697.5	465
Sub-Brand 2	540	360
Sub-Brand 3	1140	760
Sub-Brand 4	630	420
Sub-Brand 5	945	630
Sub-Brand 6	1215	810
Sub-Brand 7	825	550
Sub-Brand 8	585	390
Sub-Brand 9	630	420
Sub-Brand 10	600	400

If a customer buys two articles of sub-brand 7 then he will be able to buy any articles which is less than the price of 825. Hence, he will be able to buy 3 pieces in 7 different combinations.

Note: All the amounts mentioned are in Rupees (Rs.).

 FeedBack

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

Patanjali launched its own retail store in Delhi and as an inaugural offer, they launched a scheme of "Buy 2 Get 1 Free". According to the scheme, if a person buys any 2 items of any single sub-brand, he gets 1 item of any of the 10 single sub-brands for free. When the new store manager received the price sheet, he calculated some of the values and missed some values knowingly. Navdeep, the employee of the store, being inquisitive, decided to calculate the value of each item.

Further, the total marked price of three products bought by a customer was calculated in a way such that the marked prices of the two most expensive items were added and the third one was made free of cost. For example, in the table, Rs. 1770 depicts the total marked price when 2 pieces of sub brand 7 and one piece of sub-brand 5 are bought, which means that if the sum of the prices of 2 pieces of sub-brand 7 is equal to Rs. 1770 then one piece of sub-brand 5 is made free else if the sum of the prices of sub-brands 5 and 7 is equal to Rs. 1770 then one piece of sub-brand 7 is made free. Further it is known that, all the prices in the table are calculated after marking up the cost price by 50%.

Marked price (in Rs.)		Two Pieces									
		Sub-brand 1	Sub-brand 2	Sub-brand 3	Sub-brand 4	Sub-brand 5	Sub-brand 6	Sub-brand 7	Sub-brand 8	Sub-brand 9	Sub-brand 10
Single piece	Sub-brand 1										
	Sub-brand 2			2280							
	Sub-brand 3										
	Sub-brand 4	1395									
	Sub-brand 5						1770				
	Sub-brand 6			2355							1815
	Sub-brand 7				1455						
	Sub-brand 8		1125						1170		
	Sub-brand 9										
	Sub-brand 10					1890				1260	

Q.38

By which of the following combinations the store can avail the maximum benefit?

- 1 Buy 2 of sub-brand 2 and 1 of sub-brand 6
- 2 Buy 2 of sub-brand 5 and 1 of sub-brand 6

3 Buy 2 of sub-brand 6 and 1 of sub-brand 7

4 Buy 2 of sub-brand 9 and 1 of sub-brand 6

Solution:

Correct Answer : 1

 **Bookmark**

 **Answer key/Solution**

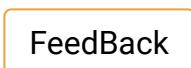
From the table, we can see that the total marked price of 3 pieces of sub-brand 8 is 1170, therefore according to the discount scheme one of the piece is free and hence, we can conclude the marked price of Sub-brand 8 is 585.

Now since we have marked price of sub-brand 8, we can calculate the marked price of other sub-brands. For example, from total marked price of 2 pieces of sub-brand 2 and 1 piece of sub-brand 8 we can conclude that the marked price of sub-brand 2 is 540. From 1 piece of sub-brand 2 and 2 piece of sub-brand 3 the marked price of sub-brand 3 will be 1140 and so on we can conclude the price of each sub-brand as follows.

	Marked price	Cost price
Sub-Brand 1	697.5	465
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Sub-Brand 3	1140	760
Sub-Brand 4	630	420
Sub-Brand 5	945	630
Sub-Brand 6	1215	810
Sub-Brand 7	825	550
Sub-Brand 8	585	390
Sub-Brand 9	630	420
Sub-Brand 10	600	400

Store will benefit maximum if the combination bought yields the maximum profit percentage. So option (1) will give maximum revenue and free item of lowest price.

Note: All the amounts mentioned are in Rupees (Rs.).

 **FeedBack**

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

On an island of Absurdity, there reside only three types of humans - liar, veracious and confused. Whenever any two humans of them, of different types, shake hands with each other, both of them become the third type of human. And when two humans of same type shake hands with each other, they remain the same i.e, there is no change in their type.

For example, when a liar shakes hand with a veracious, both of them become confused but when a liar and another liar shake hands, both of them remain liars.

A(L, V, C) is a function which denotes a group made up of L + V + C humans of type liar (L), veracious (V) and confused (C), where L, V and C are positive integers. So, A(3, 7, 8) means a group of 18 humans consisting of 3 liars, 7 veracious and 8 confused type humans from the island of Absurdity.

Q.39

If it is not necessary for everyone to shake hands with someone, then which of the following groups will result in a group of only one type of humans after a certain number of handshakes?

1 A(5, 6, 10)

2 A(7, 9, 11)

3 A(4, 9, 10)

4 A(8, 10, 12)

Solution:

Correct Answer : 3

 **Bookmark**

 **Answer key/Solution**

Let us apply hit and trial to option 1

$$A(5, 6, 10) \rightarrow 5, \underbrace{6, 10}_{1+1}$$

$$\rightarrow 7, \underbrace{5, 9}_{1+1}$$

$$\rightarrow 6, \underbrace{7, 8}_{1+1}$$

$$\rightarrow 8, \underbrace{6, 7}_{1+1}$$

$$\rightarrow 7, \underbrace{8, 6}_{1+1}$$

$$\rightarrow 6, 7, 8 \text{ (repeated step)}$$

Similarly option 2 and 4 won't yield the result.

$$\text{Option (3)} \rightarrow A(4, 9, 10) \rightarrow 4, \underbrace{9, 10}_{1+1}$$

$$\rightarrow 6, \underbrace{8, 9}_{1+1}$$

$$\rightarrow 8, \underbrace{7, 8}_{8+8}$$

$$\rightarrow 0, 23, 0$$

∴ Option (3) will result in a group of only one type of humans after a certain number of handshakes.

FeedBack

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

On an island of Absurdity, there reside only three types of humans - liar, veracious and confused. Whenever any two humans of them, of different types, shake hands with each other, both of them become the third type of human. And when two humans of same type shake hands with each other, they remain the same i.e, there is no change in their type. For example, when a liar shakes hand with a veracious, both of them become confused but when a liar and another liar shake hands, both of them remain liars.

$A(L, V, C)$ is a function which denotes a group made up of $L + V + C$ humans of type liar (L), veracious (V) and confused (C), where L, V and C are positive integers. So, $A(3, 7, 8)$ means a group of 18 humans consisting of 3 liars, 7 veracious and 8 confused type humans from the island of Absurdity.

Q.40

If it is not necessary for everyone to shake hands with someone and hence a group, $A(5, x, 19)$, resulted in a group where everyone was of one human type after certain number of handshakes, then the value of x can be?

1 6

2 12

3 13

4 18

Solution:

Correct Answer : 3

Option (1) $A(5, 6, 19)$

$$\begin{aligned} \rightarrow & \underbrace{5, 6, 19}_{1+1} \rightarrow \underbrace{7, 5, 18}_{1+1} \rightarrow \underbrace{6, 7, 17}_{1+1} \\ \rightarrow & \underbrace{8, 6, 16}_{1+1} \rightarrow \underbrace{7, 8, 15}_{1+1} \rightarrow \underbrace{9, 7, 14}_{1+1} \\ \rightarrow & \underbrace{8, 9, 13}_{1+1} \rightarrow \underbrace{10, 8, 12}_{1+1} \rightarrow \underbrace{9, 10, 11}_{1+1} \quad (\text{Not possible}) \end{aligned}$$

Option (2) and (4) won't yield anything

Option (3), $A(5, 13, 19)$

$$\begin{aligned} \rightarrow & \underbrace{5, 13, 19}_{1+1} \rightarrow \underbrace{7, 12, 18}_{1+1} \rightarrow \underbrace{9, 11, 17}_{1+1} \\ \rightarrow & \underbrace{11, 10, 16}_{1+1} \rightarrow \underbrace{10, 12, 15}_{1+1} \rightarrow \underbrace{12, 11, 14}_{1+1} \\ \rightarrow & \underbrace{11, 13, 13}_{13+13} \rightarrow (37, 0, 0) \end{aligned}$$

 **Bookmark**

 **Answer key/Solution**

FeedBack

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

On an island of Absurdity, there reside only three types of humans - liar, veracious and confused. Whenever any two humans of them, of different types, shake hands with each other, both of them become the third type of human. And when two humans of same type shake hands with each other, they remain the same i.e, there is no change in their type. For example, when a liar shakes hand with a veracious, both of them become confused but when a liar and another liar shake hands, both of them remain liars.

$A(L, V, C)$ is a function which denotes a group made up of $L + V + C$ humans of type liar (L), veracious (V) and confused (C), where L, V and C are positive integers. So, $A(3, 7, 8)$ means a group of 18 humans consisting of 3 liars, 7 veracious and 8 confused type humans from the island of Absurdity.

Q.41

If it is not necessary that everyone should shake hands with someone and $A(99, 100, 102)$ resulted in a group where everyone was of one human type only after a certain number of handshakes, then that human type is?

1 Liar

2 Veracious

3 Confused

4 Cannot be determined

Solution:

Correct Answer : 2

$A(99, 100, 102)$

$$\begin{array}{l} 99, \underbrace{100,}_{1+1} \underbrace{102}_{101+101} \rightarrow (101, \underbrace{99,}_{101+101} 101) \\ \rightarrow (0, 301, 0) \end{array}$$

Human type is veracious

 **Bookmark**

 **Answer key/Solution**

FeedBack

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

On an island of Absurdity, there reside only three types of humans - liar, veracious and confused. Whenever any two humans of them, of different types, shake hands with each other, both of them become the third type of human. And when two humans of same type shake hands with each other, they remain the same i.e, there is no change in their type.

For example, when a liar shakes hand with a veracious, both of them become confused but when a liar and another liar shake hands, both of them remain liars.

$A(L, V, C)$ is a function which denotes a group made up of $L + V + C$ humans of type liar (L), veracious (V) and confused (C), where L, V and C are positive integers. So, $A(3, 7, 8)$ means a group of 18 humans consisting of 3 liars, 7 veracious and 8 confused type humans from the island of Absurdity.

Q.42

It is not necessary that everyone should shake hands with someone. If the entire population of 1000 human of the island of Absurdity changed to veracious after certain number of handshakes, then which of the following may be the correct function denoting the initial population?

1 A(100, 150, 750)

2 A(150, 750, 100)

3 A(150, 100, 750)

4 A (100, 750, 150)

Solution:

Correct Answer : 3

Option (1) A(100, 150, 750)

$$(100, \underbrace{150, 750}_{50+50}) \rightarrow (200, \underbrace{100, 700}_{100+100})$$

$$\rightarrow (100, \underbrace{300, 600}_{200+200}) \rightarrow (500, \underbrace{100, 400}_{100+100})$$

$$\rightarrow (400, \underbrace{300, 300}_{300+300})$$

$$\rightarrow (1000, 0, 0)$$

Human type is L(liar)

Similarly option (2) and (4) won't lead to veracious.

Option (3), A(150, 100, 750)

$$(150, \underbrace{100, 750}_{50+50}) \rightarrow (100, \underbrace{200, 700}_{100+100})$$

$$\rightarrow (300, \underbrace{100, 600}_{200+200}) \rightarrow (100, \underbrace{500, 400}_{100+100})$$

$$\rightarrow (300, \underbrace{400, 300}_{300+300})$$

$$\rightarrow (0, 1000, 0)$$

 **Bookmark**

 **Answer key/Solution**

FeedBack

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

Six friends - A, B, C, D, E and F - were standing around a circular track at six equidistant points to play a game. To start the game, first A ran around the circle asking a puzzle to each of his friends separately at their individual place and returned back to his position completing one round. Then he again ran around the circle, discussing the answer of his puzzle with each of them at their positions and hence completed his second round. It is known that the duration of the time spent by A on each task, asking the puzzle and for discussing the answer, with each person is same for each person. After A, B started asking a different puzzle in his first round around the circle and then discussed the answer in his second round. The same was done by C, D, E and F, in that order.

The following table gives us the information about the total time spent on asking the puzzle and discussing its answers in two rounds by each person and the total time spent by them for listening to the problems and the solutions of the other five asked from that person. It is also known that none of them were able to answer any puzzle asked from them.

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to puzzles and solutions (in minutes)
A	20	
B	30	
C	50	
D		34
E		32.4
F		31.6

Q.43

What is the total time (in minutes) spent by A while listening to the puzzle and answer which were asked by E and F?

Solution:

Correct Answer : 14

 **Bookmark**

 **Answer key/Solution**

From the table, the total time spent by A, B and C on asking and answering the puzzle are 20 minutes, 30 minutes and 50 minutes respectively.

As the duration of the time spent on each task, asking the puzzle and for discussing the answer, with each person is same for each person. Therefore, the time spent by A, B and C on asking and answering the puzzle from each person will be-

For A, it is $\frac{20}{5} = 4$ minutes.

For B, it is $\frac{30}{5} = 6$ minutes.

For C, it is, $\frac{50}{5} = 10$ minutes.

The total time spent by D on listening to the problems and solutions is 34 minutes. Let x and y (in minutes) be the time spent by E and F on each person on asking and answering the puzzle.

	A	B	C	E	F	Total
Time spent by D on listening to the problems and solutions (in minutes)	4	6	10	x	y	34

$$\therefore 4 + 6 + 10 + x + y = 34$$

$$x + y = 14 \quad \dots(i)$$

Let p (in minutes) be the time spent by D on each person on asking and answering the puzzle.

	A	B	C	D	F	Total
Time spent by E on listening to the problems and solutions (in minutes)	4	6	10	p	y	32.4

$$\therefore 4 + 6 + 10 + p + y = 32.4$$

$$p + y = 12.4 \quad \dots(ii)$$

Now for F,

	A	B	C	D	E	Total
Time spent by F on listening to the problems and solutions (in minutes)	4	6	10	p	x	31.6

$$\therefore 4 + 6 + 10 + p + x = 31.6$$

$$p + x = 11.6 \quad \dots(iii)$$

On solving eq. (i), (ii) and (iii), we get

$$p = 5, x = 6.6, y = 7.4$$

\therefore The total time spent by D on asking and answering the puzzle is $5 \times 5 = 25$ minutes.

The total time spent by E on asking and answering the puzzle is $6.6 \times 5 = 33$ minutes.

The total time spent by F on asking and answering the puzzle is $7.4 \times 5 = 37$ minutes.

The total time spent by A, B and C on listening to the problems and solutions are

A	B	C	D	E	F	Total
	6	10	5	6.6	7.4	35
B	A	C	D	E	F	Total
	4	10	5	6.6	7.4	33
C	A	B	D	E	F	Total
	4	6	5	6.6	7.4	29

So, the final table will be as follows:

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to the problems and solutions (in minutes)
A	20	35
B	30	33
C	50	29
D	25	34
E	33	32.4
F	37	31.6

Clearly, the total time spent by A while listening to the puzzle and answer which were asked by E and F is $6.6 + 7.4 = 14$ minutes.

FeedBack

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

Six friends - A, B, C, D, E and F - were standing around a circular track at six equidistant points to play a game. To start the game, first A ran around the circle asking a puzzle to each of his friends separately at their individual place and returned back to his position completing one round. Then he again ran around the circle, discussing the answer of his puzzle with each of them at their positions and hence completed his second round. It is known that the duration of the time spent by A on each task, asking the puzzle and for discussing the answer, with each person is same for each person. After A, B started asking a different puzzle in his first round around the circle and then discussed the answer in his second round. The same was done by C, D, E and F, in that order.

The following table gives us the information about the total time spent on asking the puzzle and discussing its answers in two rounds by each person and the total time spent by them for listening to the problems and the solutions of the other five asked from that person. It is also known that none of them were able to answer any puzzle asked from them.

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to puzzles and solutions (in minutes)
A	20	
B	30	
C	50	
D		34
E		32.4
F		31.6

Q.44

Who has the minimum difference between the time spent on asking and discussing the puzzle and the time spent on listening to others puzzles and solutions?

1 D

2 B

3 E

4 F

Solution:

Correct Answer : 3

 **Bookmark**

 **Answer key/Solution**

From the table, the total time spent by A, B and C on asking and answering the puzzle are 20 minutes, 30 minutes and 50 minutes respectively.

As the duration of the time spent on each task, asking the puzzle and for discussing the answer, with each person is same for each person. Therefore, the time spent by A, B and C on asking and answering the puzzle from each person will be-

For A, it is $= \frac{20}{5} = 4$ minutes.

For B, it is $= \frac{30}{5} = 6$ minutes.

For C, it is, $= \frac{50}{5} = 10$ minutes.

The total time spent by D on listening to the problems and solutions is 34 minutes. Let x and y (in minutes) be the time spent by E and F on each person on asking and answering the puzzle.

	A	B	C	E	F	Total
Time spent by D on listening to the problems and solutions (in minutes)	4	6	10	x	y	34

$$\therefore 4 + 6 + 10 + x + y = 34$$

$$x + y = 14 \quad \dots(i)$$

Let p (in minutes) be the time spent by D on each person on asking and answering the puzzle.

	A	B	C	D	F	Total
Time spent by E on listening to the problems and solutions (in minutes)	4	6	10	p	y	32.4

$$\therefore 4 + 6 + 10 + p + y = 32.4$$

$$p + y = 12.4 \quad \dots(ii)$$

Now for F,

	A	B	C	D	E	Total
Time spent by F on listening to the problems and solutions (in minutes)	4	6	10	p	x	31.6

$$\therefore 4 + 6 + 10 + p + x = 31.6$$

$$p + x = 11.6 \quad \dots(iii)$$

On solving eq. (i), (ii) and (iii), we get

$$p = 5, x = 6.6, y = 7.4$$

\therefore The total time spent by D on asking and answering the puzzle is $5 \times 5 = 25$ minutes.

The total time spent by E on asking and answering the puzzle is $6.6 \times 5 = 33$ minutes.

The total time spent by F on asking and answering the puzzle is $7.4 \times 5 = 37$ minutes.

The total time spent by A, B and C on listening to the problems and solutions are

A	B	C	D	E	F	Total
	6	10	5	6.6	7.4	35
B	A	C	D	E	F	Total
	4	10	5	6.6	7.4	33
C	A	B	D	E	F	Total
	4	6	5	6.6	7.4	29

So, the final table will be as follows:

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to the problems and solutions (in minutes)
A	20	35
B	30	33
C	50	29
D	25	34
E	33	32.4
F	37	31.6

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to the problems and solutions (in minutes)	Difference
A	20	35	15
B	30	33	3
C	50	29	21
D	25	34	9
E	33	32.4	0.6
F	37	31.6	5.4

Clearly, the difference is minimum for E.

FeedBack

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

Six friends - A, B, C, D, E and F - were standing around a circular track at six equidistant points to play a game. To start the game, first A ran around the circle asking a puzzle to each of his friends separately at their individual place and returned back to his position completing one round. Then he again ran around the circle, discussing the answer of his puzzle with each of them at their positions and hence completed his second round. It is known that the duration of the time spent by A on each task, asking the puzzle and for discussing the answer, with each person is same for each person. After A, B started asking a different puzzle in his first round around the circle and then discussed the answer in his second round. The same was done by C, D, E and F, in that order.

The following table gives us the information about the total time spent on asking the puzzle and discussing its answers in two rounds by each person and the total time spent by them for listening to the problems and the solutions of the other five asked from that person. It is also known that none of them were able to answer any puzzle asked from them.

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to puzzles and solutions (in minutes)
A	20	
B	30	
C	50	
D		34
E		32.4
F		31.6

Q.45

If A answered all the puzzles correctly himself and did not require the solution of any puzzle, then the time saved by D as a percentage of new time spent on asking and answering the puzzle is (no other person answered the puzzle asked by D)

1 10%

2 11.11%

3 12.5%

4 9.09%

Solution:

Correct Answer : 2

 **Bookmark**

Q Answer key/Solution

From the table, the total time spent by A, B and C on asking and answering the puzzle are 20 minutes, 30 minutes and 50 minutes respectively.

As the duration of the time spent on each task, asking the puzzle and for discussing the answer, with each person is same for each person. Therefore, the time spent by A, B and C on asking and answering the puzzle from each person will be-

$$\text{For A, it is } = \frac{20}{5} = 4 \text{ minutes.}$$

$$\text{For B, it is } = \frac{30}{5} = 6 \text{ minutes.}$$

$$\text{For C, it is, } = \frac{50}{5} = 10 \text{ minutes.}$$

The total time spent by D on listening to the problems and solutions is 34 minutes. Let x and y (in minutes) be the time spent by E and F on each person on asking and answering the puzzle.

	A	B	C	E	F	Total
Time spent by D on listening to the problems and solutions (in minutes)	4	6	10	x	y	34

$$\therefore 4 + 6 + 10 + x + y = 34$$

$$x + y = 14 \quad \dots(\text{i})$$

Let p (in minutes) be the time spent by D on each person on asking and answering the puzzle.

	A	B	C	D	F	Total
Time spent by E on listening to the problems and solutions (in minutes)	4	6	10	p	y	32.4

$$\therefore 4 + 6 + 10 + p + y = 32.4$$

$$p + y = 12.4 \quad \dots(\text{ii})$$

Now for F,

	A	B	C	D	E	Total
Time spent by F on listening to the problems and solutions (in minutes)	4	6	10	p	x	31.6

$$\therefore 4 + 6 + 10 + p + x = 31.6$$

$$p + x = 11.6 \quad \dots(\text{iii})$$

On solving eq. (i), (ii) and (iii), we get

$$p = 5, x = 6.6, y = 7.4$$

\therefore The total time spent by D on asking and answering the puzzle is $5 \times 5 = 25$ minutes.

The total time spent by E on asking and answering the puzzle is $6.6 \times 5 = 33$ minutes.

The total time spent by F on asking and answering the puzzle is $7.4 \times 5 = 37$ minutes.

The total time spent by A, B and C on listening to the problems and solutions are

A	B	C	D	E	F	Total
	6	10	5	6.6	7.4	35
B	A	C	D	E	F	Total
	4	10	5	6.6	7.4	33
C	A	B	D	E	F	Total
	4	6	5	6.6	7.4	29

So, the final table will be as follows:

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to the problems and solutions (in minutes)
A	20	35
B	30	33
C	50	29
D	25	34
E	33	32.4
F	37	31.6

The time spent by D on asking and discussing the puzzle with A is $\frac{25}{5} = 5$ minutes

Now, if A answered the puzzle asked by D, then the time taken for discussing the answer only i.e. $\frac{5}{2} = 2.5$ minutes will be saved.

So, the new time spent by D on asking and answering the puzzle becomes $= 25 - 2.5 = 22.5$ minutes [As no other person answered the puzzle asked by D except A].

$$\therefore \text{Required percentage is } \frac{2.5}{22.5} \times 100 = 11.11\%$$

FeedBack

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

Six friends - A, B, C, D, E and F - were standing around a circular track at six equidistant points to play a game. To start the game, first A ran around the circle asking a puzzle to each of his friends separately at their individual place and returned back to his position completing one round. Then he again ran around the circle, discussing the answer of his puzzle with each of them at their positions and hence completed his second round. It is known that the duration of the time spent by A on each task, asking the puzzle and for discussing the answer, with each person is same for each person. After A, B started asking a different puzzle in his first round around the circle and then discussed the answer in his second round. The same was done by C, D, E and F, in that order.

The following table gives us the information about the total time spent on asking the puzzle and discussing its answers in two rounds by each person and the total time spent by them for listening to the problems and the solutions of the other five asked from that person. It is also known that none of them were able to answer any puzzle asked from them.

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to puzzles and solutions (in minutes)
A	20	
B	30	
C	50	
D		34
E		32.4
F		31.6

Q.46

What is the difference between the time spent by E on asking the puzzle and discussing its answers and the time spent by A on listening to puzzles and solutions of others?

1 2 minutes

2 1.5 minutes

3 3 minutes

4 3.7 minutes

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

From the table, the total time spent by A, B and C on asking and answering the puzzle are 20 minutes, 30 minutes and 50 minutes respectively.

As the duration of the time spent on each task, asking the puzzle and for discussing the answer, with each person is same for each person. Therefore, the time spent by A, B and C on asking and answering the puzzle from each person will be-

For A, it is $\frac{20}{5} = 4$ minutes.

For B, it is $\frac{30}{5} = 6$ minutes.

For C, it is, $\frac{50}{5} = 10$ minutes.

The total time spent by D on listening to the problems and solutions is 34 minutes. Let x and y (in minutes) be the time spent by E and F on each person on asking and answering the puzzle.

	A	B	C	E	F	Total
Time spent by D on listening to the problems and solutions (in minutes)	4	6	10	x	y	34

$$\therefore 4 + 6 + 10 + x + y = 34$$

$$x + y = 14 \quad \dots(i)$$

Let p (in minutes) be the time spent by D on each person on asking and answering the puzzle.

	A	B	C	D	F	Total
Time spent by E on listening to the problems and solutions (in minutes)	4	6	10	p	y	32.4

$$\therefore 4 + 6 + 10 + p + y = 32.4$$

$$p + y = 12.4 \quad \dots(ii)$$

Now for F,

	A	B	C	D	E	Total
Time spent by F on listening to the problems and solutions (in minutes)	4	6	10	p	x	31.6

$$\therefore 4 + 6 + 10 + p + x = 31.6$$

$$p + x = 11.6 \quad \dots(iii)$$

On solving eq. (i), (ii) and (iii), we get

$$p = 5, x = 6.6, y = 7.4$$

\therefore The total time spent by D on asking and answering the puzzle is $5 \times 5 = 25$ minutes.

The total time spent by E on asking and answering the puzzle is $6.6 \times 5 = 33$ minutes.

The total time spent by F on asking and answering the puzzle is $7.4 \times 5 = 37$ minutes.

The total time spent by A, B and C on listening to the problems and solutions are

A	B	C	D	E	F	Total
	6	10	5	6.6	7.4	35
B	A	C	D	E	F	Total
	4	10	5	6.6	7.4	33
C	A	B	D	E	F	Total
	4	6	5	6.6	7.4	29

So, the final table will be as follows:

	Total time spent on asking and answering the puzzle (in minutes)	Total time spent on listening to the problems and solutions (in minutes)
A	20	35
B	30	33
C	50	29
D	25	34
E	33	32.4
F	37	31.6

Clearly from the final table, the difference is $= 35 - 33 = 2$ minutes.

FeedBack

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

A group of friends were discussing their travelling experiences. They visited 3 kinds of destinations: Hills, Sea and Desert. 80 friends visited hills, 69 visited sea and 79 visited deserts. It is also known that:

- I. The number of friends who visited hills only and those who visited hills as well as desert is in the ratio 2 : 3.
 - II. The number of friends who visited sea only and those who visited sea as well as desert is in the ratio 3 : 4.
 - III. The number of friends who visited desert only and those who visited hills as well as sea is in the ratio 4 : 5.
-

Q.47

How many friends visited hills but not sea?

1 24

2 31

3 55

4 Cannot be determined

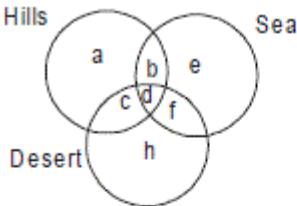
Solution:

Correct Answer : 3

 **Bookmark**

 **Answer key/Solution**

The following venn diagram shows the number of people who visited the given three areas.



Using statements 1, 2 and 3,

$$\frac{a}{c+d} = \frac{2}{3} \quad \dots \text{(i)}$$

$$\frac{e}{d+f} = \frac{3}{4} \quad \dots \text{(ii)}$$

$$\frac{h}{b+d} = \frac{4}{5} \quad \dots \text{(iii)}$$

Let $a = 2x$, then $c + d = 3x$, or $c = 3x - d$

Now, let $e = 3y$, then $d + f = 4y$ or $f = 4y - d$

Also, let $h = 4z$, then $b + d = 5z$ or $b = 5z - d$

Also, $a + b + c + d = 80$,

$$2x + 5z - d + 3x - d + d = 80$$

$$\Rightarrow 5x + 5z - d = 80 \quad \dots \text{(iv)}$$

Similarly, $b + d + e + f = 69$,

$$5z - d + 3y + d + 4y - d = 69$$

$$\Rightarrow 7y + 5z - d = 69 \quad \dots \text{(v)}$$

And $c + d + f + h = 79$,

$$3x - d + d + 4y - d + 4z = 79$$

$$\Rightarrow 3x + 4y + 4z - d = 79 \quad \dots \text{(vi)}$$

From (iv), $d = 5(x + z) - 80$

or, $d = 5((x + z) - 16)$

So, d is a multiple of 5.

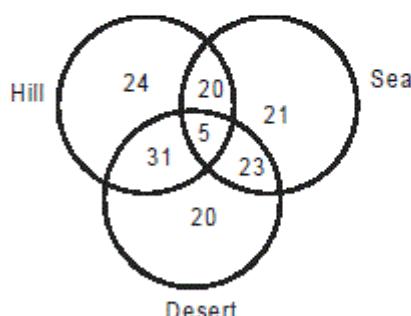
Let us assume $d = 5$, the smallest multiple of 5.

Putting this value of d in equations (iv), (v) and (vi), we get $x = 12$, $y = 7$, $z = 5$.

But, on putting value of d as 10, 15 etc, x , y and z won't have integral values. So $d = 5$

$x = 12$, $y = 7$, $z = 5$.

So, $a = 24$, $c = 31$, $e = 21$, $f = 23$, $h = 20$, $b = 20$



Number of friends who visited hills but not sea = $a + c$

$$\Rightarrow 24 + 31 = 55$$

FeedBack

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

A group of friends were discussing their travelling experiences. They visited 3 kinds of destinations: Hills, Sea and Desert. 80 friends visited hills, 69 visited sea and 79 visited deserts. It is also known that:

- I. The number of friends who visited hills only and those who visited hills as well as desert is in the ratio 2 : 3.
- II. The number of friends who visited sea only and those who visited sea as well as desert is in the ratio 3 : 4.
- III. The number of friends who visited desert only and those who visited hills as well as sea is in the ratio 4 : 5.

Q.48

How many friends did not visit desert?

1 20

2 65

3 124

4 Cannot be determined



Solution:

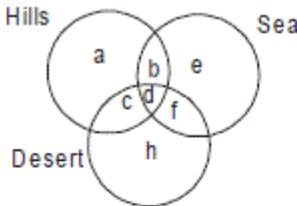
Correct Answer : 4

Your Answer : 2

 **Bookmark**

 **Answer key/Solution**

The following venn diagram shows the number of people who visited the given three areas.



Using statements 1, 2 and 3,

$$\frac{a}{c+d} = \frac{2}{3} \quad \dots \text{(i)}$$

$$\frac{e}{d+f} = \frac{3}{4} \quad \dots \text{(ii)}$$

$$\frac{h}{b+d} = \frac{4}{5} \quad \dots \text{(iii)}$$

Let $a = 2x$, then $c + d = 3x$, or $c = 3x - d$

Now, let $e = 3y$, then $d + f = 4y$ or $f = 4y - d$

Also, let $h = 4z$, then $b + d = 5z$ or $b = 5z - d$

Also, $a + b + c + d = 80$,

$$2x + 5z - d + 3x - d + d = 80$$

$$\Rightarrow 5x + 5z - d = 80 \quad \dots \text{(iv)}$$

Similarly, $b + d + e + f = 69$,

$$5z - d + 3y + d + 4y - d = 69$$

$$\Rightarrow 7y + 5z - d = 69 \quad \dots \text{(v)}$$

And $c + d + f + h = 79$,

$$3x - d + d + 4y - d + 4z = 79$$

$$\Rightarrow 3x + 4y + 4z - d = 79 \quad \dots \text{(vi)}$$

From (iv), $d = 5(x + z) - 80$

or, $d = 5((x + z) - 16)$

So, d is a multiple of 5.

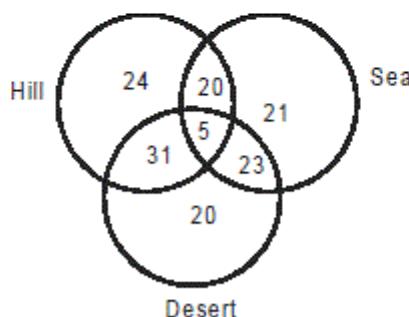
Let us assume $d = 5$, the smallest multiple of 5.

Putting this value of d in equations (iv), (v) and (vi), we get $x = 12$, $y = 7$, $z = 5$.

But, on putting value of d as 10, 15 etc, x , y and z won't have integral values. So $d = 5$

$x = 12$, $y = 7$, $z = 5$.

So, $a = 24$, $c = 31$, $e = 21$, $f = 23$, $h = 20$, $b = 20$



Since we don't know how many friends did not visit any of the 3 destinations, so answer cannot be determined.

FeedBack

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

A group of friends were discussing their travelling experiences. They visited 3 kinds of destinations: Hills, Sea and Desert. 80 friends visited hills, 69 visited sea and 79 visited deserts. It is also known that:

- I. The number of friends who visited hills only and those who visited hills as well as desert is in the ratio 2 : 3.
- II. The number of friends who visited sea only and those who visited sea as well as desert is in the ratio 3 : 4.
- III. The number of friends who visited desert only and those who visited hills as well as sea is in the ratio 4 : 5.

Q.49

How many friends visited all of the 3 given areas?

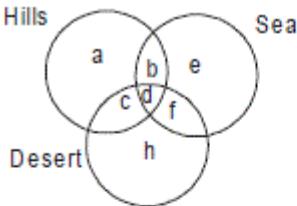
Solution:

Correct Answer : 5

 **Bookmark**

 **Answer key/Solution**

The following venn diagram shows the number of people who visited the given three areas.



Using statements 1, 2 and 3,

$$\frac{a}{c+d} = \frac{2}{3} \quad \dots \text{(i)}$$

$$\frac{e}{d+f} = \frac{3}{4} \quad \dots \text{(ii)}$$

$$\frac{h}{b+d} = \frac{4}{5} \quad \dots \text{(iii)}$$

Let $a = 2x$, then $c + d = 3x$, or $c = 3x - d$

Now, let $e = 3y$, then $d + f = 4y$ or $f = 4y - d$

Also, let $h = 4z$, then $b + d = 5z$ or $b = 5z - d$

Also, $a + b + c + d = 80$,

$$2x + 5z - d + 3x - d + d = 80$$

$$\Rightarrow 5x + 5z - d = 80 \quad \dots \text{(iv)}$$

Similarly, $b + d + e + f = 69$,

$$5z - d + 3y + d + 4y - d = 69$$

$$\Rightarrow 7y + 5z - d = 69 \quad \dots \text{(v)}$$

And $c + d + f + h = 79$,

$$3x - d + d + 4y - d + 4z = 79$$

$$\Rightarrow 3x + 4y + 4z - d = 79 \quad \dots \text{(vi)}$$

From (iv), $d = 5(x + z) - 80$

or, $d = 5((x + z) - 16)$

So, d is a multiple of 5.

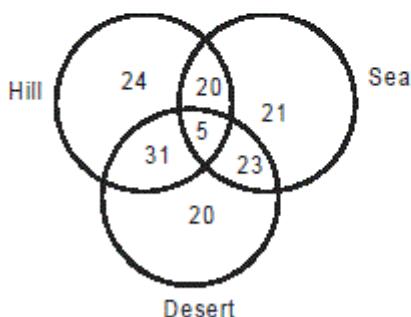
Let us assume $d = 5$, the smallest multiple of 5.

Putting this value of d in equations (iv), (v) and (vi), we get $x = 12$, $y = 7$, $z = 5$.

But, on putting value of d as 10, 15 etc, x , y and z won't have integral values. So $d = 5$

$x = 12$, $y = 7$, $z = 5$.

So, $a = 24$, $c = 31$, $e = 21$, $f = 23$, $h = 20$, $b = 20$



5 friends visited all of the 3 given areas.

FeedBack

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

A group of friends were discussing their travelling experiences. They visited 3 kinds of destinations: Hills, Sea and Desert. 80 friends visited hills, 69 visited sea and 79 visited deserts. It is also known that:

- I. The number of friends who visited hills only and those who visited hills as well as desert is in the ratio 2 : 3.
- II. The number of friends who visited sea only and those who visited sea as well as desert is in the ratio 3 : 4.
- III. The number of friends who visited desert only and those who visited hills as well as sea is in the ratio 4 : 5.

Q.50

How many friends visited at least 1 of the given three areas?

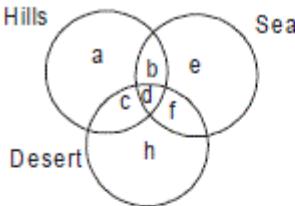
Solution:

Correct Answer : 144

 **Bookmark**

 **Answer key/Solution**

The following venn diagram shows the number of people who visited the given three areas.



Using statements 1, 2 and 3,

$$\frac{a}{c+d} = \frac{2}{3} \quad \dots(i)$$

$$\frac{e}{d+f} = \frac{3}{4} \quad \dots(ii)$$

$$\frac{h}{b+d} = \frac{4}{5} \quad \dots(iii)$$

Let $a = 2x$, then $c + d = 3x$, or $c = 3x - d$

Now, let $e = 3y$, then $d + f = 4y$ or $f = 4y - d$

Also, let $h = 4z$, then $b + d = 5z$ or $b = 5z - d$

Also, $a + b + c + d = 80$,

$$2x + 5z - d + 3x - d + d = 80$$

$$\Rightarrow 5x + 5z - d = 80 \quad \dots(iv)$$

Similarly, $b + d + e + f = 69$,

$$5z - d + 3y + d + 4y - d = 69$$

$$\Rightarrow 7y + 5z - d = 69 \quad \dots(v)$$

And $c + d + f + h = 79$,

$$3x - d + d + 4y - d + 4z = 79$$

$$\Rightarrow 3x + 4y + 4z - d = 79 \quad \dots(vi)$$

From (iv), $d = 5(x + z) - 80$

or, $d = 5((x + z) - 16)$

So, d is a multiple of 5.

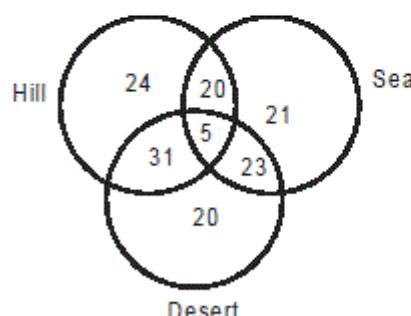
Let us assume $d = 5$, the smallest multiple of 5.

Putting this value of d in equations (iv), (v) and (vi), we get $x = 12$, $y = 7$, $z = 5$.

But, on putting value of d as 10, 15 etc, x , y and z won't have integral values. So $d = 5$

$x = 12$, $y = 7$, $z = 5$.

So, $a = 24$, $c = 31$, $e = 21$, $f = 23$, $h = 20$, $b = 20$



Number of friends who visited at least 1 of the given three areas = $a + b + e + c + d + f + h$
 $= 24 + 31 + 21 + 23 + 20 + 20 + 5 = 144$.

FeedBack

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

P, Q, R, S, W, X, Y and Z are sitting around a circular table with 4 of them facing away from the centre and other 4 towards the centre. They are having certain amount of money with them, where the maximum amount with any of them can be Rs.50 and every amount is an integer(in rupees).

- Q has twice as much amount as the person sitting second to his right.
- Average of the amounts with Y and X is Rs. 44, which is 10% more than the total amount with S and Z taken together.
- W is sitting second to the right of P, who is facing the same direction around the table as Y.
- X is sitting second to the left of S, who is facing away from the centre and has an amount of Rs. 20 more than the person sitting second to his right.
- Z is sitting third to the left of Y. The amount that P has is Rs. 9 more than the amount with W but Rs. 10 less than that of R.
- Neither Y nor R is an immediate neighbour of S, and Y is sitting second to the left of R.
- R has one more than twice the amount with W, who is sitting to the immediate left of Z.
- R is sitting third to the right of X, who has an amount which is Rs. 8 more than that of Y.

Q.51

Who is sitting to the immediate left of Q?

1 R

2 W

3 Y

4 P

Solution:

Correct Answer : 3

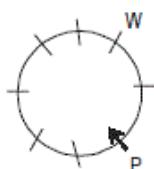
 **Bookmark**

 **Answer key/Solution**

Let the amount be P, Q, R, S, W, X, Y, Z respectively with the eight persons.
It can be concluded from the 3rd statement that there will be two cases.

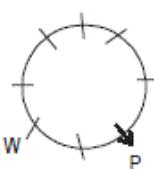
Case 1:

When P is facing towards the centre.



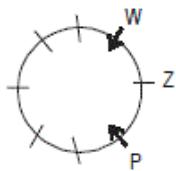
Case 2:

When P is facing away from the centre.

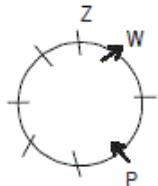


In case 1, there can be two possibilities again according to the 7th statement.

Case 1a : When W is facing towards the centre

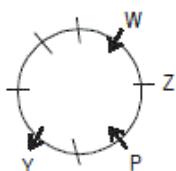


Case 1b: When W is facing away from the centre.



Consider Case 1a:

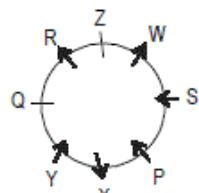
According to the 5th statement, figure will be



But, according to the 3rd statement, Y and P are facing the same direction. So this case is not possible.

Consider case 1b:

After 5th statement, 6th statement, 8th and 4th statements, figure will look like

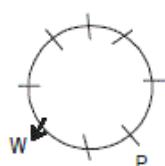


But, according to the 4th statement, S is facing away from the centre, which the case 1b seems to violate. So this case will be discarded, too.

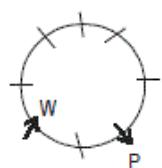
So the only case remaining is case 2.

Again in case 2, there will be two possibilities.

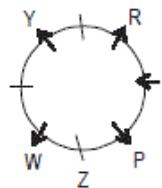
Case 2a : When W is facing away from the centre



Case 2b: When W is facing towards the centre



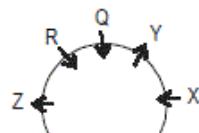
Consider statements. 7, 5 and 6 in that order. So, the figure will be (for case 2a)

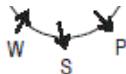


Now, according to the 6th statement, neither Y nor R is an immediate neighbour of S, but, according to the figure, S will be an immediate neighbour of either Y or R. So, this case will be discarded, too, for its contradictory nature.

So, consider case 2b.

After considering statements 7, 5, 6, 8 and 4 in that order figure will be:





This will be the final figure.

$$\text{Now } \frac{X+Y}{2} = 44 \Rightarrow X+Y = 88 \quad (\text{i})$$

$$S+Z = 40 \quad (\text{From the 2nd statement}) \quad (\text{ii})$$

$$S = Z + 20 \quad (\text{From the 4th statement})$$

Putting this value of S in equation (ii),

$$Z + 20 + Z = 40$$

$$2Z = 20$$

$$Z = 10$$

$$\text{So, } S = 30.$$

$$Q = 2Z \quad (\text{From the 1st statement})$$

$$Q = 20$$

$$\text{Now, } P = W + 9, \quad (\text{From the 5th statement})$$

$$P = R - 10$$

$$R = 2W + 1 \quad (\text{From the 7th statement})$$

On solving these three equations,

$$\text{We get } P = 27, R = 37, W = 18$$

$$\text{Also, } X = Y + 8 \quad (\text{From the 8th statement})$$

Putting this value of X in equation (i)

$$\text{We get } X = 48, Y = 40.$$

So, the final values are:

$$P = 27,$$

$$Q = 20,$$

$$R = 37,$$

$$S = 30,$$

$$W = 18,$$

$$X = 48,$$

$$Y = 40,$$

$$Z = 10.$$

It can be seen from the final figure that Y is sitting to the immediate left of Q.

Note: All the amounts mentioned are in Rupees(Rs.).

Feedback

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

P, Q, R, S, W, X, Y and Z are sitting around a circular table with 4 of them facing away from the centre and other 4 towards the centre. They are having certain amount of money with them, where the maximum amount with any of them can be Rs.50 and every amount is an integer(in rupees).

- Q has twice as much amount as the person sitting second to his right.
- Average of the amounts with Y and X is Rs. 44, which is 10% more than the total amount with S and Z taken together.
- W is sitting second to the right of P, who is facing the same direction around the table as Y.
- X is sitting second to the left of S, who is facing away from the centre and has an amount of Rs. 20 more than the person sitting second to his right.
- Z is sitting third to the left of Y. The amount that P has is Rs. 9 more than the amount with W but Rs. 10 less than that of R.
- Neither Y nor R is an immediate neighbour of S, and Y is sitting second to the left of R.
- R has one more than twice the amount with W, who is sitting to the immediate left of Z.
- R is sitting third to the right of X, who has an amount which is Rs. 8 more than that of Y.

Q.52

Who is sitting opposite to Y and with what amount(in Rs.)?

1 P, 32

2 W, 18

3 Q, 20

4 X, 34

X

Solution:

Correct Answer : 2

Your Answer : 3

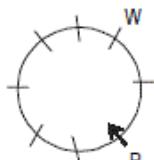
 **Bookmark**

 **Answer key/Solution**

Let the amount be P, Q, R, S, W, X, Y, Z respectively with the eight persons. It can be concluded from the 3rd statement that there will be two cases.

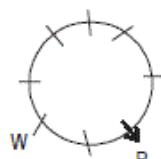
Case 1:

When P is facing towards the centre.



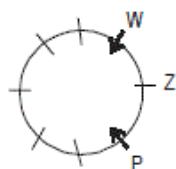
Case 2:

When P is facing away from the centre.

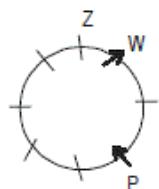


In case 1, there can be two possibilities again according to the 7th statement.

Case 1a : When W is facing towards the centre

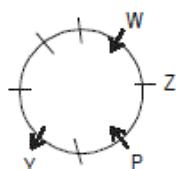


Case 1b: When W is facing away from the centre.



Consider Case 1a:

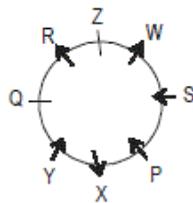
According to the 5th statement, figure will be



But, according to the 3rd statement, Y and P are facing the same direction. So this case is not possible.

Consider case 1b:

After 5th statement, 6th statement, 8th and 4th statements, figure will look like

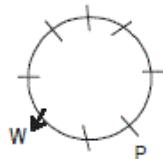


But, according to the 4th statement, S is facing away from the centre, which the case 1b seems to violate. So this case will be discarded, too.

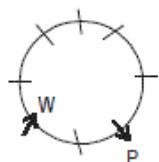
So the only case remaining is case 2.

Again in case 2, there will be two possibilities.

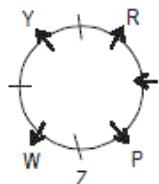
Case 2a : When W is facing away from the centre



Case 2b: When W is facing towards the centre



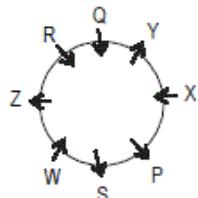
Consider statements. 7, 5 and 6 in that order. So, the figure will be (for case 2a)



Now, according to the 6th statement, neither Y nor R is an immediate neighbour of S, but, according to the figure. S will be an immediate neighbour of either Y or R. So, this case will be discarded, too, for its contradictory nature.

So, consider case 2b.

After considering statements 7, 5, 6, 8 and 4 in that order figure will be:



This will be the final figure.

$$\text{Now } \frac{X+Y}{2} = 44 \Rightarrow X+Y=88 \quad (\text{i})$$

$$S+Z=40 \quad (\text{From the 2nd statement}) \quad (\text{ii})$$

$$S=Z+20 \quad (\text{From the 4th statement})$$

Putting this value of S in equation (ii),

$$Z+20+Z=40$$

$$2Z=20$$

$$Z=10$$

$$\text{So, } S=30.$$

$$Q=2Z \quad (\text{From the 1st statement})$$

$$Q=20$$

$$\text{Now, } P=W+9, \quad (\text{From the 5th statement})$$

$$P=R-10$$

$$R=2W+1 \quad (\text{From the 7th statement})$$

On solving these three equations,

$$\text{We get } P=27, R=37, W=18$$

$$\text{Also, } X=Y+8 \quad (\text{From the 8th statement})$$

Putting this value of X in equation (i)

$$\text{We get } X=48, Y=40.$$

So, the final values are:

$$P=27,$$

$$Q=20,$$

$$R=37,$$

$$S=30,$$

$$W=18,$$

X = 48,
Y = 40,
Z = 10.

W is sitting opposite to Y and has an amount of Rs.18.

Note: All the amounts mentioned are in Rupees(Rs.).

[FeedBack](#)

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

P, Q, R, S, W, X, Y and Z are sitting around a circular table with 4 of them facing away from the centre and other 4 towards the centre. They are having certain amount of money with them, where the maximum amount with any of them can be Rs.50 and every amount is an integer(in rupees).

- Q has twice as much amount as the person sitting second to his right.
- Average of the amounts with Y and X is Rs. 44, which is 10% more than the total amount with S and Z taken together.
- W is sitting second to the right of P, who is facing the same direction around the table as Y.
- X is sitting second to the left of S, who is facing away from the centre and has an amount of Rs. 20 more than the person sitting second to his right.
- Z is sitting third to the left of Y. The amount that P has is Rs. 9 more than the amount with W but Rs. 10 less than that of R.
- Neither Y nor R is an immediate neighbour of S, and Y is sitting second to the left of R.
- R has one more than twice the amount with W, who is sitting to the immediate left of Z.
- R is sitting third to the right of X, who has an amount which is Rs. 8 more than that of Y.

Q.53

Who among the following have the least amount?

1 W

2 R

3 Z

4 P

Solution:

Correct Answer : 3

Your Answer : 2

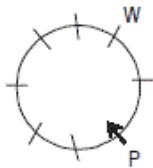
 **Bookmark**

 **Answer key/Solution**

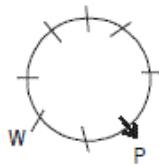
Let the amount be P, Q, R, S, W, X, Y, Z respectively with the eight persons.
It can be concluded from the 3rd statement that there will be two cases.

Case 1:

When P is facing towards the centre.

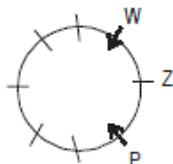
**Case 2:**

When P is facing away from the centre.

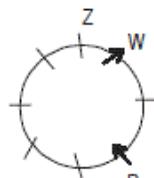


In case 1, there can be two possibilities again according to the 7th statement.

Case 1a : When W is facing towards the centre

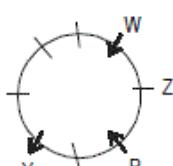


Case 1b: When W is facing away from the centre.



Consider Case 1a:

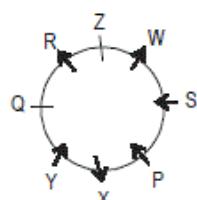
According to the 5th statement, figure will be



But, according to the 3rd statement, Y and P are facing the same direction. So this case is not possible.

Consider case 1b:

After 5th statement, 6th statement, 8th and 4th statements, figure will look like

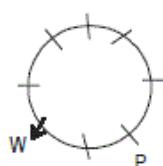


But, according to the 4th statement, S is facing away from the centre, which the case 1b seems to violate. So this case will be discarded, too.

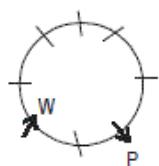
So the only case remaining is case 2.

Again in case 2, there will be two possibilities.

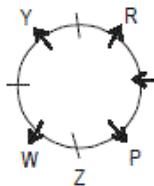
Case 2a : When W is facing away from the centre



Case 2b: When W is facing towards the centre



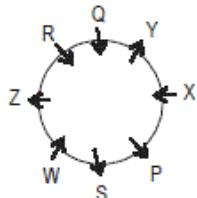
Consider statements. 7, 5 and 6 in that order. So, the figure will be (for case 2a)



Now, according to the 6th statement, neither Y nor R is an immediate neighbour of S, but, according to the figure, S will be an immediate neighbour of either Y or R. So, this case will be discarded, too, for its contradictory nature.

So, consider case 2b.

After considering statements 7, 5, 6, 8 and 4 in that order figure will be:



This will be the final figure.

$$\text{Now } \frac{X+Y}{2} = 44 \Rightarrow X+Y = 88 \quad (\text{i})$$

$$S+Z = 40 \quad (\text{From the 2nd statement}) \quad (\text{ii})$$

$$S = Z + 20 \quad (\text{From the 4th statement})$$

Putting this value of S in equation (ii),

$$Z + 20 + Z = 40$$

$$2Z = 20$$

$$Z = 10$$

$$\text{So, } S = 30.$$

$$Q = 2Z \quad (\text{From the 1st statement})$$

$$Q = 20$$

$$\text{Now, } P = W + 9, \quad (\text{From the 5th statement})$$

$$P = R - 10$$

$$R = 2W + 1 \quad (\text{From the 7th statement})$$

On solving these three equations,

$$\text{We get } P = 27, R = 37, W = 18$$

$$\text{Also, } X = Y + 8 \quad (\text{From the 8th statement})$$

$$\text{Putting this value of } X \text{ in equation (i)}$$

$$\text{We get } X = 48, Y = 40.$$

So, the final values are:

$$P = 27,$$

$$Q = 20,$$

$$R = 37,$$

$$S = 30,$$

$$W = 18,$$

$$X = 48,$$

$$Y = 40,$$

$$Z = 10.$$

Z has the least amount of Rs. 10.

Note: All the amounts mentioned are in Rupees(Rs.).

FeedBack

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

P, Q, R, S, W, X, Y and Z are sitting around a circular table with 4 of them facing away from the centre and other 4 towards the centre. They are having certain amount of money with them, where the maximum amount with any of them can be Rs.50 and every amount is an integer(in rupees).

- Q has twice as much amount as the person sitting second to his right.
- Average of the amounts with Y and X is Rs. 44, which is 10% more than the total amount with S and Z taken together.
- W is sitting second to the right of P, who is facing the same direction around the table as Y.
- X is sitting second to the left of S, who is facing away from the centre and has an amount of Rs. 20 more than the person sitting second to his right.
- Z is sitting third to the left of Y. The amount that P has is Rs. 9 more than the amount with W but Rs. 10 less than that of R.
- Neither Y nor R is an immediate neighbour of S, and Y is sitting second to the left of R.
- R has one more than twice the amount with W, who is sitting to the immediate left of Z.
- R is sitting third to the right of X, who has an amount which is Rs. 8 more than that of Y.

Q.54

What is the amount (in Rs.) with the person, who is sitting second to the left of P?

1 21

2 45

3 48

4 40

Solution:

Correct Answer : 4

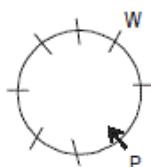
 **Bookmark**

 **Answer key/Solution**

Let the amount be P, Q, R, S, W, X, Y, Z respectively with the eight persons.
It can be concluded from the 3rd statement that there will be two cases.

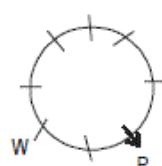
Case 1:

When P is facing towards the centre.



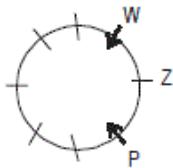
Case 2:

When P is facing away from the centre.

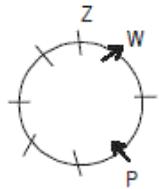


In case 1, there can be two possibilities again according to the 7th statement.

Case 1a : When W is facing towards the centre

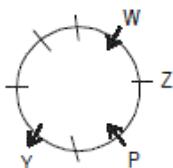


Case 1b: When W is facing away from the centre.



Consider Case 1a:

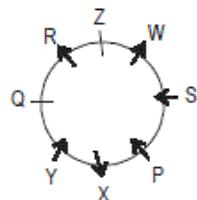
According to the 5th statement, figure will be



But, according to the 3rd statement, Y and P are facing the same direction. So this case is not possible.

Consider case 1b:

After 5th statement, 6th statement, 8th and 4th statements, figure will look like

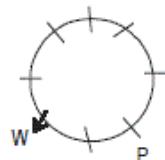


But, according to the 4th statement, S is facing away from the centre, which the case 1b seems to violate. So this case will be discarded, too.

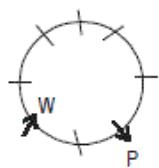
So the only case remaining is case 2.

Again in case 2, there will be two possibilities.

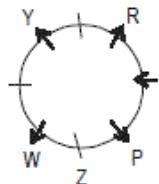
Case 2a : When W is facing away from the centre



Case 2b: When W is facing towards the centre



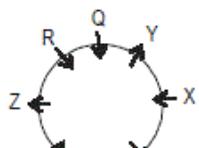
Consider statements. 7, 5 and 6 in that order. So, the figure will be (for case 2a)



Now, according to the 6th statement, neither Y nor R is an immediate neighbour of S, but, according to the figure. S will be an immediate neighbour of either Y or R. So, this case will be discarded, too, for its contradictory nature.

So, consider case 2b.

After considering statements 7, 5, 6, 8 and 4 in that order figure will be:





This will be the final figure.

$$\text{Now } \frac{X+Y}{2} = 44 \Rightarrow X+Y = 88 \quad (\text{i})$$

$$S+Z = 40 \quad (\text{From the 2nd statement}) \quad (\text{ii})$$

$$S = Z + 20 \quad (\text{From the 4th statement})$$

Putting this value of S in equation (ii),

$$Z + 20 + Z = 40$$

$$2Z = 20$$

$$Z = 10$$

$$\text{So, } S = 30.$$

$$Q = 2Z \quad (\text{From the 1st statement})$$

$$Q = 20$$

$$\text{Now, } P = W + 9, \quad (\text{From the 5th statement})$$

$$P = R - 10$$

$$R = 2W + 1 \quad (\text{From the 7th statement})$$

On solving these three equations,

$$\text{We get } P = 27, R = 37, W = 18$$

$$\text{Also, } X = Y + 8 \quad (\text{From the 8th statement})$$

Putting this value of X in equation (i)

$$\text{We get } X = 48, Y = 40.$$

So, the final values are:

$$P = 27,$$

$$Q = 20,$$

$$R = 37,$$

$$S = 30,$$

$$W = 18,$$

$$X = 48,$$

$$Y = 40,$$

$$Z = 10.$$

Y is sitting second to the left of P and has an amount of Rs. 40.

Note: All the amounts mentioned are in Rupees(Rs.).

FeedBack

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

In a multiplex, five movies - Simmba, Uri, Sanju, Kedarnath and Zero - were showcased. There were 8400 people who visited the multiplex and watched these movies on last Sunday. Based on their ages, they were divided into 5 different age groups i.e, 18-24, 25-32, 33-42, 43-54 and 55+. Everyone watched any one movie out of the given five movies and the ratio of the number of people in these age groups is 46 : 38 : 37 : 29 : 18 respectively. The ratio of the number of people who watched movies Simmba, Uri, Sanju, Kedarnath and Zero is 10 : 15 : 12 : 11 : 12 respectively.

Q.55

The ratio of people who watched Simmba in the age group of 33-42 to those in the rest of the age group, is 1 : 6. The ratio of people in the age group of 55+ who watched Sanju to those who watched another movie is 2 : 7. Find the difference between the number of people who did not watch Sanju having age less than 55 and the number of people who watched Simmba in the age group of 33-42 years.

Solution:**Correct Answer : 5820** **Bookmark** **Answer key/Solution**

The ratio of the people belonging to the age group of 18-24, 25-32, 33-42, 43-54 and 55+ who watched movie on that Sunday is 46 : 38 : 37 : 29 : 18 and the total number of people is given as 8400, so the number of people in these age groups can be calculated and are tabulated below. Also the ratio of people who watched the given five movies is 10 : 15 : 12 : 11 : 12. So, the number of people watching these movies also calculated and tabulated below:

Age group	Number of People	Movie	Number of People
18-24	2300	Simmba	1400
25-32	1900	Uri	2100
33-42	1850	Sanju	1680
43-54	1450	Kedarnath	1540
55+	900	Zero	1680

The number of people who watched Simmba in age group of 33-42 to those in rest of the groups is 1 : 6 and as total number of people watching Simmba is 1400, we can conclude that there were 200 people who watched Simmba and of age group 33-42.

Now the number of people who are of age 55+ and watched Sanju to the people who are 55+ and did not watch Sanju is 200 and 700 respectively because their ratio is given as 2 : 7.

So the difference between people who watched Simmba in the age group 33-42 and people above age of 55 who did not watch Sanju is $1200 - 700 = 500$.

Number of people with their age less than 55 and watched Sanju = $1680 - 200 = 1480$

So, number of people who did not watch Sanju having age less than 55 = $8400 - 900 - 1480 = 6020$

So, the required difference = $6020 - 200 = 5820$

FeedBack

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

In a multiplex, five movies - Simmba, Uri, Sanju, Kedarnath and Zero - were showcased. There were 8400 people who visited the multiplex and watched these movies on last Sunday. Based on their ages, they were divided into 5 different age groups i.e, 18-24, 25-32, 33-42, 43-54 and 55+. Everyone watched any one movie out of the given five movies and the ratio of the number of people in these age groups is 46 : 38 : 37 : 29 : 18 respectively. The ratio of the number of people who watched movies Simmba, Uri, Sanju, Kedarnath and Zero is 10 : 15 : 12 : 11 : 12 respectively.

Q.56

If 350 people who watched Kedarnath belong to the age group 25-32, then find the difference between the number of people who were in the age group of 25-32 and did not watch Kedarnath and the number of people who watched Kedarnath but not in the age group of 25-32.

Solution:**Correct Answer : 360** **Bookmark** **Answer key/Solution**

The ratio of the people belonging to the age group of 18-24, 25-32, 33-42, 43-54 and 55+ who watched movie on that Sunday is 46 : 38 : 37 : 29 : 18 and the total number of people is given as 8400, so the number of people in these age groups can be calculated and are tabulated below. Also the ratio of people who watched the given five movies is 10 : 15 : 12 : 11 : 12. So, the number of people watching these movies also calculated and tabulated below:

Age group	Number of People	Movie	Number of People
18-24	2300	Simmba	1400
25-32	1900	Uri	2100
33-42	1850	Sanju	1680
43-54	1450	Kedarnath	1540
55+	900	Zero	1680

The number of people who were in the age group of 25-32 and did not watch Kedarnath is $1900 - 350 = 1550$.
The number of people who watched Kedarnath but not in the age group of 25-32 is $(1540 - 350) = 1190$.
So, the required difference is $(1550 - 1190) = 360$.

FeedBack

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

In a multiplex, five movies - Simmba, Uri, Sanju, Kedarnath and Zero - were showcased. There were 8400 people who visited the multiplex and watched these movies on last Sunday. Based on their ages, they were divided into 5 different age groups i.e, 18-24, 25-32, 33-42, 43-54 and 55+. Everyone watched any one movie out of the given five movies and the ratio of the number of people in these age groups is 46 : 38 : 37 : 29 : 18 respectively. The ratio of the number of people who watched movies Simmba, Uri, Sanju, Kedarnath and Zero is 10 : 15 : 12 : 11 : 12 respectively.

Q.57

If the ratio of the number of people, having age 55+, watched Simmba, Uri, Sanju, Kedarnath and Zero is 2 : 3 : 4 : 5 : 4 respectively, then find the difference between the number of people who watched Uri having age less than 55 and those watched Zero having age less than 55.

Solution:**Correct Answer : 470** **Bookmark** **Answer key/Solution**

The ratio of the people belonging to the age group of 18-24, 25-32, 33-42, 43-54 and 55+ who watched movie on that Sunday is 46 : 38 : 37 : 29 : 18 and the total number of people is given as 8400, so the number of people in these age groups can be calculated and are tabulated below. Also the ratio of people who watched the given five movies is 10 : 15 : 12 : 11 : 12. So, the number of people watching these movies also calculated and tabulated below:

Age group	Number of People	Movie	Number of People
18-24	2300	Simmba	1400
25-32	1900	Uri	2100
33-42	1850	Sanju	1680
43-54	1450	Kedarnath	1540
55+	900	Zero	1680

As the ratio of the number of people watching these movies having age of 55+ is 2 : 3 : 4 : 5 : 4, the number of people watching these movies in the given age group is 100, 150, 200, 250 and 200 respectively.

The number of people who watched Uri having age less than 55 = $2100 - 150 = 1950$
and number of people who watched Zero having age less than 55 = $1680 - 200 = 1480$
So, the required difference = $1950 - 1480 = 470$

FeedBack

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

In a multiplex, five movies - Simmba, Uri, Sanju, Kedarnath and Zero - were showcased. There were 8400 people who visited the multiplex and watched these movies on last Sunday. Based on their ages, they were divided into 5 different age groups i.e, 18-24, 25-32, 33-42, 43-54 and 55+. Everyone watched any one movie out of the given five movies and the ratio of the number of people in these age groups is 46 : 38 : 37 : 29 : 18 respectively. The ratio of the number of people who watched movies Simmba, Uri, Sanju, Kedarnath and Zero is 10 : 15 : 12 : 11 : 12 respectively.

Q.58

If the ratio of the number of people, having age 55+, watched Simmba, Uri, Sanju, Kedarnath and Zero is 2 : 3 : 4 : 5 : 4 respectively, then what is the percentage of number of people who watched Uri having age of 55+ to the total people who watched Uri?

1 **7.14%**2 **7.69%**3 **8.33%**4 **6.66%**

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

The ratio of the people belonging to the age group of 18-24, 25-32, 33-42, 43-54 and 55+ who watched movie on that Sunday is 46 : 38 : 37 : 29 : 18 and the total number of people is given as 8400, so the number of people in these age groups can be calculated and are tabulated below. Also the ratio of people who watched the given five movies is 10 : 15 : 12 : 11 : 12. So, the number of people watching these movies also calculated and tabulated below:

Age group	Number of People	Movie	Number of People
18-24	2300	Simmba	1400
25-32	1900	Uri	2100
33-42	1850	Sanju	1680
43-54	1450	Kedarnath	1540
55+	900	Zero	1680

As the ratio of the number of people watching these movies having age of 55+ is 2 : 3 : 4 : 5 : 4, the number of people watching these movies in the given age group is 100, 150, 200, 250 and 200 respectively.

The number of people who watched Uri having age 55+ = 150

The total number of people who watched Uri = 2100

So, the required percentage = $\frac{150}{2100} \times 100 = 7.14\%$.

FeedBack

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

Five students - A, B, C, D and E - each answered 9 questions, with each question having its answer as either True or False. After checking their answers, it was found that the number of correct answers for the five students formed an AP series. Also, D had 8 correct answers. Everyone got at least one correct answer. Following table shows the answers given by the 5 students of each question.

	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9
A	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE
B	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	FALSE
C	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE
D	TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE
E	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE

Q.59

The absolute difference between the number of correct answers of A and B is

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

The number of correct answers for the five students are in an AP with that number for D to be 8, the only possibilities for the number of correct answers of these students must be either 4, 5, 6, 7 and 8 or 5, 6, 7, 8 and 9.

Also, the answers of B and D differ by only 1 question which means B has either 7 or 9 correct answers. Also A's and C's answers also differ by only 1 question which means the number of their correct answers are also consecutive numbers.

Now B's and E's answers differ by only 2 questions, so they must have a difference of either 0 or 2 in their number of correct answers. Because in the 2 questions having different answers for them, possibility is either one have both correct or both of them one correct from those 2 questions. But it is given that each of them has distinct number of questions answered correctly, so difference of 0 is not possible.

Case 1: When the number of correct answers for the five students is 4, 5, 6, 7 and 8.

Number of correct answers for D = 8 (given)

So, number of correct answers for B must be 7 and hence for E must be 5.

Then, number of correct answers for A and C must be 4 and 6 in any order, which is a contradiction to above the conclusion that there number must be consecutive.

So, this case is not possible.

Case 2: When the number of correct answers for the five students is 5, 6, 7, 8 and 9.

Number of correct answers for D = 8 (given)

Sub-case 2a: Number of correct answer of B = 7.

Number of correct answers of E must be 9 because A's and C's correct answer number has to be consecutive.

This implies all the answers given in the table for E are correct.

But in that case number of correct answers for D coming out to be 6, which is a contradiction to the given statement.

Sub-case 2b: Number of correct answer of B = 9.

So, comparing everyone's answers with B, we get that the number of correct answer for A, C, D and E is 6, 5, 8 and 7. It doesn't contradict any of the above conclusions.

Hence it is the only possible case.

Number of correct answers of A and B are 6 and 9. So, the required difference is 3.

FeedBack

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

Five students - A, B, C, D and E - each answered 9 questions, with each question having its answer as either True or False. After checking their answers, it was found that the number of correct answers for the five students formed an AP series. Also, D had 8 correct answers.

Everyone got at least one correct answer. Following table shows the answers given by the 5 students of each question.

	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9
A	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE
B	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	FALSE
C	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE
D	TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE
E	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE

Q.60

Who has the maximum number of correct answers?

1 **D**

2 B3 E4 A**Solution:****Correct Answer : 2****Your Answer : 1** **Bookmark** **Answer key/Solution**

The number of correct answers for the five students are in an AP with that number for D to be 8, the only possibilities for the number of correct answers of these students must be either 4, 5, 6, 7 and 8 or 5, 6, 7, 8 and 9. Also, the answers of B and D differ by only 1 question which means B has either 7 or 9 correct answers. Also A's and C's answers also differ by only 1 question which means the number of their correct answers are also consecutive numbers. Now B's and E's answers differ by only 2 questions, so they must have a difference of either 0 or 2 in their number of correct answers. Because in the 2 questions having different answers for them, possibility is either one have both correct or both of them one correct from those 2 questions. But it is given that each of them has distinct number of questions answered correctly, so difference of 0 is not possible.

Case 1: When the number of correct answers for the five students is 4, 5, 6, 7 and 8.

Number of correct answers for D = 8 (given)

So, number of correct answers for B must be 7 and hence for E must be 5.

Then, number of correct answers for A and C must be 4 and 6 in any order, which is a contradiction to above the conclusion that there number must be consecutive.

So, this case is not possible.

Case 2: When the number of correct answers for the five students is 5, 6, 7, 8 and 9.

Number of correct answers for D = 8 (given)

Sub-case 2a: Number of correct answer of B = 7.

Number of correct answers of E must be 9 because A's and C's correct answer number has to be consecutive.

This implies all the answers given in the table for E are correct.

But in that case number of correct answers for D coming out to be 6, which is a contradiction to the given statement.

Sub-case 2b: Number of correct answer of B = 9.

So, comparing everyone's answers with B, we get that the number of correct answer for A, C, D and E is 6, 5, 8 and 7. It doesn't contradict any of the above conclusions.

Hence it is the only possible case.

B has the maximum number of correct answers i.e. 9.

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

Five students - A, B, C, D and E - each answered 9 questions, with each question having its answer as either True or False. After checking their answers, it was found that the number of correct answers for the five students formed an AP series. Also, D had 8 correct answers. Everyone got at least one correct answer. Following table shows the answers given by the 5 students of each question.

	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9
A	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE
B	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	FALSE
C	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE
D	TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE
E	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE

Q.61

How many questions have their correct answer as 'True'?

Solution:

Correct Answer : 6

Bookmark

Answer key/Solution

The number of correct answers for the five students are in an AP with that number for D to be 8, the only possibilities for the number of correct answers of these students must be either 4, 5, 6, 7 and 8 or 5, 6, 7, 8 and 9. Also, the answers of B and D differ by only 1 question which means B has either 7 or 9 correct answers. Also A's and C's answers also differ by only 1 question which means the number of their correct answers are also consecutive numbers. Now B's and E's answers differ by only 2 questions, so they must have a difference of either 0 or 2 in their number of correct answers. Because in the 2 questions having different answers for them, possibility is either one have both correct or both of them one correct from those 2 questions. But it is given that each of them has distinct number of questions answered correctly, so difference of 0 is not possible.

Case 1: When the number of correct answers for the five students is 4, 5, 6, 7 and 8.

Number of correct answers for D = 8 (given)

So, number of correct answers for B must be 7 and hence for E must be 5.

Then, number of correct answers for A and C must be 4 and 6 in any order, which is a contradiction to above the conclusion that there number must be consecutive.

So, this case is not possible.

Case 2: When the number of correct answers for the five students is 5, 6, 7, 8 and 9.

Number of correct answers for D = 8 (given)

Sub-case 2a: Number of correct answer of B = 7.

Number of correct answers of E must be 9 because A's and C's correct answer number has to be consecutive.

This implies all the answers given in the table for E are correct.

But in that case number of correct answers for D coming out to be 6, which is a contradiction to the given statement.

Sub-case 2b: Number of correct answer of B = 9.

So, comparing everyone's answers with B, we get that the number of correct answer for A, C, D and E is 6, 5, 8 and 7. It doesn't contradict any of the above conclusions.

Hence it is the only possible case.

Since B has all its answers correct, we can check his answers to see the number of questions having its answers as TRUE. So, total 6 questions have their correct answer as 'True'.

FeedBack

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

Five students - A, B, C, D and E - each answered 9 questions, with each question having its answer as either True or False. After checking their answers, it was found that the number of correct answers for the five students formed an AP series. Also, D had 8 correct answers. Everyone got at least one correct answer. Following table shows the answers given by the 5 students of each question.

	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9
A	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE
B	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	FALSE
C	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE
D	TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE
E	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE

Q.62

Which question is answered incorrectly by D?

- 1 Q.3
- 2 Q.5
- 3 Q.6
- 4 Q.9

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

The number of correct answers for the five students are in an AP with that number for D to be 8, the only possibilities for the number of correct answers of these students must be either 4, 5, 6, 7 and 8 or 5, 6, 7, 8 and 9.

Also, the answers of B and D differ by only 1 question which means B has either 7 or 9 correct answers. Also A's and C's answers also differ by only 1 question which means the number of their correct answers are also consecutive numbers.

Now B's and E's answers differ by only 2 questions, so they must have a difference of either 0 or 2 in their number of correct answers. Because in the 2 questions having different answers for them, possibility is either one have both correct or both of them one correct from those 2 questions. But it is given that each of them has distinct number of questions answered correctly, so difference of 0 is not possible.

Case 1: When the number of correct answers for the five students is 4, 5, 6, 7 and 8.

Number of correct answers for D = 8 (given)

So, number of correct answers for B must be 7 and hence for E must be 5.

Then, number of correct answers for A and C must be 4 and 6 in any order, which is a contradiction to above the conclusion that there number must be consecutive.

So, this case is not possible.

Case 2: When the number of correct answers for the five students is 5, 6, 7, 8 and 9.

Number of correct answers for D = 8 (given)

Sub-case 2a: Number of correct answer of B = 7.

Number of correct answers of E must be 9 because A's and C's correct answer number has to be consecutive.

This implies all the answers given in the table for E are correct.

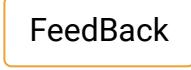
But in that case number of correct answers for D coming out to be 6, which is a contradiction to the given statement.

Sub-case 2b: Number of correct answer of B = 9.

So, comparing everyone's answers with B, we get that the number of correct answer for A, C, D and E is 6, 5, 8 and 7. It doesn't contradict any of the above conclusions.

Hence it is the only possible case.

Since D has only one question incorrect, it must be the one having its answer different from B's answer which is for Q.5.

 **FeedBack**

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

In a recent shopping sales season, Yatharth went for shopping in a multi-brand store in Delhi. He bought a total of five items and had a total bill of Rs. 20000. While shopping he asked the name of the salespersons who were assisting him and he bought one item from each salesperson. The articles he bought were tshirt, shirt, shoes, jeans and jacket and no two articles had the same price. The salespersons who assisted him in shopping were Mohit, Rajesh, Rohit, Sanjeev and Virat and their surnames were Gupta, Sharma, Solanki, Kohli and Chawla, not necessarily in the same order. Further information about his shopping is as follows:

1. Rajesh, who is not Sharma, did not sell him the t-shirt.
2. The article that Chawla sold was of half the price of the jeans.
3. The article sold by Sharma had a cost of Rs. 1000 more than that of the article sold by Mohit, whose sales was Rs.2000 more than that of the t-shirt.
4. Shoes were not the costliest item that Yatharth purchased.
5. The article sold by Rajesh cost twice as the article sold by Kohli.
6. Sharma did not assist Yatharth for buying jeans, which was worth Rs. 4000.
7. Solanki and the person who assisted in buying the jacket, the most costliest item, are childhood friends.
8. Rohit, who did not assist in buying shoes, also did not help in buying the lowest priced article.
9. Sanjeev did not assist in buying t-shirt.
10. T-shirt was the lowest priced article, having a price of Rs. 2000.
11. The cost of each article was an integral multiple of thousand rupees.

Q.63

Which of the following persons assisted Yatharth in buying Jacket?

1 Rajesh

2 Sanjeev

3 Rohit

4 Virat



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

The total bill of all the items was Rs. 20,000.

- From statement 6, the cost of the jeans was Rs. 4000 and from statement 2, Chawla sold the article at half of the price of the jeans i.e. Rs. 2000.
- From statement 10, t-shirt was the lowest priced article, having cost of Rs. 2000. So, we can say that Chawla sold the t-shirt for Rs. 2000.
- From statements 1, 3, 8 and 9, we can conclude that the t-shirt was not sold by Rajesh, Mohit, Rohit and Sanjeev. So, Virat was the only one who sold the t-shirt.
- From statement 3, Mohit's sales was Rs. 2000 more than that of the t-shirt, therefore, clearly, Mohit sold the jeans for Rs. 4000. Also, Sharma must have sold the article for Rs. 5000.

As of now, the cost of three items are known i.e. Rs. 2000, Rs. 4000 and Rs. 5000.

So, the sum of the cost of remaining two items was $= 20,000 - (2000 + 4000 + 5000) = \text{Rs. 9000}$.

\therefore The possible cases for the cost of the two remaining items are

- Rs. 1000 and Rs. 8000
- Rs. 3000 and Rs. 6000

Case (a) is not possible because the lowest priced article had a cost of Rs. 2000.

Now consider case (b):

- From statement 7, we can conclude that the cost of the jacket was Rs. 6000 as it was the most costliest item.
- From statement 5, the possible costs of the items sold by Rajesh and Kohli are either Rs. 4000 and Rs. 2000 or Rs. 6000 and Rs. 3000 respectively.

Since Chawla already sold the article for Rs. 2000, clearly, Kohli sold the article for Rs. 3000 and Rajesh sold the jacket for Rs. 6000.

- We know that t-shirt, jeans and jacket are sold by Virat, Mohit and Rajesh respectively and from statement 8, Rohit did not assist in buying shoes, so he sold the shirt, and hence Sanjeev sold the shoes.
- The surname of Rajesh was not Sharma, Kohli and Chawla as these are different persons and from statement 7 too, Solanki cannot be the surname of Rajesh, so, the only surname left is Gupta. So, Rajesh's surname was Gupta.

Similarly the surname of Mohit would be Solanki.

So, the final table would be:

Name	Item sold	Surname	Cost of Item (in Rs.)
Virat	T-shirt	Chawla	2000
Mohit	Jeans	Solanki	4000
Rajesh	Jacket	Gupta	6000
Rohit	Shirt	Kohli/Sharma	3000/5000
Sanjeev	Shoes	Sharma/Kohli	5000/3000

Clearly, Rajesh assisted Yatharth in buying the jacket.

FeedBack

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

In a recent shopping sales season, Yatharth went for shopping in a multi-brand store in Delhi. He bought a total of five items and had a total bill of Rs. 20000. While shopping he asked the name of the salespersons who were assisting him and he bought one item from each salesperson. The articles he bought were tshirt, shirt, shoes, jeans and jacket and no two articles had the same price. The salespersons who assisted him in shopping were Mohit, Rajesh, Rohit, Sanjeev and Virat and their surnames were Gupta, Sharma, Solanki, Kohli and Chawla, not necessarily in the same order. Further information about his shopping is as follows:

1. Rajesh, who is not Sharma, did not sell him the t-shirt.
2. The article that Chawla sold was of half the price of the jeans.
3. The article sold by Sharma had a cost of Rs. 1000 more than that of the article sold by Mohit, whose sales was Rs.2000 more than that of the t-shirt.
4. Shoes were not the costliest item that Yatharth purchased.
5. The article sold by Rajesh cost twice as the article sold by Kohli.
6. Sharma did not assist Yatharth for buying jeans, which was worth Rs. 4000.
7. Solanki and the person who assisted in buying the jacket, the most costliest item, are childhood friends.
8. Rohit, who did not assist in buying shoes, also did not help in buying the lowest priced article.
9. Sanjeev did not assist in buying t-shirt.
10. T-shirt was the lowest priced article, having a price of Rs. 2000.
11. The cost of each article was an integral multiple of thousand rupees.

Q.64

What is the price (in Rs.) of the article, sold by Solanki?

1 2000

2 4000

3 5000

4 6000



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

The total bill of all the items was Rs. 20,000.

- From statement 6, the cost of the jeans was Rs. 4000 and from statement 2, Chawla sold the article at half of the price of the jeans i.e. Rs. 2000.
- From statement 10, t-shirt was the lowest priced article, having cost of Rs. 2000. So, we can say that Chawla sold the t-shirt for Rs. 2000.
- From statements 1, 3, 8 and 9, we can conclude that the t-shirt was not sold by Rajesh, Mohit, Rohit and Sanjeev. So, Virat was the only one who sold the t-shirt.
- From statement 3, Mohit's sales was Rs. 2000 more than that of the t-shirt , therefore, clearly, Mohit sold the jeans for Rs. 4000. Also, Sharma must have sold the article for Rs. 5000.

As of now, the cost of three items are known i.e. Rs. 2000, Rs. 4000 and Rs. 5000.

So, the sum of the cost of remaining two items was = $20,000 - (2000 + 4000 + 5000) = \text{Rs. 9000}$.

∴ The possible cases for the cost of the two remaining items are

- Rs. 1000 and Rs. 8000
- Rs. 3000 and Rs. 6000

Case (a) is not possible because the lowest priced article had a cost of Rs. 2000.

Now consider case (b):

- From statement 7, we can conclude that the cost of the jacket was Rs. 6000 as it was the most costliest item.
- From statement 5, the possible costs of the items sold by Rajesh and Kohli are either Rs. 4000 and Rs. 2000 or Rs. 6000 and Rs. 3000 respectively.

Since Chawla already sold the article for Rs. 2000, clearly, Kohli sold the article for Rs. 3000 and Rajesh sold the jacket for Rs. 6000.

- We know that t-shirt, jeans and jacket are sold by Virat, Mohit and Rajesh respectively and from statement 8, Rohit did not assist in buying shoes, so he sold the shirt, and hence Sanjeev sold the shoes.
- The surname of Rajesh was not Sharma, Kohli and Chawla as these are different persons and from statement 7 too, Solanki cannot be the surname of Rajesh, so, the only surname left is Gupta. So, Rajesh's surname was Gupta.

Similarly the surname of Mohit would be Solanki.

So, the final table would be:

Name	Item sold	Surname	Cost of item (in Rs.)
Virat	T-shirt	Chawla	2000
Mohit	Jeans	Solanki	4000
Rajesh	Jacket	Gupta	6000
Rohit	Shirt	Kohli/Sharma	3000/5000
Sanjeev	Shoes	Sharma/Kohli	5000/3000

The price of the article sold by Solanki was Rs. 4000.

FeedBack

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

In a recent shopping sales season, Yatharth went for shopping in a multi-brand store in Delhi. He bought a total of five items and had a total bill of Rs. 20000. While shopping he asked the name of the salespersons who were assisting him and he bought one item from each salesperson. The articles he bought were tshirt, shirt, shoes, jeans and jacket and no two articles had the same price. The salespersons who assisted him in shopping were Mohit, Rajesh, Rohit, Sanjeev and Virat and their surnames were Gupta, Sharma, Solanki, Kohli and Chawla, not necessarily in the same order. Further information about his shopping is as follows:

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8. Rohit, who did not assist in buying shoes, also did not help in buying the lowest priced article.
9. Sanjeev did not assist in buying t-shirt.
10. T-shirt was the lowest priced article, having a price of Rs. 2000.
11. The cost of each article was an integral multiple of thousand rupees.

Q.65

Which of the following articles' sale was assisted by Virat?

1 T-shirt

2 Shirt

3 Jacket

4 Shoes

Solution:**Correct Answer : 1****Your Answer : 2****Bookmark****Answer key/Solution**

The total bill of all the items was Rs. 20,000.

- From statement 6, the cost of the jeans was Rs. 4000 and from statement 2, Chawla sold the article at half of the price of the jeans i.e. Rs. 2000.
- From statement 10, t-shirt was the lowest priced article, having cost of Rs. 2000. So, we can say that Chawla sold the t-shirt for Rs. 2000.
- From statements 1, 3, 8 and 9, we can conclude that the t-shirt was not sold by Rajesh, Mohit, Rohit and Sanjeev. So, Virat was the only one who sold the t-shirt.
- From statement 3, Mohit's sales was Rs. 2000 more than that of the t-shirt , therefore, clearly, Mohit sold the jeans for Rs. 4000. Also, Sharma must have sold the article for Rs. 5000.

As of now, the cost of three items are known i.e. Rs. 2000, Rs. 4000 and Rs. 5000.

So, the sum of the cost of remaining two items was = $20,000 - (2000 + 4000 + 5000) = \text{Rs. } 9000$.

\therefore The possible cases for the cost of the two remaining items are

- Rs. 1000 and Rs. 8000
- Rs. 3000 and Rs. 6000

Case (a) is not possible because the lowest priced article had a cost of Rs. 2000.

Now consider case (b):

- From statement 7, we can conclude that the cost of the jacket was Rs. 6000 as it was the most costliest item.
- From statement 5, the possible costs of the items sold by Rajesh and Kohli are either Rs. 4000 and Rs. 2000 or Rs. 6000 and Rs. 3000 respectively.

Since Chawla already sold the article for Rs. 2000, clearly, Kohli sold the article for Rs. 3000 and Rajesh sold the jacket for Rs. 6000.

- We know that t-shirt, jeans and jacket are sold by Virat, Mohit and Rajesh respectively and from statement 8, Rohit did not assist in buying shoes, so he sold the shirt, and hence Sanjeev sold the shoes.
- The surname of Rajesh was not Sharma, Kohli and Chawla as these are different persons and from statement 7 too, Solanki cannot be the surname of Rajesh, so, the only surname left is Gupta. So, Rajesh's surname was Gupta.

Similarly the surname of Mohit would be Solanki.

So, the final table would be:

Name	Item sold	Surname	Cost of Item (In Rs.)
Virat	T-shirt	Chawla	2000
Mohit	Jeans	Solanki	4000
Rajesh	Jacket	Gupta	6000
Rohit	Shirt	Kohli/Sharma	3000/5000
Sanjeev	Shoes	Sharma/Kohli	5000/3000

Virat assisted in the sale of t-shirt.

FeedBack

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

In a recent shopping sales season, Yatharth went for shopping in a multi-brand store in Delhi. He bought a total of five items and had a total bill of Rs. 20000. While shopping he asked the name of the salespersons who were assisting him and he bought one item from each salesperson. The articles he bought were tshirt, shirt, shoes, jeans and jacket and no two articles had the same price. The salespersons who assisted him in shopping were Mohit, Rajesh, Rohit, Sanjeev and Virat and their surnames were Gupta, Sharma, Solanki, Kohli and Chawla, not necessarily in the same order. Further information about his shopping is as follows:

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7. Solanki and the person who assisted in buying the jacket, the most costliest item, are childhood friends.
8. Rohit, who did not assist in buying shoes, also did not help in buying the lowest priced article.
9. Sanjeev did not assist in buying t-shirt.
10. T-shirt was the lowest priced article, having a price of Rs. 2000.
11. The cost of each article was an integral multiple of thousand rupees.

Q.66

Which of the following was the second costliest article?

- 1 Shoes
- 2 Shirt
- 3 Jacket
- 4 Cannot be determined

Solution:**Correct Answer : 4****Your Answer : 1****Bookmark****Answer key/Solution**

The total bill of all the items was Rs. 20,000.

- From statement 6, the cost of the jeans was Rs. 4000 and from statement 2, Chawla sold the article at half of the price of the jeans i.e. Rs. 2000.
- From statement 10, t-shirt was the lowest priced article, having cost of Rs. 2000. So, we can say that Chawla sold the t-shirt for Rs. 2000.
- From statements 1, 3, 8 and 9, we can conclude that the t-shirt was not sold by Rajesh, Mohit, Rohit and Sanjeev. So, Virat was the only one who sold the t-shirt.
- From statement 3, Mohit's sales was Rs. 2000 more than that of the t-shirt, therefore, clearly, Mohit sold the jeans for Rs. 4000. Also, Sharma must have sold the article for Rs. 5000.

As of now, the cost of three items are known i.e. Rs. 2000, Rs. 4000 and Rs. 5000.

So, the sum of the cost of remaining two items was $= 20,000 - (2000 + 4000 + 5000) = \text{Rs. 9000}$.

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Since Chawla already sold the article for Rs. 2000, clearly, Kohli sold the article for Rs. 3000 and Rajesh sold the jacket for Rs. 6000.

- We know that t-shirt, jeans and jacket are sold by Virat, Mohit and Rajesh respectively and from statement 8, Rohit did not assist in buying shoes, so he sold the shirt, and hence Sanjeev sold the shoes.
- The surname of Rajesh was not Sharma, Kohli and Chawla as these are different persons and from statement 7 too, Solanki cannot be the surname of Rajesh, so, the only surname left is Gupta. So, Rajesh's surname was Gupta.

Similarly the surname of Mohit would be Solanki.

So, the final table would be:

Name	Item sold	Surname	Cost of Item (in Rs.)
Virat	T-shirt	Chawla	2000
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Rajesh	Jacket	Gupta	6000
Rohit	Shirt	Kohli/Sharma	3000/5000
Sanjeev	Shoes	Sharma/Kohli	5000/3000

The second costliest article was either shirt or shoes.

FeedBack

Sec 3

Q.67

A man sitting in a train of length L metres, which is running at a speed of 72 km/hr and passing over two bridges, notices that he crosses the 1st bridge and 2nd bridge in time durations which are in the ratio of 19 : 17 respectively. If the length of the 1st bridge is 247 m, then the length (in metres) of the 2nd bridge is

Solution:**Correct Answer : 221** **Bookmark** **Answer key/Solution**

Let the time durations be $19t$ and $17t$.

The man sitting inside the train crosses the first bridge having length 247m in $19t$ seconds.

$$\therefore 19t = \frac{247}{20} \Rightarrow t = \frac{247}{19 \times 20}$$

The man crosses the second bridge having length (say x metres) in $17t$ seconds.

$$\therefore 17t = \frac{x}{20}$$

$$t = \frac{x}{17 \times 20}$$

$$\Rightarrow \frac{247}{19 \times 20} = \frac{x}{17 \times 20} \Rightarrow x = 221 \text{ m.}$$

FeedBack

Q.68

Purity of gold is measured in carat. 24 carat gold is known as pure gold i.e. 24 out of 24 parts are gold. Likewise 16 carat gold would have 16 out of the 24 parts as gold. If 20 grams of 16 carat gold is mixed with 25 grams of 22 carat gold, then what will be the purity (in carat) of gold in the resultant mixture?

1 **20.12**

2 **18.45**

3 **19.33**

4 **17.95**



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

In 20 grams of 16 carat gold, the amount of gold present is $= \frac{16}{24} \times 20 = \frac{40}{3}$ grams.

In 25 grams of 22 carat gold, the amount of gold present is $= \frac{22}{24} \times 25 = \frac{275}{12}$ grams

$$\therefore \text{Total amount of gold} = \frac{40}{3} + \frac{275}{12} = \frac{435}{12} \text{ grams}$$

Let the purity (in carat) of gold in the resultant mixture i.e. ($20 + 25 = 45$ grams) be x .

$$\therefore \frac{x}{24} \times 45 = \frac{435}{12} \Rightarrow x = 19.33.$$

FeedBack**Q.69**

If x , y and z are three consecutive positive integers, then which of the following cannot be the remainder when $x^4 + y^4 + z^4$ is divided by 4?

1 02 13 34 Both (1) and (3)**Solution:****Correct Answer : 4****Your Answer : 4** **Bookmark** **Answer key/Solution**

Three consecutive integers will either include 2 even numbers and one odd number or 2 odd numbers and one even number. The even number, raised to the power of 4, when divided by 4 leaves a remainder of 0 whereas an odd number, raised to the power of 4, when divided by 4 leaves a remainder of 1.

Hence the remainder when $x^4 + y^4 + z^4$ is divided by 4 is $0 + 1 + 0$ or $1 + 0 + 1$ i.e. 1 or 2.

Hence the remainder can never be 0 or 3.

FeedBack

Q.70

If the number of female employees in an office is increased by 50% and the number of male employees is decreased by 25%, then the total number of employees in the office remains same. By what percentage will the total number of employees increase, if the number of male employees and that of female employees increases by 20% and 60% respectively?

- 1 25%
- 2 33.33%
- 3 50%
- 4 66.67%

Solution:

Correct Answer : 2

 **Bookmark**

 **Answer key/Solution**

Let the number of male and female employees in the office be x and y respectively.

Given that 150% of y + 75% of $x = x + y$

$$\text{Or, } 1.5y + 0.75x = x + y$$

$$\text{Or, } 0.5x = 0.25y$$

$$\text{Or, } 2y = x$$

Number of males after an increase of 20% = $1.2x$

Number of females after an increase of 60% = $1.6y$

$$\text{Initial number of employees} = x + y = 2y + y = 3y$$

$$\text{Final number of employees} = 1.2x + 1.6y = 1.2(2y) + 1.6y = 2.4y + 1.6y = 4y$$

$$\text{Percentage increase} = \frac{4y - 3y}{3y} \times 100 = 33.33\%$$

FeedBack

Q.71

Let p and q be the roots of the equation $ax^2 + bx + c = 0$, where $a \neq 0$. If a, b and c are in an A.P. and $\frac{1}{p} + \frac{1}{q} = 6$, then the value of $|p - q|$ is

- 1 $\frac{2\sqrt{22}}{13}$
- 2 $\frac{2\sqrt{33}}{13}$
- 3 $\frac{2\sqrt{77}}{13}$
- 4 $\frac{\sqrt{11}}{13}$

Solution:**Correct Answer : 1**

As p and q are roots of the given equation,
 $p + q = -b/a$ and $pq = c/a$

Also, $\frac{1}{p} + \frac{1}{q} = 6$ (given)

and $2b = a + c$ because a, b and c are in AP.

$$\left(\frac{1}{p} + \frac{1}{q} \right) = \frac{p+q}{pq} = \frac{-b}{c} = 6 \Rightarrow b = -6c$$

Also, $-12c = a + c$ i.e, $a = -13c$

So, $p + q = -6/13$ and $pq = -1/13$

Now, $(p - q)^2 = (p + q)^2 - 4pq$.

$$\text{So, } |p - q| = \sqrt{\frac{36}{169} + \frac{4}{13}} = \sqrt{\frac{36 + 52}{169}} = \frac{2\sqrt{22}}{13}$$

FeedBack

Bookmark

Answer key/Solution

Q.72

The value of an exterior angle of a regular polygon is 1/5 times its interior angle. Find the number of diagonals in this polygon.

1 **12**

2 **35**

3 **54**

4 **42**

Solution:**Correct Answer : 3**

Bookmark

Answer key/Solution

Let the number of sides of the polygon be n.

So, exterior angle and interior angle of the polygon become $\frac{360}{n}$ and $\frac{(n-2)180}{n}$ respectively.

As exterior angle is 1/5th of the interior angle,

$$\frac{360}{n} = \frac{1}{5} \times \frac{(n-2)180}{n} \Rightarrow n = 12$$

So, number of diagonals of the polygon = ${}^{12}C_2 - 12 = 54$.

FeedBack

Q.73

In the market, two types of oranges are available- type A and type B. Oranges of type A are bought at a certain price while oranges of type B are bought at a price which is 30% less than that of the oranges of type A. If Mohit bought the same quantity of oranges of type A and type B and sold all of them at a price which was 40% more than that of the oranges of type B, then find his approximate profit or loss percentage.

1 10% profit

2 10% loss

3 15% profit

4 15% loss

Solution:

Correct Answer : 3

Let cost price of type-A oranges be 10 Rs/piece

$$\text{Hence, cost price of type-B is } 10 - \frac{30 \times 10}{100} = 7 \text{ Rs./Piece}$$

Let Mohit bought 1 piece of both, type A and B, oranges.

$$\text{So, C.P per piece} = (10 + 7)/2 = 8.5$$

$$\text{And S.P. per piece} = \left[7 + 7 \times \frac{40}{100} \right] = 9.8$$

$$\text{Therefore, profit percentage} = \frac{9.8 - 8.5}{8.5} \times 100 = 15.29 \approx 15\%.$$

 **Bookmark**

 **Answer key/Solution**

FeedBack

Q.74

The simple interest earned on a certain sum in 3 years is Rs 8178. The rates of interest for the first, second and third year are 7%, 10% and 12% per annum respectively. Find the sum (in rupees).

Solution:**Correct Answer : 28200**

Let the sum be Rs. x

$$\text{Simple interest in the 1st year} = \frac{7 \times x \times 1}{100}$$

$$\text{Simple interest in the 2nd year} = \frac{10 \times x \times 1}{100}$$

$$\text{Simple interest in the 3rd year} = \frac{12 \times x \times 1}{100}$$

On adding the above 3 values, we get

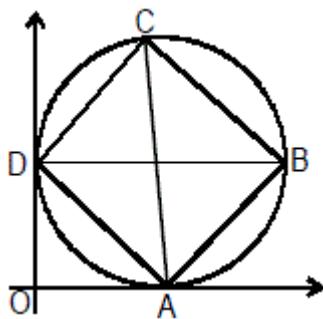
$$\frac{7x}{100} + \frac{10x}{100} + \frac{12x}{100} = 8178$$

$$\frac{29x}{100} = 8178$$

$$x = 28200.$$

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

In the figure given below, ABCD is a cyclic quadrilateral. If $\angle ABD = 75^\circ$ and O is a point outside the circle such that OA and OD are tangents to the circle, then find the measure of $\angle AOD$ (in degrees).

**Solution:****Correct Answer : 30****Bookmark****Answer key/Solution**

In the given figure $\angle OAD = \angle ABD$ (alternate segment theorem)

So, $\angle OAD = 75^\circ$

In the triangle OAD, OA = OD (because tangents drawn from a point to the same circle are equal)

Therefore, $\angle ODA = \angle OAD = 75^\circ$

Hence, $\angle AOD = 180^\circ - (75^\circ + 75^\circ) = 30^\circ$.

FeedBack

Q.76

There is a cylindrical tank containing some liquid which evaporates at a constant rate (in litres per minute). If twelve identical pipes start pumping the same liquid into this tank, the tank is filled in 48 minutes. Instead, if fourteen such pipes are used, the tank is filled in 36 minutes. How many such pipes will be required if the tank needs to be filled in 24 minutes?

1 24

2 20

3 18

4 Cannot be determined



Solution:

Correct Answer : 3

Your Answer : 3

Let x = rate of supply in litres /minute by each pipe
 y = rate of evaporation in litres / minute

$$\text{Given } 48 \times 12x - 48y = 36 \times 14x - 36y \quad (= \text{say } V)$$

$$\Rightarrow 6x = y \text{ and } V = 48 \times 6x \quad (\therefore V = 48 \times 12x - 48y)$$

Now, if 'n' taps fill the tank in 24 minutes then

$$24 \times nx - 24y = V$$

$$\Rightarrow 24(nx - 6x) = 48 \times 6x$$

$$\Rightarrow n - 6 = 12$$

$$n = 18.$$

Bookmark

Answer key/Solution

FeedBack

Q.77

If x is real and $|\log(2x + 3)(3x - 1)| = 1$, then find the number of possible values of x .

Solution:**Correct Answer : 2**

$$\log_{(2x+3)}(3x-1) = \pm 1$$

If $\log_{(2x+3)}(3x-1) = 1$, then $3x-1 = 2x+3 \Rightarrow x = 4$

$$\log_{(2x+3)}(3x-1) = -1$$

$$\Rightarrow (2x+3)(3x-1) = 1$$

$$\Rightarrow 6x^2 + 7x - 4 = 0$$

$$\Rightarrow x = \frac{-7 \pm \sqrt{49 + 96}}{12} = \frac{-7 \pm \sqrt{145}}{12}$$

$$\text{As } 3x-1 > 0, x > \frac{1}{3}$$

$$\text{So, } \frac{-7 + \sqrt{145}}{12} \text{ satisfies.}$$

Hence, two real values of x exist.

Bookmark**Answer key/Solution****FeedBack****Q.78**

Find the number of positive integral solutions of $x^6 = y^2 + 126$.

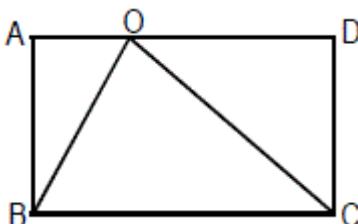
Solution:**Correct Answer : 0****Bookmark****Answer key/Solution**

$$x^6 = y^2 + 126 \text{ or } x^6 - y^2 = 126 \text{ or } (x^3)^2 - y^2 = 126.$$

Difference of 2 squares can never be an odd multiple of 2, hence, no values of x and y exist to satisfy this equation.

FeedBack**Q.79**

ΔABC is a right angled triangle drawn inside a rectangle $ABCD$, as shown in the figure below, such that O lies on the side AD. The ratio of the lengths of the sides OB and OC of the triangle BOC is 2 : 3. Find the value of $AB : BC$.

1 1 : 2

2 2 : 53 1 : 34 None of these**Solution:****Correct Answer : 4** $AD \parallel BC$, $\angle AOB = \angle OBC$ and $\angle DOC = \angle OCB$ So, $\triangle AOB$, $\triangle BOC$ and $\triangle COD$ all are similar.Now we know that $OB : OC = 2 : 3$

$$\Rightarrow AO : AB = 2 : 3$$

$$\Rightarrow DC : DO = 2 : 3$$

Let $AO = 2x$, $AB = 3x$, $DC = 2y$ and $DO = 3y$

But, $DC = AB$, so, $DC = 3x \Rightarrow 2y = 3x \Rightarrow y = \frac{3x}{2}$

$$DO = 3y \text{ or } DO = \frac{9x}{2}$$

$$AD = 2x + \frac{9x}{2} = \frac{13x}{2}$$

$$\therefore BC = \frac{13x}{2}$$

So, $AB : BC = 3x : \frac{13x}{2} = 6 : 13$.

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

A group of girls went for shopping. The average number of items purchased by the first half of the girls is equal to the average amount spent by the other half and the average amount spent by the first half of the girls is equal to the average number of items purchased by the other half. If the total amount spent by all the girls is Rs. 234, then what can be the total number of items purchased by the girls in the first half, if the average amount spent by the girls in each half is an integer? (The average amount spent by the girls in the first half is more than Rs. 10).

1 132 63 94 39**X**

Solution:**Correct Answer : 3****Your Answer : 4**

Let the number of items purchased and the average amount spent by the first half are 'a' and 'b' respectively. Then, the total amount spent by all the girls is $2ab$. Now, if $2ab = 234$ then $ab = 117$. Hence a can be a factor of 117 i.e. 1, 3, 9, 13, 39 and 117. Because b is more than 10, a must be 1, 3 or 9.

Bookmark**Answer key/Solution****FeedBack****Q.81**

On selling a certain good, the profit made by a trader is 25% of the selling price. The percentage discount he offered is same as the percentage profit earned by him. By what percentage did the trader mark up the price?

1 80%2 100%3 75%4 66.67%**Solution:****Correct Answer : 2****Your Answer : 2**

Let SP = 100

∴ Profit = 25

∴ CP = 75

$$\therefore \text{Profit percentage} = \frac{25}{75} = \frac{1}{3} = 33.33\% = \text{Discount percentage}$$

$$\text{MP} \left(1 - \frac{1}{3}\right) = 100$$

$$\therefore \text{MP} = 100 \times \frac{3}{2} = 150$$

\therefore MP is raised by 100%.

Bookmark**Answer key/Solution****FeedBack****Q.82**

What will be the last two digits of $399^{299}100$?

1 **99**2 **01**3 **91**4 **89****Solution:****Correct Answer : 1** **Bookmark** **Answer key/Solution**

$399^{299^{100}} = (400 - 01)^{299^{100}}$. In the binomial expansion, except the last term, every term will be ending with 2 zeroes.

The last term is $(-1)^{299^{100}}$ i.e. -1 .

Hence, the last two digits are $100 - 1 = 99$.

FeedBack**Q.83**

If the sum of the n terms of a GP is S, their product is P and the sum of their reciprocal is R, then P^{2000} is equal to

1 $\left(\frac{R}{S}\right)^{1000n}$

2 $\left(\frac{R}{S}\right)^{2000n}$

3 $\left(\frac{S}{R}\right)^{1000n}$

4 $\left(\frac{S}{R}\right)^{2000n}$

Solution:**Correct Answer : 3**

$$\text{Given the sum } S = \frac{a(r^n - 1)}{r - 1} = \frac{a(1 - r^n)}{1 - r}$$

Bookmark**Answer key/Solution**

$$P = a(ar) (ar^2) \dots (ar^{n-1}) = a^n r^{1+2+\dots+(n-1)} = a^n r^{\frac{n(n-1)}{2}}$$

$$P^2 = a^{2n} r^{n(n-1)}$$

$$\text{And } R = \frac{1}{a} + \frac{1}{ar} + \frac{1}{ar^2} + \dots \text{ upto n terms}$$

$$= \frac{1}{a} \left(1 + \frac{1}{r} + \frac{1}{r^2} + \dots \text{ upto n terms} \right) = \frac{\frac{1}{a} \left[\left(\frac{1}{r} \right)^n - 1 \right]}{\frac{1}{r} - 1}$$

$$\text{Therefore, } \frac{S}{R} = \frac{a(1 - r^n)}{1 - r} \times \frac{ar^{n-1}(1 - r)}{1 - r^n} = a^2 r^{n-1}$$

$$\text{So, } \left(\frac{S}{R} \right)^n = a^{2n} r^{n(n-1)} = P^2$$

$$\text{Hence, } P^{2000} = \left(\frac{S}{R} \right)^{1000n}$$

FeedBack**Q.84**

In how many ways can a 4×4 square board be filled with non-negative integers such that the sum of the numbers in each row and each column is 1?

Solution:**Correct Answer : 24**

Sum of 4 non negative integers can be 1 in only one way i.e. 0, 0, 0 and 1. So in each row and each column, three of the cells will contain a 0 and the remaining cell will contain a 1. So, the first row can be filled in 4 ways, similarly the 2nd row in 3 ways, 3rd row in 2 ways and 4th row in 1 way. Total number of ways is $4 \times 3 \times 2 \times 1 = 24$.

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

Q.85

The workers in a factory produce nuts and bolts. For each product, the production time is constant and identical for all workers, but not necessarily equal for the two products. In one day, 50 workers can produce 150 nuts and 100 bolts. In two days, 30 workers can produce 120 nuts and 150 bolts. If in three days, 25 workers can produce 75 nuts and 'x' bolts, then the value of 'x' is

X**Solution:****Correct Answer : 225****Your Answer : 100**

50 workers can produce 150 nuts and 100 bolts in 1 day.

30×2 i.e. 60 workers can produce 120 nuts and 150 bolts in 1 day.

$$\text{So } \frac{6}{5} (150 \text{ nuts} + 100 \text{ bolts}) = 120 \text{ nuts} + 150 \text{ bolts}$$

$$\text{Or } 900 \text{ nuts} + 600 \text{ bolts} = 600 \text{ nuts} + 750 \text{ bolts}$$

This means 2 nuts = 1 bolt.

So, 50 workers can produce 150 nuts + 100×2 nuts = 350 nuts in 1 day.

$$\text{Hence } 25 \times 3 \text{ i.e. 75 workers can produce } 350 \times \frac{75}{50} = 525 \text{ nuts in 1 day.}$$

$$525 \text{ nuts} = 75 \text{ nuts} + 450 \text{ nuts} = 75 \text{ nuts} + 225 \text{ bolts. So, } x = 225.$$

Bookmark**Answer key/Solution****FeedBack****Q.86**

If the total cost of 2 apples, 3 oranges and 6 guavas is Rs.10 more than the total cost of 1 apple, 1 orange and 3 guavas which is Rs.9, then what is the price (in Rupees) of 3 apples, 4 oranges and 9 guavas?

X**Solution:****Correct Answer : 28****Your Answer : 20****Bookmark****Answer key/Solution**

Here the number of apples and guavas is always in the same ratio i.e. 1 : 3 so let us assume 1 apple and 3 guavas as 1 unit (say K) and then make equations:

$$2K + 3 \text{ Oranges} = 19 \quad \dots(1)$$

$$1K + 1 \text{ Orange} = 9 \quad \dots(2)$$

Eq. (2) $\times 2$ – Eq. (1) gives the price of 1 orange as 1 rupee and 1K as Rs.8.

Hence the price of 3K + 4 Oranges is $24 + 4 = \text{Rs. 28}$.

FeedBack

Q.87

The circle $x^2 + y^2 = 4$ cuts the line joining the points A(1, 0) and B(3, 4) at two points P and Q.

Let $\frac{BP}{PA} = \alpha$ and $\frac{BQ}{QA} = \beta$, then α and β are the roots of the quadratic equation

1 $3x^2 + 16x - 21 = 0$

2 $3x^2 - 16x + 21 = 0$

3 $2x^2 + 3x - 21 = 0$

4 $3x^2 + 2x - 21 = 0$

Solution:

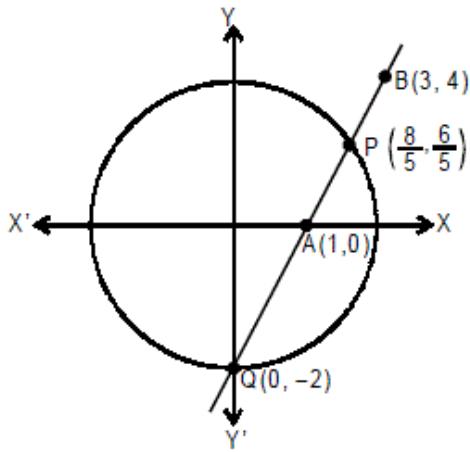
Correct Answer : 2

 **Bookmark**

 **Answer key/Solution**

The equation of the line joining A(1, 0) and B(3, 4) is $y = 2x - 2$. This cuts the circle $x^2 + y^2 = 4$ at Q (0, -2) and $\left(\frac{8}{5}, \frac{6}{5}\right)$.

We have $BQ = 3\sqrt{5}$, $QA = \sqrt{5}$, $BP = \frac{7}{\sqrt{5}}$ and $PA = \frac{3}{\sqrt{5}}$



$$\therefore \alpha = \frac{BP}{PA} = \frac{\frac{7}{\sqrt{5}}}{\frac{3}{\sqrt{5}}} = \frac{7}{3} \text{ and } \beta = \frac{BQ}{QA} = \frac{3\sqrt{5}}{\sqrt{5}} = 3$$

$\therefore \alpha, \beta$ are roots of the equation $x^2 - x(\alpha + \beta) + \alpha\beta = 0$

i.e., $x^2 - x\left(\frac{7}{3} + 3\right) + \frac{7}{3}(3) = 0$ or $3x^2 - 16x + 21 = 0$.

FeedBack

Q.88

The fraction of the milk present in two different mixtures are $1/4$ and $1/k$. These two mixtures are mixed in the ratio of $2 : 3$ by volume. What is the value of k when the fraction of the milk in the resultant mixture is $2/5$?

1 22 33 44 5**Solution:****Correct Answer : 1**

Using alligation method:

Ist	IIInd
$\frac{1}{4}$	$\frac{1}{k}$

$$\begin{array}{ccc} & \frac{2}{5} & \\ 2 & : & 3 \end{array}$$

$$\frac{\frac{1}{4} - \frac{2}{5}}{\frac{1}{4} - \frac{1}{k}} = \frac{2}{3} \Rightarrow \frac{\frac{5-8}{20}}{\frac{5-k}{20}} = \frac{2}{3}$$

$$\Rightarrow 10(5-8) = 5k \\ \Rightarrow 25k = 50 \Rightarrow k = 2.$$

Bookmark**Answer key/Solution****FeedBack****Q.89**

A bus started traveling from Digha to Esplanade. After covering two-third of the distance, it broke down. The driver repaired the fault in negligible time and the bus started moving again. Due to this, the speed of the bus was reduced by one-third and for this reason the bus reached Esplanade 1 hour late. What would be the original time (in hours) taken by the bus in going from Digha to Esplanade, had it not broken down?

Solution:**Correct Answer : 6**

Let the distance between Digha to Esplanade = x k.m.
And Speed of bus = y km/hr

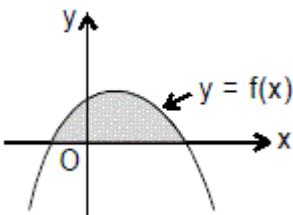
Bookmark**Answer key/Solution**

$$\text{Distance covered by bus after fault occurred} = x - \frac{2x}{3} = \frac{x}{3}$$

$$\text{Speed of bus after fault} = y - \frac{y}{3} = \frac{2y}{3}$$

$$\text{So, } \frac{2x}{3y} + \frac{x \times 3}{3 \times 2y} - \frac{x}{y} = 1$$

$$\Rightarrow \frac{x}{y} \left(\frac{2}{3} + \frac{1}{2} - 1 \right) = 1 \Rightarrow \frac{x}{y} \left(\frac{4+3-6}{6} \right) = 1 \Rightarrow \frac{x}{y} \left(\frac{1}{6} \right) = 1 \Rightarrow \frac{x}{y} = 6 \text{ hours.}$$

FeedBack**Q.90**

In the figure given above, area of the shaded region bounded by the parabola $y = f(x)$ and the x -axis is 5 sq. units. What will be the area (in sq. units) of the region bounded by the graph of $y = f(x + 2)$ and the x -axis?

Solution:**Correct Answer : 5**

Since the graph of $y = f(x + 2)$ can be obtained from the graph of $y = f(x)$ just by shifting it by 2 units towards the left, the shaded region will only be moved 2 units to the left. Therefore, there is no change in the shape or size of the shaded region. Thus, the area remains equal to 5.

Bookmark**Answer key/Solution****FeedBack****Q.91**

A function $f(x)$ is defined on the interval $0 \leq x \leq 2$ as:

$f(x) = \text{Integer closest to } x ; x \neq 0.5 \text{ or } 1.5$

$f(0.5) = 0$

$f(1.5) = 1$

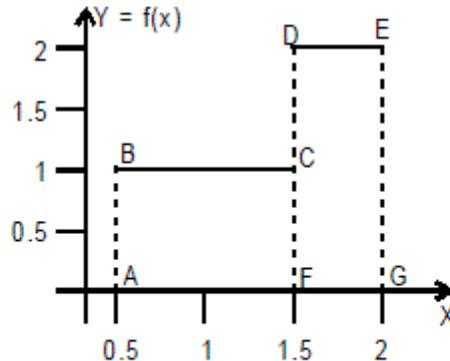
What is the area under the graph of this function above the x -axis?

1 52 43 34 2**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**

We have:

For $0 \leq x < 0.5$: $f(x) = 0$ For $x = 0.5$, $f(x) = 0.5$ For $0.5 < x < 1.5$, $f(x) = 1$ For $x = 1.5$, $f(x) = 1$ For $1.5 < x \leq 2$, $f(x) = 2$

The graph for the function is shown below (using bold lines):

Thus, the required area = Area of rectangle ABCF + Area of rectangle FDEG = $(1 \times 1) + (2 \times 0.5) = 2$. **FeedBack****Q.92****If $\log_{175} 125 = x$, then find the value of $\log_{35} 343$.**1 $\frac{3x}{3-2x}$ 2 $\frac{3(3-2x)}{3-x}$ 3 $\frac{3(x-1)}{3-x}$ 4 $\frac{3}{x}$

Solution:**Correct Answer : 2**

$$\log_{175} 125 = \frac{3\log 5}{2\log 5 + \log 7} \Rightarrow \frac{3\log 5}{2\log 5 + \log 7} = x$$

$$\therefore \log 5 = \frac{x \log 7}{3 - 2x}$$

$$\log_{35} 343 = \frac{3\log 7}{\log 5 + \log 7} = \frac{3\log 7}{\frac{x \log 7}{3 - 2x} + \log 7} = \frac{3}{\frac{x}{3 - 2x} + 1} = \frac{3(3 - 2x)}{3 - x}$$

FeedBack**Bookmark****Answer key/Solution****Q.93**

All three-digit numbers, having all three digits distinct and the tens place digit as the average of the other two digits, are arranged in an ascending order to form a single number. What will be the 38th digit of that number from left?

Solution:**Correct Answer : 2**

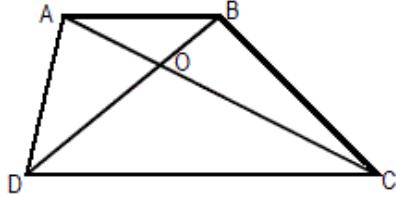
Initial numbers are those which starts with 1. As the middle digit is the average of other two so the last digit must be 3, 5, 7 or 9.

So, the numbers are 123, 135, 147 and 159. Similarly, the next 4 numbers, starting with 2, will be 210, 234, 246 and 258. Next 4 numbers, starting with 3, will be 321, 345, 357 and 369. Till now we have 12 numbers each with 3-digit, so we get first 36 digits of that number. Now next number is 420 whose 2nd digit, which is 38th digit from the beginning, is 2.

FeedBack**Bookmark****Answer key/Solution****Q.94**

In a trapezium, one diagonal divides the other in the ratio of 2 : 9. If the length of the larger of the two parallel sides is 54 cm, then what is the length (in cm) of the other parallel side?

1 122 53 184 14

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

Let diagonal AC is divided by BD in 2 : 9 at O. Suppose length of AC be 11k. So, AO and OC are 2k and 9k respectively. Now triangle AOB is similar to triangle COD.

So, $AO : CO = AB : CD$

i.e, $2 : 9 = AB : 54$

Therefore, $AB = 12 \text{ cm}$

FeedBack

Q.95

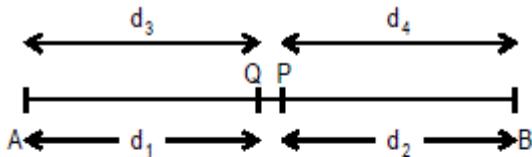
Raj and Atul start running towards each other simultaneously from the opposite ends of a linear racing track and take 81 seconds and 100 seconds respectively to reach the other end after crossing each other. If Raj and Siraj also start running towards each other simultaneously from opposite ends of the same track such that Raj takes 114 seconds to reach the other end after they cross each other, then how much time will Siraj take to run the entire length of the racing track?

1 83.5 seconds

2 80.5 seconds

3 85.5 seconds

4 90 seconds

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

Let the distance between the two points be $d_1 + d_2$.

Raj starts running from A with speed ' s_r ' and Atul starts from B with speed ' s_a ' and meet at point P.

$$\text{So, } \frac{d_1}{s_r} = \frac{d_2}{s_a} \dots (\text{i})$$

$$\text{Also, } \frac{d_2}{81} = s_r \text{ and } \frac{d_1}{100} = s_a \dots (\text{ii})$$

Putting (ii) in (i), we get

$$\frac{d_1}{d_2} \times 81 = \frac{d_2}{d_1} \times 100 \Rightarrow \frac{d_1}{d_2} = \frac{10}{9}$$

Let Raj and Siraj meet at point Q, where speed of Siraj be ' s_s '.

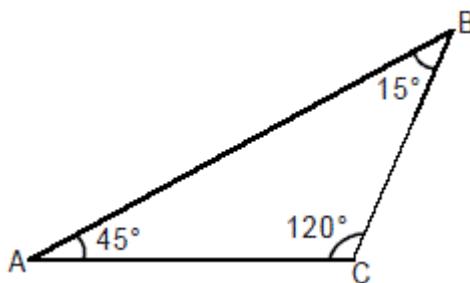
$$\text{Now speed of Raj} = s_r = \frac{d_2}{81} = \frac{d_4}{114} \Rightarrow d_4 = \frac{9k \times 114}{81} = \frac{38k}{3}$$

$$\text{So, } d_3 = 19k - \frac{38k}{3} = \frac{19k}{3}$$

Also, time taken by Raj and Siraj to reach Q is same.

$$\text{So, } \frac{d_3}{d_4} = \frac{s_r}{s_s} \Rightarrow \frac{19k \times 81}{3 \times 9k} = \frac{38k}{3 \times s_s} \Rightarrow s_s = \frac{2k}{9}$$

So, the time taken by Siraj to run the entire length = $171k/2k = 85.5$ seconds

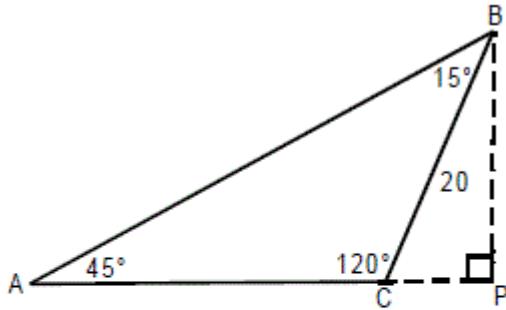
FeedBack
Q.96

Triangle ABC has angles measuring 45° , 15° and 120° , as shown in the figure given above. The length of the side opposite to vertex A is 20 units. Find the area (in sq. units) of the triangle ABC.

1 50($\sqrt{3} - 1$)

2 **50 $\sqrt{2}$** 3 **50(3 - $\sqrt{3}$)**4 **50 $\sqrt{3}$** **Solution:****Correct Answer : 3** **Bookmark** **Answer key/Solution**

We drop a perpendicular from B on AC extended, which meets it at P.



In right angled triangle BPC:

$$\angle BCP = 180^\circ - 120^\circ = 60^\circ$$

$$\angle CBP = 180^\circ - (60^\circ + 90^\circ) = 30^\circ$$

Thus, BPC is a 30-90-60 triangle

\Rightarrow Length of the side opposite to 30° is $\frac{1}{2}$ the length of the side opposite to 90°

$$\Rightarrow CP = \frac{BC}{2} = 10$$

Also, length of the side opposite to 60° is $\sqrt{3}$ times the length of the side opposite to 30°

$$\Rightarrow BP = \sqrt{3} \times CP = 10\sqrt{3}$$

Also, in triangle ABP:

$$\angle PAB = 45^\circ$$

$$\angle ABP = \angle ABC + \angle CBP = 15^\circ + 30^\circ = 45^\circ$$

Thus, triangle ABP is isosceles

$$\Rightarrow AP = BP = 10\sqrt{3}$$

$$\Rightarrow AC = AP - CP = 10\sqrt{3} - 10$$

$$\Rightarrow AC = 10(\sqrt{3} - 1)$$

Thus, area of triangle ABC = $\frac{1}{2} \times \text{Base} \times \text{Height}$

$$= \frac{1}{2}(AC)(BP) = \frac{1}{2} \times 10(\sqrt{3} - 1) \times 10\sqrt{3} = \frac{1}{2} \times 100 \times (3 - \sqrt{3}) = 50(3 - \sqrt{3})$$

FeedBack

Q.97

Vessel A contains $(x + 24)$ litres of mixture of milk and water in the ratio of 7 : 8, while vessel B contains $(x + 54)$ litres of another mixture of milk and water in the ratio of 3 : 2. If $37\frac{1}{2}\%$ of mixture from vessel A and 40% of mixture from vessel B are taken out and mixed in vessel C, then the quantity of the remaining mixture in vessel B is 15 litres more than that in vessel A. Find the quantity (in litres) of milk in vessel C.

Solution:**Correct Answer : 57**
 **Bookmark**
 **Answer key/Solution**

$$\text{In vessel A, milk} = \frac{7}{15} \times (x + 24) \text{ and water} = \frac{8}{15} \times (x + 24)$$

As $37\frac{1}{2}\%$ of mixture from vessel A is taken, then

$$\text{milk from vessel A} = \frac{7}{15} \times (x + 24) \times \frac{75}{2} \times \frac{1}{100} = \frac{7(x + 24)}{40} \text{ litres}$$

$$\text{and water from vessel A} = \frac{8}{15} \times (x + 24) \times \frac{75}{2} \times \frac{1}{100} = \frac{(x + 24)}{5} \text{ litres}$$

$$\text{So the remaining mixture in vessel A} = \left(100 - 37\frac{1}{2}\%\right) \times (x + 24) = \frac{5}{8}(x + 24) \text{ litres}$$

$$\text{In vessel B, milk} = \frac{3}{5} \times (x + 54) \text{ litres and water} = \frac{2}{5} \times (x + 54) \text{ litres}$$

Also, 40% of mixture from vessel B is taken, then

$$\text{milk from vessel B} = \frac{3}{5} \times (x + 54) \times \frac{40}{100} = \frac{6(x + 54)}{25} \text{ litres}$$

$$\text{and water from vessel B} = \frac{2}{5} \times (x + 54) \times \frac{40}{100} = \frac{4(x + 54)}{25} \text{ litres}$$

$$\text{So, the remaining mixture in vessel B} = (100 - 40)\% \times (x + 54) = \frac{3(x + 54)}{5} \text{ litres}$$

Since the remaining mixture in vessel B is 15 litres more than that of in vessel A,

$$\text{so } \frac{3(x + 54)}{5} = 15 + \frac{5}{8}(x + 24)$$

$$\Rightarrow 24(x + 54) = 600 + 25(x + 24) \Rightarrow 25x - 24x = 1296 - 1200 \Rightarrow x = 96$$

$$\text{So, the quantity of milk in vessel C} = \frac{7(x + 24)}{40} + \frac{6(x + 54)}{25}$$

$$= \frac{7(96 + 24)}{40} + \frac{6(96 + 54)}{25} \text{ (putting the value of x)}$$

$$= \frac{7 \times 120}{40} + \frac{6 \times 150}{25} = 21 + 36 = 57 \text{ litres.}$$

 **FeedBack**

Q.98

Three dice are tossed on a table. What is the probability that the three numbers that turn up could represent the lengths of the three sides of a scalene triangle?

1 $\frac{7}{36}$

2 $\frac{39}{216}$

3 $\frac{49}{216}$

4 $\frac{11}{36}$

Solution:

Correct Answer : 1

 **Bookmark**

 **Answer key/Solution**

For any scalene triangle having sides of lengths l, r, s (where l < r < s), sum of any two sides must be greater than the third side of the triangle.

∴ The different lengths of sides possible are: (2, 3, 4), (2, 4, 5), (2, 5, 6), (3, 4, 5), (3, 4, 6), (3, 5, 6) and (4, 5, 6)
Now each of these triplets can be rearranged among themselves in $3!$ i.e 6 ways.

∴ Total number of ways = $6 * 7 = 42$.

The total possible outcomes for the three tossed dice = $6^3 = 6 \times 6 \times 6$

$$\therefore \text{The required probability} = \frac{6 \times 7}{6 \times 6 \times 6} = \frac{7}{36}$$

FeedBack

Q.99

A, B, C, D and E have some chocolates with them in the ratio of 12 : 2 : 2 : 3 : 5. A distributed some of his chocolates among B, C, D and E such that the new ratio of chocolates with them becomes 6 : 9 : 6 : 7 : 8. Find the ratio of chocolates distributed to B, C, D and E.

1 12 : 6 : 5 : 1

2 2 : 3 : 4 : 5

3 7 : 4 : 4 : 3

4 Cannot be determined

x

Solution:**Correct Answer : 1****Your Answer : 3****Bookmark****Answer key/Solution**

Let the number of chocolates with A, B, C, D and E are $12x$, $2x$, $2x$, $3x$ and $5x$ respectively.

After A distributed some of his chocolates to the remaining four, the new ratio of chocolates with each of them is $6y : 9y : 6y : 7y : 8y$.

Since the chocolates are distributed among these five only, the number of chocolates will remain the same in both cases.

So, we can say that $24x = 36y$

$$\Rightarrow x : y = 3 : 2.$$

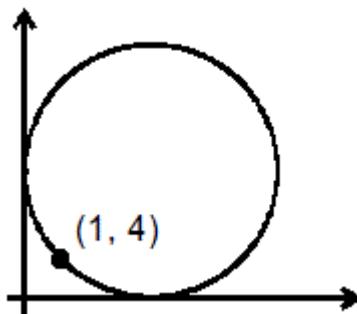
So, initial number of chocolates with A, B, C, D and E are 36, 6, 6, 9 and 15

and after A's distribution, the number of chocolates with them is 12, 18, 12, 14 and 16.

So, the ratio of chocolates received by B, C, D and E from A is $12 : 6 : 5 : 1$.

FeedBack**Q.100**

A circle present in the first quadrant touches both the axes as shown in the figure below. (1, 4) is a point on the circumference of this circle. Find the radius of the circle.

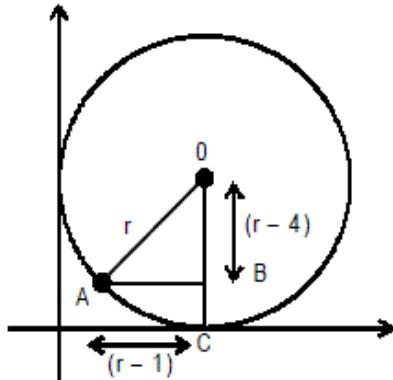


1 $5 + \frac{\sqrt{32}}{2}$

2 $5 - \frac{\sqrt{32}}{2}$

3 $7 + \frac{\sqrt{32}}{2}$

4 Both (1) and (2)

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

In the above diagram O is the centre of the circle. Let the radius of the circle $OA = OC = r$ units and A is the point $(1, 4)$.

Then $AB = (r - 1)$ units and $OB = (r - 4)$ units.

By applying Pythagoras theorem in triangle OAB,

$$r^2 = (r - 1)^2 + (r - 4)^2$$

$$\text{i.e., } r^2 - 10r + 17 = 0$$

$$\Rightarrow r = \frac{10 \pm \sqrt{10^2 - 4 \times 17}}{2} = \frac{10 \pm \sqrt{32}}{2} = 5 \pm \frac{\sqrt{32}}{2}$$

Since $r = 5 - \frac{\sqrt{32}}{2} < 4$, $(r - 4)$ will be negative which is not possible as the circle lies in the first quadrant.

Hence, $r = 5 + \frac{\sqrt{32}}{2}$ is the only possible radius.

FeedBack