



## Master series Mock CAT – 10 2019

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VARC

LRDI

QA

## Sec 1

**Directions for questions (1 to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

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**There are clear echoes here of things always seemingly in-built within capitalism: William Blake’s “dark satanic mills”, pitch-black coalmines, the nocturnal privations of shift work. Light and dark have always been signifiers for the quality of work and what it can do to people’s psyches. What seems remarkable is that in a post-industrial economy, replete with ideas of employment as a means of personal fulfillment, that dichotomy is returning, at speed.**

**What lurks in those ever-increasing shadows? Last week, researchers at three British universities published the latest results of a five-yearly government-funded skills and employment survey, which highlights exactly the kind of issues the dark economy embodies. Almost a third of those surveyed said they had to work at very high speeds “all” or “almost all” of the time. The share of people who have “a lot of discretion over how they do their job” has crashed from 62% in 1992 to 38% now. Meanwhile 55% of men and 47% of women reported that they either “always” or “often” left work exhausted.**

**This is no way to run an economy, let alone a society. At the absolute grassroots, it is great to see it being fiercely contested, as evidenced by last week’s one-day strike by people working for a range of catering firms – including not just McDonald’s, Wetherspoons and TGI Fridays, but the delivery services Uber Eats and Deliveroo. The responsibility for their predicament lies not just with corporations who insist on people working at a breakneck pace for impossibly low wages and often living like moles, but those of us who so blithely click and consume. Maybe it is time not just that the darkness receded in workplaces up and down the country, but that the light went on in our own heads.**

**Q.1**

**All of the following statements are false except:**

- 1 ☐ dark kitchens are basically used to sell food door to door.
- 2 ☐ Amazon's distribution centres are well ventilated.
- 3 ☐ in today's world all consumables are packed and distributed through dubious machineries.
- 4 ☐ the consumers are not guilt-free when it comes to the exploitation of the wage workers.

**Solution:**

**Correct Answer : 4**

**Genre: Economics**

**Word Count# 555**

Option 1 is incorrect as they are primarily used so that people can order food online. However, nothing specific has been mentioned about them in the paragraph.

Option 2 is incorrect as it contradicts the quotation from the book *Hired* used in the passage. Refer to the line, "The top floor on which I worked was a gloomy place, with the only natural light coming in through small rectangular windows located far above on the high ceiling".

Option 3 goes beyond the scope of the passage. There is no date regarding 'all consumables...' in the passage.

Option 4 is the correct answer. Refer to the line: "The responsibility for their predicament lies not just with corporations who insist on people working at a breakneck pace for impossibly low wages and often living like moles, but those of us who so blithely click and consume."

 **Bookmark**

 **Answer key/Solution**

FeedBack

**Directions for questions (1 to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

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**There are clear echoes here of things always seemingly in-built within capitalism: William Blake’s “dark satanic mills”, pitch-black coalmines, the nocturnal privations of shift work. Light and dark have always been signifiers for the quality of work and what it can do to people’s psyches. What seems remarkable is that in a post-industrial economy, replete with ideas of employment as a means of personal fulfillment, that dichotomy is returning, at speed.**

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**Q.2**

**Based on this passage, the author will definitely agree with which one the following?**

- 1 ☐ **The current culture of work affects the psyche of the workers.**
- 2 ☐ **William Blake was a champion for workers' rights.**
- 3 ☐ **Distribution centres evade categories.**
- 4 ☐ **Majority of women today feel a sense of fatigue and displeasure with the nature of their jobs.**

**Solution:**

**Correct Answer : 1**

**Genre: Economics**

**Word Count# 555**

**Option 2 cannot be verified from the given data. The author cites an example of Blake's writing. But it can't be surely stated that the author considers Blake as a labour right champion.**

**The author says that the distribution centres fall into meaningless categories. Hence option 3 is incorrect.**

**Option 4 is incorrect. The penultimate paragraph states that '47% of women' feel exhausted after work. So, 'majority' is not something that can be inferred from this. The author may or may not agree with this.**

**Option 1 is the correct answer since in the passage it is mentioned that, 'Light and dark have always been signifiers for the quality of work and what it can do to people's psyches. What seems remarkable is that in a post-industrial economy, replete with ideas of employment as a means of personal fulfillment, that dichotomy is returning, at speed.' So, the author will surely agree with the idea of 'affecting' the psyche. It is not an extreme option as 'affect' is not necessarily an extreme form of 'evil consequences'.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

**Directions for questions (1 to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

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**Q.3**

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

- 1 ☐ People buying high-end products imagine well-lit work spaces for the online workers.
- 2 ☐ Dark and disturbing advertisements by unwanted politicians have pushed the world into a crisis.
- 3 ☐ Dark economy has forced workers to focus more on quantity and less on quality.
- 4 ☐ Industry as we understood is extinct.

**Solution:**

**Correct Answer : 3**

**Genre: Economics**

**Word Count# 555**

**Option 1 – It can't be inferred as what people buying high-end products imagine has not been mentioned in the passage. The line, "Who, when they purchase an iPhone charger or an Adele album with a click on Amazon's website, imagines anything like this?" is mentioned in a rhetoric manner. It can't be taken literally.**

**Option 2 – This is totally out of context.**

**Option 3 – It is the correct answer since it is mentioned in the passage that the survey found that the workers 'work at very high speeds "all" or "almost all" of the time. The share of people who have "a lot of discretion over how they do their job" has crashed from 62% in 1992 to 38% now.' So, this option can be inferred.**

**Option 4 – It is incorrect since 'post-industry' do not mean the end of industry.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

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**Q.4**

The author provides the example of William Blake to show that:

- 1 ☐ dark kitchens are very much a British phenomenon.
- 2 ☐ exploitation which took root at the early stage of capitalism is returning quickly.
- 3 ☐ the passivity of the modern workers in accepting their fate is worrisome.
- 4 ☐ the night shifts and privatisation of work spells a bad omen for the future of the world economy.

**Solution:**

**Correct Answer : 2**

**Genre: Economics**

**Word Count# 555**

While mentioning Blake, the author emphasises on Blake's "dark satanic mills" quotation. The author opines that the exploitations are in-built mechanisms associated with capitalism and what used to take place earlier is returning with dangerous speed. This supports option 2.

Option 1 – There is no specific mention of 'dark kitchens' with reference to Britain.

Option 3 – It is contradicted by the last paragraph. Refer to the lines, "At the absolute grassroots, it is great to see it being fiercely contested, as evidenced by last week's one-day strike by people working for a range of catering firms – including not just McDonald's, Wetherspoons and TGI Fridays, but the delivery services Uber Eats and Deliveroo." So, the workers are anything but passive.

Option 4 – It is too extreme. 'Night shifts' have not been vilified by the author to extent of spelling doom for the world economy.

 **Bookmark**

 **Answer key/Solution**

FeedBack

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**Q.5**

**Which of the following is not one of the complaints made by workers participating in the survey mentioned in the passage?**

- 1 ☐ The dark style of operations
- 2 ☐ The pace of their work
- 3 ☐ Lack of ability to choose one's work style
- 4 ☐ The exhaustion caused by their work

**Solution:**

**Correct Answer : 1**

**Genre: Economics**

**Word Count# 555**

Refer to the lines, "Last week, researchers at three British universities published the latest results of a five-yearly government-funded skills and employment survey, which highlights exactly the kind of issues the dark economy embodies. Almost a third of those surveyed said they had to work at very high speeds "all" or "almost all" of the time. The share of people who have "a lot of discretion over how they do their job" has crashed from 62% in 1992 to 38% now. Meanwhile 55% of men and 47% of women reported that they either "always" or "often" left work exhausted." This supports options 2, 3, and 4.

So, option 1 has not been mentioned with reference to the study. The author talks about 'issues related to dark economy'. So, option 1 is distorted.

 **Bookmark**

 **Answer key/Solution**

FeedBack

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**Q.6**

The purpose of the passage is to:

- 1 ☐ shut down distribution centres.
- 2 ☐ show how certain styles of worker management are dangerous.
- 3 ☐ improve the conditions of workers across Britain.
- 4 ☐ highlight some problems with the current labour conditions.

**Solution:**

**Correct Answer : 4**

**Genre: Economics**

**Word Count# 555**

The main aim of the author in the passage is to highlight how a certain kind of work culture is affecting the overall welfare of the workers and the sustainability of the economy. However, the author doesn't adopt an extremely negative tone. S/he is neutral and cautious while spelling out any remedy for the situation. Option 4 brings about this point correctly.

Option 1 – This is too extreme and it has not even been suggested by the author.

Option 2 – This is incomplete. The author does state that this kind of work style is dangerous. However, s/he is more focused on identifying the problem areas in the economy too. The word 'dangerous' makes this option slightly vague.

Option 3 – This is neither the main idea nor is it relevant. 'Britain' is not the focal point of the author.

FeedBack

 **Bookmark**

 **Answer key/Solution**

**Directions for question 7: The passage given below is followed by four summaries. Choose the option that best captures the author's position.**

**Q.7**

DNA analysis is an important forensic tool in criminal investigations, but it can be complicated if a suspect has an identical twin. Because the biochemical attachments to DNA can change over time due to environmental factors, such epigenetic differences in identical twins' genomes can differentiate between them, but previously developed methods were expensive and time-consuming. A new method uses the melting points of the DNA to tell apart twins quickly, cheaply, and simply. Variation in the attachment of methyl groups to DNA affects the expression of genes. Researchers also realized it affects the DNA's melting point. So, instead of going through the more intensive process of studying methylation differences, the researchers looked for a difference in melting points.

- 1 ☐ A new method of forensic DNA testing helps improve the technique of distinguishing between identical twins.

2 ○ A new method of forensic DNA testing helps investigators to distinguish between identical twins by affecting their DNA's melting point.

3 ○ By studying the variations in the attachment of methyl groups to DNA, researchers have found a breakthrough in genetic testing of twins.

4 ○ A new method has discerned twins' DNA.

**Solution:**

**Correct Answer : 1**

**The main points the author mentions are:**

**a. DNA analysis and how it gets complicated in the matter of crime investigation involving identical twins.**

**b. Existing method is time consuming and expensive.**

**c. A new technique is promising as it promises to be cheaper and more efficient.**

**Option 1 – It mentions all the points. 'Improve' covers point (b).**

**Option 2 – There is a modifier error. 'Their' refers to the twins. The test doesn't 'affect their DNA's melting point', rather the methyl group affects the melting point. This is simply a technical detail mentioned in another context. So, this is a distorted option.**

**Option 3 – It only covers point (c). So, this option is too narrow.**

**Option 4 – It is an incomplete option.**

FeedBack

Bookmark

Answer key/Solution

**Directions for question 8: 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.8**

**1. A local chef, Joe Sheridan, came up with the idea of Irish coffee when he added whiskey to the hot drinks served to shivering passengers from a Pan Am flying boat.**

**2. In 1947 a catering manager, Brendan O'Regan, set up the world's first duty-free shop at Shannon, allowing transit passengers to buy tax-exempt goods.**

**3. Shannon Airport on Ireland's west coast has been a gateway from Europe to America since the 1940s.**

**4. It was built across the estuary of the river Shannon from Foynes, a small town that had served in the interwar years as a refuelling stop for seaplanes and passengers on their way across the Atlantic.**

**5. In 2017, 1.751 million passengers passed through the airport, making it the third-busiest airport in the country after Dublin and Cork.**

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

The correct order is 3412. However, we need not arrange the remaining the sentences into any order. The main idea of the paragraph is how The Shannon airport has been a gateway from Europe to America since the 1940s. So the focus is on how this airport has seen some business ideas and growth. Chronologically, 1 and 2 make a pair. Sentence 1 may look as an alien sentence. However, if we read the context of the paragraph, 'passengers flying...' makes a pair with sentence 4. Sentence 5 talks about the airport's performance in 2017. It is alien to the theme of the paragraph.

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

**Directions for question 9: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.**

**Q.9**

1. Deep neural networks, a type of machine learning used for visual perception, need to be exposed to many examples to successfully detect objects in images or recognize human speech.
2. The artificial intelligence program is able to learn handwritten characters after "seeing" a single example, for instance.
3. This new approach, called Bayesian Program Learning, was used to classify and recreate handwritten characters from the world's alphabets as well as generate new letters.
4. For a limited set of image perception tasks, a new machine-learning computer vision program can outperform humans.
5. Even though deep neural networks are modeled after human neuron behaviors, they fail to learn concepts quickly, the way humans do.

**Solution:****Correct Answer : 42153**

2 has the phrase 'the artificial intelligence program'. It needs a sentence before it. Sentence 4 talks about 'a new machine-learning computer vision program'. Thus, 4 and 2 become a mandatory pair. This is the strongest clue in this question.

1, 3, and 5 talk about deep neural networks. So, these three will come in one cluster.

Now, we need to decide if 4 is the opening sentence. AI is a broader topic than deep neural networks, which are subsets of AI. Hence, 4 is the opening sentence.

3 has 'this new approach'. It refers to 5. Hence, 5 and 3 become a mandatory pair.

5 gives a mild contrast to 1. So, 153 is the correct sequence.

Thus, the correct answer is 42153.

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

**Directions for questions (10 to 12):** The passage below is accompanied by a set of three questions. Choose the best answer to each question.

It's now been nearly four decades since Neil Armstrong took his "giant leap for mankind" — if, that is, he ever set foot off this planet. Doubters say the U.S. government, desperate to beat the Russians in the space race, faked the lunar landings, with Armstrong and Buzz Aldrin acting out their mission on a secret film set, located (depending on the theory) either high in the Hollywood Hills or deep within Area 51. With the photos and videos of the Apollo missions only available through NASA, there's no independent verification that the lunar landings were anything but a hoax.

The smoking gun? Film of Aldrin planting a waving American flag on the moon, which critics say proves that he was not in space. The flag's movement, they say, clearly shows the presence of wind, which is impossible in a vacuum. NASA says Aldrin was twisting the flagpole to get the moon soil, which caused the flag to move. (And never mind that astronauts have brought back hundreds of independently verified moon rocks.) Theorists have even suggested that filmmaker Stanley Kubrick may have helped NASA fake the first lunar landing, given that his 1968 film 2001: A Space Odyssey proves that the technology existed back then to artificially create a spacelike set. And as for Virgil I. Grissom, Edward H. White and Roger B. Chaffee — three astronauts who died in a fire while testing equipment for the first moon mission? They were executed by the U.S. government, which feared they were about to disclose the truth. Far-fetched as the hoax theory may seem, a 1999 Gallup poll showed that it's comparatively durable: 6% of Americans said they thought the lunar landings were fake, and 5% said they were undecided.

**Q.10****What reason has been provided by NASA for the waving flag?****1 ☐ Presence of wind****2 ☐ Earth's gravity**



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### 3 ☐ Twisting of the flagpole

---

### 4 ☐ The absence of vacuum

---

**Solution:**

**Correct Answer : 3**

**Genre: History**

**Word Count# 288**

**This is an easy fact-based question.**

**Refer to the lines, "The flag's movement, they say, clearly shows the presence of wind, which is impossible in a vacuum. NASA says Aldrin was twisting the flagpole to get the moon soil, which caused the flag to move."**

**So, NASA gives 'twisting of the flagpole by Aldrin' as the reason.**

**Options 1, 2, and 4 are the points put forth by the conspiracy theorists.**

FeedBack

 **Bookmark**

 **Answer key/Solution**

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**Directions for questions (10 to 12): The passage below is accompanied by a set of three questions. Choose the best answer to each question.**

**It's now been nearly four decades since Neil Armstrong took his "giant leap for mankind" — if, that is, he ever set foot off this planet. Doubters say the U.S. government, desperate to beat the Russians in the space race, faked the lunar landings, with Armstrong and Buzz Aldrin acting out their mission on a secret film set, located (depending on the theory) either high in the Hollywood Hills or deep within Area 51. With the photos and videos of the Apollo missions only available through NASA, there's no independent verification that the lunar landings were anything but a hoax.**

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**Q.11**

**One aspect that debunks the hoax moon-landing theory is:**

**1 ☐ lack of independent verification of the photos and videos of the Apollo mission.**

---

- 2 ☐ independently verified moon rocks.
- 3 ☐ the cinematic genius of Stanley Kubrick.
- 4 ☐ the death of three astronauts in a possible case of arson.

**Solution:**

**Correct Answer : 2**

**Genre: History**

**Word Count# 288**

The question asks us to find a fact that challenges the hoax moon-landing theory. Options 1, 3, and 4 – These actually strengthen the position of the conspiracy theorists. Option 3 is mildly irrelevant too.

Option 2 – Refer to the line, "And never mind that astronauts have brought back hundreds of independently verified moon rocks." It clearly is a fact that will challenge the hoax-theory. So, option 2 is the correct answer.

FeedBack

 **Bookmark**

 **Answer key/Solution**

**Directions for questions (10 to 12):** The passage below is accompanied by a set of three questions. Choose the best answer to each question.

It's now been nearly four decades since Neil Armstrong took his "giant leap for mankind" – if, that is, he ever set foot off this planet. Doubters say the U.S. government, desperate to beat the Russians in the space race, faked the lunar landings, with Armstrong and Buzz Aldrin acting out their mission on a secret film set, located (depending on the theory) either high in the Hollywood Hills or deep within Area 51. With the photos and videos of the Apollo missions only available through NASA, there's no independent verification that the lunar landings were anything but a hoax.

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**Q.12**

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

- 1 ☐ Majority of the Americans believe that lunar landings were staged.
- 2 ☐ Technology to create a space like set existed in 1961.
- 3 ☐ People continue to believe conspiracy theories surrounding NASA.
- 4 ☐ The moon-landing hoax theory has survived over the years.

**Solution:**

**Correct Answer : 4**

**Genre: History**

**Word Count# 288**

**Option 1 – The last paragraph mentions that “6% of Americans**

**...lunar landings were fake, and 5%...undecided.” This is not sufficient to conclude ‘majority of Americans’. So, this is incorrect.**

**Option 2 – The passage states that Stanley Kubrick made the film A Space Odessey in 1968. So, the technique existed by 1968. There is no mention of the year 1961. So, such a specific conclusion cannot be derived.**

**Option 3 – It is too generic. The passage talks about one conspiracy theory. We can’t generalise the same to mean ‘conspiracy theories surrounding NASA’.**

**Option 4 – It can be inferred from the last paragraph. Refer to “Far-fetched as the hoax theory may seem, a 1999 Gallup poll showed that it’s comparatively durable: 6% of Americans said they thought the lunar landings were fake, and 5% said they were undecided.” So, option 4 is the correct answer.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

**Directions for question 13: The passage given below is followed by four summaries. Choose the option that best captures the author’s position.**

**Q.13**

**In ancient Greece, a demagogue was, literally, a “leader of the people.” The meaning of the term has changed considerably since then, however, and a demagogue today is regarded as someone who “appeals to greed, fear, and hatred”, a politician who achieves or holds power “by stirring up the feelings of his audience and leading these people to action despite the considerations which weigh against it.” If ‘demagogue’ is a modern day ‘devil term’, then its usage will be accompanied by the degree of subjectivity which is a hallmark of such words and phrases in modern society.**

- 1 ☐ Modern words and phrases, such as the interpretation of ‘demagogue’ as a ‘devil term’, reflect the subjectivity that is inherent in linguistic constructs.
- 2 ☐ The Greek term ‘demagogue’ has a binary opposite subjective meaning in today’s world.
- 3 ☐ The term ‘demagogue’, which has an etymologically Greek root, has undergone a radical shift in its meaning and usage.

4 ● The word 'demagogue' has completed its etymological circle by changing its meaning from a positive term to a despicable subjective interpretation.

**Solution:**

**Correct Answer : 3**

In this paragraph the author makes three points:

- a. The root of the word demagogue
- b. The changed meaning of the word
- c. How the usage of the word demagogue is subjective in the modern age

Option 1 – It does cover points 'a' and 'b'. However, the option is distorted. It talks about 'subjectivity that is inherent in linguistic constructs.' This is clearly beyond the scope of the paragraph.

Option 2 – The interpretation of the word is not 'binary opposite'. It is also an incomplete option.

Option 3 – It covers all the three points, 'a', 'b', and 'c'. So, it is the correct answer.

Option 4 – 'Completed etymological circle' and 'despicable subjective interpretation' are both out of scope.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

**Directions for question 14: 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.14**

1. Seismic studies of the core indicate it is less dense than expected from its inferred composition of heavy elements such as iron and nickel.
2. They think that processes deep within the Earth, including the separation of the planet's layers, sent the light copper isotopes down to the boundary between mantle and core, forming a kilometers-thick layer of material with other elements.
3. By comparing copper isotopes from meteorites—thought to be Earth's building blocks—and from rock from the mantle, researchers found that lighter copper isotopes were not present in the mantle at the quantities indicated by the meteorites' composition.
4. Geochemists studying the formation of Earth's core think it may contain large amounts of sulfur.
5. Seismic waves travel at different speeds when they pass through different types of material, so by studying seismograms, scientists can learn a lot about Earth's internal structure.

**Solution:**

**Correct Answer : 5**

**The correct order is 4132.**

**The paragraph has a mandatory sequence – 4 and 2. Both of these refer to the geochemists. So, both 4 and 2 belong to the paragraph.**

**From the remaining three sentences, we can rule out 1 and 3 as both these are needed to arrive at sentence 2.**

**All the four sentences talk about the formation of the Earth's core and the presence of sulfur there.**

**Sentence 5 talks about 'seismic waves' and the 'internal structure' of the earth. It also talks about 'scientists' whereas the remaining sentences talk about geochemists. So, it is the odd one out.**

FeedBack

 **Bookmark**

 **Answer key/Solution**

**Directions for question 15: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.**

**Q.15**

- 1. It was a new kind of evolution – we could call it idea evolution.**
- 2. Around 200,000 years ago, the defining event in modern human evolution occurred when humans acquired the capacity for culture.**
- 3. Our ability to adapt at the cultural level, thus, shouldn't be seen as any different from our ability to adapt at the genetic level.**
- 4. Ideas were able to jump from mind to mind and it meant our cultures could adapt far more quickly than our genes could adapt.**
- 5. This was an ability to learn from others and to transmit knowledge, wisdom and skills.**

**Solution:**

**Correct Answer : 25143**

**Sentence 5 starts with the word 'this'. 'This ability' refers to 'capacity for culture'. So, 2 and 5 make a mandatory pair. The use of 'around 200,000 years ago' at the beginning also makes sentence 2 the most likely opening sentence.**

**Sentence 1 further adds information explaining sentence 5.**

**Sentence 3 has 'thus'. It is the closing sentence.**

**Sentence 4 has to come before 3. So, the correct sequence is 25143.**

FeedBack

 **Bookmark**

 **Answer key/Solution**

**Directions for questions (16 to 18): The passage below is accompanied by a set of three questions. Choose the best answer to each question.**

**A fishing jetty would not require the kind of dredging that the MPT (Mormugao Port Trust) is currently undertaking. In September 2016, the National Green Tribunal (NGT) had halted the dredging activity that the Trust was then carrying out for the construction of a new berth because it had begun the work before it got the Environmental Clearance to do so. Moreover, the MPT had bypassed the compulsory public hearing, and the NGT also found discrepancies in the Environmental Impact Assessment Report, which the Bombay High Court upheld. A public hearing was finally held in February 2017, but 65% of the dredging had already been done by then.**

**A petroleum and oil jetty will mean greater industrial activity in the vicinity, more pollution and related health hazards, and displacement of the fishing community. Even the neighbouring Baina beach, another fishing hub, will be affected.**

**“If the beach ceases to exist, we will lose our way of life and our source of livelihood,” says Custodia D’souza, a fisherman representing the Old Cross Canoe Owners Association. It will affect not only the local fishing community but also migrant communities who work in the Goan fishing industry due to lack of better opportunities back home. Overall, 2000 families in the area are engaged in fishing.**

**Residents also fear demolition and displacement. “Communities that have lived here for 200 years are being told by the MPT that their homes are going to be demolished,” says Simoes. The Environmental Impact Assessment Report, however, maintains that there is no resettlement and rehabilitation plan since the project will be carried out on the existing port premises and no land will be acquired.**

**“The coast is nearly destroyed, Jindal is responsible for it,” says Juze Roderigues, a 75-year-old from Khariwado.**

**Jindal Steel Works (JSW) accounts for the bulk of the operations being carried out at the Mormugao Port, and the company was banned from transporting coal for flouting the permit prescribed by the Goa State Pollution Control Board.**

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**Q.16**

**The primary purpose of the passage is:**

- 1 ☐ to highlight the importance of the NGT in fighting corrupt industrial bodies.
  - 2 ☐ to show how environmental changes can affect the local coastline
  - 3 ☐ to produce evidence to the fact that transportation of coal through water bodies is dangerous.
  - 4 ☐ to show the financial and environmental strain that can affect Goa’s coasts and its local.
-

**Solution:****Correct Answer : 4****Genre: Ecology****Word Count# 330** **Bookmark** **Answer key/Solution**

**This is a main idea question. The author's purpose behind writing this passage is to attract our attention to the problem that awaits the Goan coasts if the current financial and environmental problems continue and no action is taken.**

**Option 1 – This is both too narrow and also unnecessarily talks about 'industrial bodies'.**

**Option 2 – This is too broad. The paragraph talks about one particular coast.**

**Option 3 – This is too specific. And it doesn't deal with the main focus of the passage.**

**So, option 4 is the correct choice.**

[FeedBack](#)

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**A petroleum and oil jetty will mean greater industrial activity in the vicinity, more pollution and related health hazards, and displacement of the fishing community. Even the neighbouring Baina beach, another fishing hub, will be affected.**

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**Residents also fear demolition and displacement. “Communities that have lived here for 200 years are being told by the MPT that their homes are going to be demolished,” says Simoes. The Environmental Impact Assessment Report, however, maintains that there is no resettlement and rehabilitation plan since the project will be carried out on the existing port premises and no land will be acquired.**

**“The coast is nearly destroyed, Jindal is responsible for it,” says Juze Roderigues, a 75-year-old from Khariwado.**

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**Q.17**

**The passage mentions, ‘A public hearing was finally held in February 2017, but 65% of the dredging had already been done by then.’ to:**

- 
- 1 ☐ **introduce the problem that threatens to affect the Goan fishermen.**
- 
- 2 ☐ **highlight how easy it is to bribe officials and get things done illegally.**
- 
- 3 ☐ **showcase how some locals looking to make easy money are very much working hand in hand with the industrial bigwigs.**
-



4 ☐ introduce, how, despite warnings, the MPT is determined to ruin the fishing community of Goa.

**Solution:**

**Correct Answer : 1**

**Genre: Ecology**

**Word Count# 330**

This particular line comes at the end of the first paragraph. The main aim of the author is to introduce the problem and lack of efficacy of the restriction on dredging.

Option 1 is correct because it talks about the main idea of the paragraph which is introduced by this paragraph.

Options 2 and 3 are factually irrelevant to the passage.

Option 4 – 'MPT is determined to ruin the fishing community of Goa' goes beyond the scope of the passage. The author doesn't blame only MPT for the problems affecting the Goan coastline.

 **Bookmark**

 **Answer key/Solution**

FeedBack

**Directions for questions (16 to 18): The passage below is accompanied by a set of three questions. Choose the best answer to each question.**

**A fishing jetty would not require the kind of dredging that the MPT (Mormugao Port Trust) is currently undertaking. In September 2016, the National Green Tribunal (NGT) had halted the dredging activity that the Trust was then carrying out for the construction of a new berth because it had begun the work before it got the Environmental Clearance to do so. Moreover, the MPT had bypassed the compulsory public hearing, and the NGT also found discrepancies in the Environmental Impact Assessment Report, which the Bombay High Court upheld. A public hearing was finally held in February 2017, but 65% of the dredging had already been done by then.**

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**“The coast is nearly destroyed, Jindal is responsible for it,” says Juze Roderigues, a 75-year-old from Khariwado.**

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**Q.18**

**All of the following are true, except:**

- 1 ☐ a petroleum and oil complex near a coast will attract other pollutant factors.
  - 2 ☐ industrial encroachments in the Goan coastline will affect the migrant workers in the long run.
  - 3 ☐ residents of Goa are primarily afraid that the MPT will take away their land.
  - 4 ☐ Goan coastline is important for fishing communities.
-

**Solution:****Correct Answer : 3****Genre: Ecology****Word Count# 330** **Bookmark** **Answer key/Solution**

**Option 1 – It is true according to the passage. Refer to the line -**

**‘A petroleum and oil jetty will mean greater industrial activity in the vicinity, more pollution and related health hazards’.**

**Option 2 – It is true according to the passage. Refer to the line - ‘It will affect not only the local fishing community but also migrant communities who work in the Goan fishing industry’.**

**Option 4 – It is true according to the passage. Refer to the line - ‘Overall, 2000 families in the area are engaged in fishing.’ Also, the passage mentions the fact that a lot of migrant workers settle here for better work opportunities.**

**Option 3 – It is not true according to the passage. The author doesn’t mention displacement as the primary concern. He mentions loss of livelihood as the main concern of the community. Refer to the line – “If the beach ceases to exist, we will lose our way of life and our source of livelihood.” Displacement is mentioned as a secondary concern.**

**FeedBack**

**Directions for question 19: The passage given below is followed by four summaries. Choose the option that best captures the author’s position.**

**Q.19**

**A new study that involved eye tracking of great apes watching videos of an actor in a gorilla suit indicated that these primates can predict another’s behavior even when they know it is misguided, which could indicate the ability to recognize in others a false belief. Such an ability is a stage in the development of a theory of mind, a stage previously thought to be unique to humans. The videos adapted a technique that has been used to study false belief in infants and that tests whether study subjects anticipate where someone will look for an object or individual.**

**1 ☐ A new study has proven that apes can mimic the human behaviour of false belief.**

**2 ☐ A new study has burst many myths regarding the great apes and their mental acumen.**

**3 ☐ A new study regarding great apes and false belief has adapted the same technique that is used to test false belief in infants.**

**4 ☐ A new study has revealed the possibility of the great apes’ ability to recognize false beliefs.**

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

This is an easy question to answer. We need to eliminate the distorted or incorrect options.

Option 1 – There is no ‘proof’ according to the paragraph.

Secondly, the apes don’t mimic false belief.

Option 2 – ‘Many myths’ is wrong as it is not factually supported by the paragraph.

Option 3 – This is clearly distorted. ‘Same technique’ twists the meaning of the main idea of the paragraph.

Option 4 is the correct summary. Notice the use of the word ‘possibility’. It correctly captures the tone of the paragraph.

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

**Directions for questions (20 to 25):** The passage below is accompanied by a set of six questions. Choose the best answer to each question.

More than two centuries after readers first met them, Elizabeth and Darcy have yet to grow old. Their story has inspired erotic spinoffs, murder mysteries and a retelling from the servants’ point of view. The much-loved and mostly faithful 1995 Andrew Davies screen adaptation, starring Jennifer Ehle and Colin Firth, helped birth Bridget Jones’s Diary. Then came the “Hollywood-meets-Bollywood” movie Bride and Prejudice and even a genre mashup with zombie hordes menacing Pemberley.

This last was more apt than it sounds, and not only because Andrea Leadsom briefly resurrected Jane Austen last month, the bicentenary of her death, describing her as one of “our greatest living authors”. Pride and Prejudice is the novel that simply will not die. Twenty million copies on, Mr Darcy has become so synonymous with the romantic hero that when researchers found a pheromone in male mouse irresistible to female mice, they named it “darcin”.

Even that indignity has not diminished his allure. So the announcement this month of yet another TV adaptation was entirely predictable. So too was the accompanying reassurance that the novel is “less bonnet-y” than people imagine. One oddity is that those rejecting accusations of “smallness” and gentility keep picking Austen’s best-loved book over harsher works such as Mansfield Park or Persuasion. Another is their fixation on clothes-as-shorthand, promising us mud on the petticoats and Mr Darcy in a wet shirt – though the author wrote a great deal more about money than muslin.

It does not take an especially careful reader to discern the underlying message: distaste for the very people they are commissioned to attract. Much as Austen’s heroes save her heroines from poverty or reliance on grim relations, so respectable admirers must rescue the author from the Janeites. This strain has strengthened in reaction to “Austen-inspired scented candles” and paint-by-numbers novels like The Jane Austen Book Club. But it is evident much further back, in the grudging praise of Henry James, whose condescension is so much

more deadly than Mark Twain's desire to dig her up and beat her over the skull with her own shinbone.

No one imagines that Shakespearments or the Gnomeo and Juliet movie tell us anything useful about the Bard. There is more than a tinge of sexism and snobbery in the idea that Austen's enduring popularity is evidence of something wrong rather than something right – it is, to be blunt, the sense that she is read by too many women, or at least the wrong kind of women. It's manifested, equally, in the implication that she must be OK because Winston Churchill and Harold Macmillan turned to her in moments of darkness.

Austen herself deemed *Pride and Prejudice* "rather too light and bright and sparkling"; to read it alongside other works does her more justice. She is merciless in dissecting human folly, of course, but also in her honesty. Her heroines often face grim choices, only lightly concealed by the gallantry and their happy endings. She writes about the bleakness of ill-matched marriages, and the pain of living with the knowledge that you have made a terrible mistake. It is not a cosy environment, merely a contained one. Other writers, on a broader canvas, have shown us much less of the world than we see on what she termed her "little bit of ivory". There is absolutely no need to apologise for Austen.

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Q.20

Which of the following is an oddity that the author mentions in the passage?

- 
- 1 ☐ People who like Jane Austen are repelled by the TV adaptations.
- 
- 2 ☐ The makers give undue importance to garments, a rather narrow part of Austen's work.
- 
- 3 ☐ People who should not apologise for Austen continue to read *Pride and Prejudice* while neglecting her other more serious works like *Persuasion*.
- 
- 4 ☐ These filmmakers deliberately try to make the adaptation 'less bonnet-y'.
-

**Solution:****Correct Answer : 2****Genre: Literature / Cultural Studies****Word Count# 558** **Bookmark** **Answer key/Solution**

This is a fact based question. There are two oddities mentioned in the passage. Refer to the lines, "One oddity is that those rejecting accusations of "smallness" and gentility keep picking Austen's best-loved book over harsher works such as Mansfield Park or Persuasion. Another is their fixation on clothes-as-shorthand, promising us mud on the petticoats and Mr Darcy in a wet shirt – though the author wrote a great deal more about money than muslin." So, as per the second point, option 2 is an oddity.

Option 1 – This is mentioned in a different context. Secondly, the author says that people who make these TV adaptations end up repelling people 'who are supposed to read and like Jane Austen.' So, generally talking about 'people who like Jane Austen' is incorrect.

Option 3 is incorrect because the passage doesn't talk about readers not emphasising on some of Jane Austen's novels. On the contrary, the passage talks about the TV adaptations of the novel focusing too much attention on Pride and Prejudice. This is a close option but it is distorted.

Option 4 – This is incorrect. Although the TV adaptation is supposed to be "less bonnet-y", there is no mention of the filmmakers deliberately trying to make the adaptation in such a way. The usage of the word is figurative. It can't be taken literally.

FeedBack

**Directions for questions (20 to 25):** The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Even that indignity has not diminished his allure. So the announcement this month of yet another TV adaptation was entirely predictable. So too was the accompanying reassurance that the novel is "less bonnet-y" than people imagine. One oddity is that those rejecting accusations of "smallness" and gentility keep picking Austen's best-loved book over harsher works such as Mansfield Park or Persuasion. Another is their fixation on clothes-as-

shorthand, promising us mud on the petticoats and Mr Darcy in a wet shirt – though the author wrote a great deal more about money than muslin.

It does not take an especially careful reader to discern the underlying message: distaste for the very people they are commissioned to attract. Much as Austen's heroes save her heroines from poverty or reliance on grim relations, so respectable admirers must rescue the author from the Janeites. This strain has strengthened in reaction to "Austen-inspired scented candles" and paint-by-numbers novels like *The Jane Austen Book Club*. But it is evident much further back, in the grudging praise of Henry James, whose condescension is so much more deadly than Mark Twain's desire to dig her up and beat her over the skull with her own shinbone.

No one imagines that *Shakespeare in the Park* or the *Romeo and Juliet* movie tell us anything useful about the Bard. There is more than a tinge of sexism and snobbery in the idea that Austen's enduring popularity is evidence of something wrong rather than something right – it is, to be blunt, the sense that she is read by too many women, or at least the wrong kind of women. It's manifested, equally, in the implication that she must be OK because Winston Churchill and Harold Macmillan turned to her in moments of darkness.

Austen herself deemed *Pride and Prejudice* "rather too light and bright and sparkling"; to read it alongside other works does her more justice. She is merciless in dissecting human folly, of course, but also in her honesty. Her heroines often face grim choices, only lightly concealed by the gallantry and their happy endings. She writes about the bleakness of ill-matched marriages, and the pain of living with the knowledge that you have made a terrible mistake. It is not a cosy environment, merely a contained one. Other writers, on a broader canvas, have shown us much less of the world than we see on what she termed her "little bit of ivory". There is absolutely no need to apologise for Austen.

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#### Q.21

Which of the following can be inferred about Jane Austen's work?

- 1 ☐ Her heroines manage to find happiness despite their terrible choices.
  - 2 ☐ Her works should be read together in order to be truly appreciated.
  - 3 ☐ The endings of her work don't necessarily hide the bleak streak of reality.
  - 4 ☐ The cosy environments of her novels seldom do justice to her brutal honesty.
-

**Solution:****Correct Answer : 3****Genre: Literature / Cultural Studies****Word Count# 558**

This question has to be answered by eliminating the wrong or illogical options.

Option 1 – This option literally blames the heroines of Jane Austen. The passage doesn't mention anything about 'their terrible choices.' The author talks about their 'grim choices' due to their surroundings. Secondly, the author also indirectly mentions that these heroines don't actually find happiness. Refer to the last paragraph.

Option 2 – Refer to the line – "Austen herself deemed *Pride and Prejudice* "rather too light and bright and sparkling"; to read it alongside other works does her more justice." This can't lead to the conclusion mentioned in the second option. It's an illogical inference.

Option 3 – It is correct because the passage says that Austen's novels may be "lightly concealed by happy endings." Hence, it is evident that her novels lay bare the stark reality of life. The word 'lightly' implies 'not necessarily.'

Option 4 – This is again too farfetched. The passage mentions "It is not a cosy environment, merely a contained one." However, there is no fact to support that these environments don't do justice to her work.

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

**Directions for questions (20 to 25):** The passage below is accompanied by a set of six questions. Choose the best answer to each question.

More than two centuries after readers first met them, Elizabeth and Darcy have yet to grow old. Their story has inspired erotic spinoffs, murder mysteries and a retelling from the servants' point of view. The much-loved and mostly faithful 1995 Andrew Davies screen adaptation, starring Jennifer Ehle and Colin Firth, helped birth *Bridget Jones's Diary*. Then came the "Hollywood-meets-Bollywood" movie *Bride and Prejudice* and even a genre mashup with zombie hordes menacing Pemberley.

This last was more apt than it sounds, and not only because Andrea Leadsom briefly resurrected Jane Austen last month, the bicentenary of her death, describing her as one of "our greatest living authors". *Pride and Prejudice* is the novel that simply will not die. Twenty million copies on, Mr Darcy has become so synonymous with the romantic hero that when researchers found a pheromone in male mouse irresistible to female mice, they named it "darcin".

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**author wrote a great deal more about money than muslin.**

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**Q.22**

**Which of the following can be inferred from the penultimate paragraph?**

- 
- 1 ☐ **Movies on Shakespeare fail to capture the message intended by the writer.**
- 
- 2 ☐ **Jane Austen is a victim of sexism, snobbery, and much more.**
- 
- 3 ☐ **There is an inherent flaw in the way Jane Austen is perceived through her work.**
- 
- 4 ☐ **The longevity of Jane Austen's appeal has underlying implications.**
-

**Solution:****Correct Answer : 4****Genre: Literature / Cultural Studies****Word Count# 558** **Bookmark** **Answer key/Solution**

In the second last or penultimate paragraph, the author makes these points. However, some options are distorted.

Option 4 – ‘The underlying implications’ are suggested in the second last paragraph. Hence, it is correct.

Option 1 – The first sentence of the penultimate paragraph states that people don’t really expect to know anything personal about Shakespeare from the movies based on his work. There is not mentions anything about failing ‘to capture the message of the author’.

Option 2 – It is wrong because it is nowhere stated that Austen is a victim of sexism. It is an extreme conclusion. There is also no factual basis to infer ‘much more’.

Option 3 – It is incorrect because the paragraph doesn't say anything about how Austen is perceived as a person. Rather, the paragraph comments on how her work is perceived.

[FeedBack](#)

**Directions for questions (20 to 25):** The passage below is accompanied by a set of six questions. Choose the best answer to each question.

More than two centuries after readers first met them, Elizabeth and Darcy have yet to grow old. Their story has inspired erotic spinoffs, murder mysteries and a retelling from the servants’ point of view. The much-loved and mostly faithful 1995 Andrew Davies screen adaptation, starring Jennifer Ehle and Colin Firth, helped birth Bridget Jones’s Diary. Then came the “Hollywood-meets-Bollywood” movie Bride and Prejudice and even a genre mashup with zombie hordes menacing Pemberley.

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from poverty or reliance on grim relations, so respectable admirers must rescue the author from the Janeites. This strain has strengthened in reaction to “Austen-inspired scented candles” and paint-by-numbers novels like The Jane Austen Book Club. But it is evident much further back, in the grudging praise of Henry James, whose condescension is so much more deadly than Mark Twain’s desire to dig her up and beat her over the skull with her own shinbone.

No one imagines that Shakespearminis or the Gnomeo and Juliet movie tell us anything useful about the Bard. There is more than a tinge of sexism and snobbery in the idea that Austen’s enduring popularity is evidence of something wrong rather than something right – it is, to be blunt, the sense that she is read by too many women, or at least the wrong kind of women. It’s manifested, equally, in the implication that she must be OK because Winston Churchill and Harold Macmillan turned to her in moments of darkness.

Austen herself deemed *Pride and Prejudice* “rather too light and bright and sparkling”; to read it alongside other works does her more justice. She is merciless in dissecting human folly, of course, but also in her honesty. Her heroines often face grim choices, only lightly concealed by the gallantry and their happy endings. She writes about the bleakness of ill-matched marriages, and the pain of living with the knowledge that you have made a terrible mistake. It is not a cosy environment, merely a contained one. Other writers, on a broader canvas, have shown us much less of the world than we see on what she termed her “little bit of ivory”. There is absolutely no need to apologise for Austen.

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#### Q.23

Which of the following would have been the most likely reaction of Mark Twain, if he were alive, regarding the enduring popularity of *Pride and Prejudice*?

- 1 ☐ Amazement mixed with a hint of revilement
  - 2 ☐ Indignation coupled with a sense of impuissance
  - 3 ☐ Blatant criticism with an amalgamation of vitriol
  - 4 ☐ Prejudice with a generous amount of condescension
-

**Solution:****Correct Answer : 3****Genre: Literature / Cultural Studies****Word Count# 558** **Bookmark** **Answer key/Solution**

The reaction of Mark Twain is mentioned in the line - "But it is evident much further back, in the grudging praise of Henry James, whose condescension is so much more deadly than Mark Twain's desire to dig her up and beat her over the skull with her own shinbone." So, it is clear that Mark Twain would have been blatantly critical of Austen's work. The imagery suggested in the last sentence of the third last paragraph points towards a severe form of criticism. Even if he didn't mean 'dig her up' in a literal sense (he most likely would have been sarcastic), he was clearly not a fan. Hence, option 3 is the correct answer.

Option 1 – Amazement is definitely not something we can associate with Twain from the given data.

Option 2 – Impuissance means lack of power. This is completely out of context.

Option 4 – Mark Twain might or might not have been prejudiced. However, the author clearly attributes the quality of condescension to Henry James and contrasts James's attitude with that of Twain. So, this option is factually incorrect.

[FeedBack](#)

**Directions for questions (20 to 25): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

More than two centuries after readers first met them, Elizabeth and Darcy have yet to grow old. Their story has inspired erotic spinoffs, murder mysteries and a retelling from the servants' point of view. The much-loved and mostly faithful 1995 Andrew Davies screen adaptation, starring Jennifer Ehle and Colin Firth, helped birth Bridget Jones's Diary. Then came the "Hollywood-meets-Bollywood" movie Bride and Prejudice and even a genre mashup with zombie hordes menacing Pemberley.

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It does not take an especially careful reader to discern the underlying message: distaste for the very people they are commissioned to attract. Much as Austen's heroes save her heroines from poverty or reliance on grim relations, so respectable admirers must rescue the author from the Janeites. This strain has strengthened in reaction to "Austen-inspired scented candles" and paint-by-numbers novels like *The Jane Austen Book Club*. But it is evident much further back, in the grudging praise of Henry James, whose condescension is so much more deadly than Mark Twain's desire to dig her up and beat her over the skull with her own shinbone.

No one imagines that *Shakespeare in Love* or the *Romeo and Juliet* movie tell us anything useful about the Bard. There is more than a tinge of sexism and snobbery in the idea that Austen's enduring popularity is evidence of something wrong rather than something right – it is, to be blunt, the sense that she is read by too many women, or at least the wrong kind of women. It's manifested, equally, in the implication that she must be OK because Winston Churchill and Harold Macmillan turned to her in moments of darkness.

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**Q.24**

Which of the following is not true, as per the passage?

- 1 ☐ The announcement of the latest adaptation of *Pride and Prejudice* was not surprising.
  - 2 ☐ It is sexist that no one questions the merits of Shakespeare's works.
  - 3 ☐ The fascination of readers with Elizabeth and Darcy has not waned.
  - 4 ☐ Mr. Darcy is considered to be a romantic icon.
-

**Solution:****Correct Answer : 2****Genre: Literature / Cultural Studies****Word Count# 558** **Bookmark** **Answer key/Solution**

**Option 1 – It is not the correct answer. This sentence is true as per the line – “So the announcement this month of yet another TV adaptation was entirely predictable.”**

**Option 2 - There is no mention of sexism in the passage regarding Shakespeare's works. So, this is the correct answer.**

**Option 3 - The popularity of Darcy and Elizabeth has not faded. This is what the passage says. Hence, option 3 is true as per the passage.**

**Option 4 - Darcy is considered to be a romantic hero. Refer to the second paragraph of the passage. Option 4 is, thus, true as per the passage.**

[FeedBack](#)

**Directions for questions (20 to 25): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

**More than two centuries after readers first met them, Elizabeth and Darcy have yet to grow old. Their story has inspired erotic spinoffs, murder mysteries and a retelling from the servants’ point of view. The much-loved and mostly faithful 1995 Andrew Davies screen adaptation, starring Jennifer Ehle and Colin Firth, helped birth Bridget Jones’s Diary. Then came the “Hollywood-meets-Bollywood” movie Bride and Prejudice and even a genre mashup with zombie hordes menacing Pemberley.**

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candles” and paint-by-numbers novels like The Jane Austen Book Club. But it is evident much further back, in the grudging praise of Henry James, whose condescension is so much more deadly than Mark Twain’s desire to dig her up and beat her over the skull with her own shinbone.

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Q.25

Which of the following is the reason behind Darcy’s unceasing appeal?

- 1 ☐ He doesn’t grow old.
- 2 ☐ Colin Firth immortalized Darcy by wearing ‘the white shirt’.
- 3 ☐ Readers continue to find *Pride and Prejudice* fascinating.
- 4 ☐ The incessant adaptations of Jane Austen’s work don’t let him go out of fashion.

Solution:

Correct Answer : 3

Genre: Literature / Cultural Studies

Word Count# 558

Option 1 – When the author writes that Elizabeth and Darcy haven’t grown old, s/he is not being literal. So, this is a vague option.

Option 2 – This is a superficial fact (just like a trivia) mentioned in the passage. So, it is not the correct option either. The appeal of Darcy predates the release of that particular adaptation.

Option 3 – This is at the heart of the entire passage. It is the closest to the main idea of the passage too. So, it is the correct option.

Option 4 – This is a vague option. The word ‘incessant’ has a negative connotation too. So, it is not the correct option.

 Bookmark

 Answer key/Solution

FeedBack

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**Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

**Brexit is a turning point in the history of western democracy. Never before has such a drastic decision been taken through so primitive a procedure – a one-round referendum based on a simple majority. Never before has the fate of a country – of an entire continent, in fact – been changed by the single swing of such a blunt axe, wielded by disenchanted and poorly informed citizens.**

**But this is just the latest in a series of worrying blows to the health of democracy. It would appear that people like the idea of democracy but loathe the reality. Trust in the institutions of democracy is also visibly declining. Although a certain scepticism is an essential component of citizenship in a free society, we are justified in asking how widespread this distrust might be and at what point healthy scepticism tips over into outright aversion.**

**There is something explosive about an era in which interest in politics grows while faith in politics declines. What does it mean for the stability of a country if more and more people warily keep track of the activities of an authority that they increasingly distrust? How much derision can a system endure, especially now that everyone can share their deeply felt opinions online?**

**Fifty years ago, we lived in a world of greater political apathy and yet greater trust in politics. Now there is both passion and distrust. These are turbulent times, as the events of the past week demonstrate all too clearly. And yet, for all this turbulence, there has been little reflection on the tools that our democracies use. It is still a heresy to ask whether elections, in their current form, are a badly outmoded technology for converting the collective will of the people into governments and policies.**

**We discuss and debate the outcome of a referendum without discussing its principles. This should be surprising. In a referendum, we ask people directly what they think when they have not been obliged to think – although they have certainly been bombarded by every conceivable form of manipulation in the months leading up to the vote. But the problem is not confined to referendums: in an election, you may cast your vote, but you are also casting it away for the next few years. This system of delegation to an elected representative may have been necessary in the past – when communication was slow and information was limited – but it is completely out of touch with the way citizens interact with each other today. Even in the 18th century, Jean-Jacques Rousseau had already observed that elections alone were no guarantee of liberty: “The people of England deceive themselves when they fancy they are free; they are so, in fact, only during the election of members of parliament: for, as soon as a new one is elected, they are again in chains, and are nothing.”**

**Referendums and elections are both arcane instruments of public deliberation. If we refuse to update our democratic technology, we may find the system is beyond repair.**

---



**Q.26**

As per the passage, all of the following are true about the author's opinion on referendums and elections, except:

- 1 ☐ these tools have become outmoded in the current world.
- 2 ☐ these tools may not protect people against political manipulation.
- 3 ☐ these tools have failed to elect a government that reflects the will of the majority.
- 4 ☐ these tools need to be updated and made in sync with the current manner of public communication.

**Solution:**

**Correct Answer : 3**

**Genre: Political Science**

**Word Count# 502**

 **Bookmark**

 **Answer key/Solution**

This question has to be answered by the process of elimination.

**Option 1 – This is true as per the passage. The author calls referendum 'primitive' in the first paragraph itself. Then s/he goes on to repeat this many times in the passage. So, it is not the answer.**

**Option 2 – This is true too. Refer to the line – "In a referendum, we ask people directly what they think when they have not been obliged to think – although they have certainly been bombarded by every conceivable form of manipulation in the months leading up to the vote." So, it is not the answer.**

**Option 4 – This is true as per the passage. Refer to the last paragraph. So, it is not the answer.**

**Option 3 – This is an extreme option. The author does mention that the true will of the public is not always reflected by the results of elections and referendums. But we can't say that the results have NEVER elected a truly representative government. So, it is not necessary true according to the passage. Thus, this is the correct answer.**

FeedBack

**Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

**Brexit is a turning point in the history of western democracy. Never before has such a drastic decision been taken through so primitive a procedure – a one-round referendum based on a simple majority. Never before has the fate of a country – of an entire continent, in fact – been changed by the single swing of such a blunt axe, wielded by disenchanted and poorly informed citizens.**

**But this is just the latest in a series of worrying blows to the health of democracy. It would appear that people like the idea of democracy but loathe the reality. Trust in the institutions of democracy is also visibly declining. Although a certain scepticism is an essential component of citizenship in a free society, we are justified in asking how widespread this distrust might be and at what point healthy scepticism tips over into outright aversion.**

**There is something explosive about an era in which interest in politics grows while faith in politics declines. What does it mean for the stability of a country if more and more people warily keep track of the activities of an authority that they increasingly distrust? How much derision can a system endure, especially now that everyone can share their deeply felt opinions online?**

**Fifty years ago, we lived in a world of greater political apathy and yet greater trust in politics. Now there is both passion and distrust. These are turbulent times, as the events of the past week demonstrate all too clearly. And yet, for all this turbulence, there has been little reflection on the tools that our democracies use. It is still a heresy to ask whether elections, in their current form, are a badly outmoded technology for converting the collective will of the people into governments and policies.**

**We discuss and debate the outcome of a referendum without discussing its principles. This should be surprising. In a referendum, we ask people directly what they think when they have not been obliged to think – although they have certainly been bombarded by every conceivable form of manipulation in the months leading up to the vote. But the problem is not confined to referendums: in an election, you may cast your vote, but you are also casting it away for the next few years. This system of delegation to an elected representative may have been necessary in the past – when communication was slow and information was limited – but it is completely out of touch with the way citizens interact with each other today. Even in the 18th century, Jean-Jacques Rousseau had already observed that elections alone were no guarantee of liberty: “The people of England deceive themselves when they fancy they are free; they are so, in fact, only during the election of members of parliament: for, as soon as a new one is elected, they are again in chains, and are nothing.”**

**Referendums and elections are both arcane instruments of public deliberation. If we refuse to update our democratic technology, we may find the system is beyond repair.**

**Q.27**

**Which of the following is true about scepticism in democracy?**

- 
- 1 ☐ It is a feature of a free society.
- 
- 2 ☐ It is necessary for the liberation of the people's voice.
- 
- 3 ☐ It is the inevitable precursor to overt scorn for democratic institutions.
- 
- 4 ☐ It is a corollary of citizenship.
- 

**Solution:**

**Correct Answer : 1**

**Genre: Political Science**

**Word Count# 502**

**Option 1 – It is true. Refer to the lines – “Although a certain scepticism is an essential component of citizenship in a free society, we are justified in asking how widespread this distrust might be and at what point healthy scepticism tips over into outright aversion.” ‘Essential’ refers to ‘feature’. So, it is the correct answer.**

**Option 2 – It is not mentioned in the passage.**

**Option 3 – It is too negative and extreme.**

**Option 4 – ‘Corollary’ or consequence is not factually correct. It is the cause, not the effect.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

**Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

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**We discuss and debate the outcome of a referendum without discussing its principles. This should be surprising. In a referendum, we ask people directly what they think when they have not been obliged to think – although they have certainly been bombarded by every conceivable form of manipulation in the months leading up to the vote. But the problem is not confined to referendums: in an election, you may cast your vote, but you are also casting it away for the next few years. This system of delegation to an elected representative may have been necessary in the past – when communication was slow and information was limited – but it is completely out of touch with the way citizens interact with each other today. Even in the 18th century, Jean-Jacques Rousseau had already observed that elections alone were no guarantee of liberty: “The people of England deceive themselves when they fancy they are free; they are so, in fact, only during the election of members of parliament: for, as soon as a new one is elected, they are again in chains, and are nothing.”**

**Referendums and elections are both arcane instruments of public deliberation. If we refuse to update our democratic technology, we may find the system is beyond repair.**

**Q.28**

**Which of the following can be inferred about the significance of the opening sentence of the passage?**

- 
- 1 ☐ The Brexit referendum has changed democracy in the West forever.
- 
- 2 ☐ The Brexit referendum has exposed certain loopholes in the Western democracy.
- 
- 3 ☐ The Brexit referendum is a manifestation of all that is wrong with today's Western civilization.
- 
- 4 ☐ The Brexit referendum has far reaching consequences for the entire world.
- 

**Solution:**

**Correct Answer : 2**

**Genre: Political Science**

**Word Count# 502**

**Option 1 – It is too literal an interpretation of the first sentence.**

**The author doesn't literally mean 'change forever'. 'Turning point' refers to an event that is significant and has an impact. But this option does not correctly interpret the author's point.**

**Option 2 – This is correct because the rest of the paragraph deals with exposing these loopholes. The first sentence acts as an introductory sentence. So, it is the correct answer.**

**Option 3 – 'All that is wrong' is too extreme.**

**Option 4 – 'Entire world' goes beyond the scope of the passage. It also interprets the first line too literally.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

**Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

**Brexit is a turning point in the history of western democracy. Never before has such a drastic decision been taken through so primitive a procedure – a one-round referendum based on a simple majority. Never before has the fate of a country – of an entire continent, in fact – been changed by the single swing of such a blunt axe, wielded by disenchanted and poorly informed citizens.**

**But this is just the latest in a series of worrying blows to the health of democracy. It would appear that people like the idea of democracy but loathe the reality. Trust in the institutions of democracy is also visibly declining. Although a certain scepticism is an essential component of citizenship in a free society, we are justified in asking how widespread this distrust might be and at what point healthy scepticism tips over into outright aversion.**

**There is something explosive about an era in which interest in politics grows while faith in politics declines. What does it mean for the stability of a country if more and more people warily keep track of the activities of an authority that they increasingly distrust? How much derision can a system endure, especially now that everyone can share their deeply felt opinions online?**

**Fifty years ago, we lived in a world of greater political apathy and yet greater trust in politics. Now there is both passion and distrust. These are turbulent times, as the events of the past week demonstrate all too clearly. And yet, for all this turbulence, there has been little reflection on the tools that our democracies use. It is still a heresy to ask whether elections, in their current form, are a badly outmoded technology for converting the collective will of the people into governments and policies.**

**We discuss and debate the outcome of a referendum without discussing its principles. This should be surprising. In a referendum, we ask people directly what they think when they have not been obliged to think – although they have certainly been bombarded by every conceivable form of manipulation in the months leading up to the vote. But the problem is not confined to referendums: in an election, you may cast your vote, but you are also casting it away for the next few years. This system of delegation to an elected representative may have been necessary in the past – when communication was slow and information was limited – but it is completely out of touch with the way citizens interact with each other today. Even in the 18th century, Jean-Jacques Rousseau had already observed that elections alone were no guarantee of liberty: “The people of England deceive themselves when they fancy they are free; they are so, in fact, only during the election of members of parliament: for, as soon as a new one is elected, they are again in chains, and are nothing.”**

**Referendums and elections are both arcane instruments of public deliberation. If we refuse to update our democratic technology, we may find the system is beyond repair.**

---

**Q.29**

**Why does the author ask the two questions at the end of the third paragraph?**

---

- 
- 1 ☐ To highlight the negative consequences of lack of trust in one's government
- 
- 2 ☐ To showcase the lack of trust people have in the democratic tradition
- 
- 3 ☐ To emphasise on the inevitable consequences of a world with unfettered communication
- 
- 4 ☐ To stress the point that the current democratic fabric may not survive pervasive distrust
- 

**Solution:**

**Correct Answer : 4**

**Genre: Political Science**

**Word Count# 502**

The questions the author asks at the end of the third paragraph act as points that reiterate the author's concerns. In the next lines, s/he goes on to assert the view that the current issue needs an immediate resolution.

So, option 4 is the correct answer. This is the most appropriate choice.

Option 1 – This may look close but 'lack of trust in one's government' is not the same as 'lack of trust in the process of democracy'. A government may not necessarily be democratic. So, it is not the correct answer.

Option 2 – This is out of context. The author has already mentioned this point before s/he asks these questions.

Option 3 – This is purely out of context.

 **Bookmark**

 **Answer key/Solution**

FeedBack

**Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

**Brexit is a turning point in the history of western democracy. Never before has such a drastic decision been taken through so primitive a procedure – a one-round referendum based on a simple majority. Never before has the fate of a country – of an entire continent, in fact – been changed by the single swing of such a blunt axe, wielded by disenchanted and poorly informed citizens.**

**But this is just the latest in a series of worrying blows to the health of democracy. It would appear that people like the idea of democracy but loathe the reality. Trust in the institutions of democracy is also visibly declining. Although a certain scepticism is an essential component of citizenship in a free society, we are justified in asking how widespread this distrust might be and at what point healthy scepticism tips over into outright aversion.**

**There is something explosive about an era in which interest in politics grows while faith in politics declines. What does it mean for the stability of a country if more and more people warily keep track of the activities of an authority that they increasingly distrust? How much derision can a system endure, especially now that everyone can share their deeply felt opinions online?**

**Fifty years ago, we lived in a world of greater political apathy and yet greater trust in politics. Now there is both passion and distrust. These are turbulent times, as the events of the past week demonstrate all too clearly. And yet, for all this turbulence, there has been little reflection on the tools that our democracies use. It is still a heresy to ask whether elections, in their current form, are a badly outmoded technology for converting the collective will of the people into governments and policies.**

**We discuss and debate the outcome of a referendum without discussing its principles. This should be surprising. In a referendum, we ask people directly what they think when they have not been obliged to think – although they have certainly been bombarded by every conceivable form of manipulation in the months leading up to the vote. But the problem is not confined to referendums: in an election, you may cast your vote, but you are also casting it away for the next few years. This system of delegation to an elected representative may have been necessary in the past – when communication was slow and information was limited – but it is completely out of touch with the way citizens interact with each other today. Even in the 18th century, Jean-Jacques Rousseau had already observed that elections alone were no guarantee of liberty: “The people of England deceive themselves when they fancy they are free; they are so, in fact, only during the election of members of parliament: for, as soon as a new one is elected, they are again in chains, and are nothing.”**

**Referendums and elections are both arcane instruments of public deliberation. If we refuse to update our democratic technology, we may find the system is beyond repair.**

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**Q.30**

**From the passage, what can be inferred about the current status of democracy?**

---



- 1 ☐ People hate it.
- 2 ☐ Its tools are superfluous.
- 3 ☐ Technology has impacted it.
- 4 ☐ It is stricken by discussion, debates, and questions.

**Solution:**

**Correct Answer : 3**

**Genre: Political Science**

**Word Count# 502**

**Option 1 – This is negated by the line “It would appear that people like the idea of democracy but loathe the reality.”**

**Option 2 – ‘Superfluous’ can’t be defined from the passage.**

**Option 3 – This can be inferred from the second and third paragraph. With increased ability to communicate, people have become more involved with the democratic process. So, ‘impact’ correctly captures it. This is the correct choice.**

**Option 4 – ‘Stricken’ is wrong. The author mentions debates and discussion in a positive manner.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

**Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

**Brexit is a turning point in the history of western democracy. Never before has such a drastic decision been taken through so primitive a procedure – a one-round referendum based on a simple majority. Never before has the fate of a country – of an entire continent, in fact – been changed by the single swing of such a blunt axe, wielded by disenchanting and poorly informed citizens.**

**But this is just the latest in a series of worrying blows to the health of democracy. It would appear that people like the idea of democracy but loathe the reality. Trust in the institutions of democracy is also visibly declining. Although a certain scepticism is an essential component of citizenship in a free society, we are justified in asking how widespread this distrust might be and at what point healthy scepticism tips over into outright aversion.**

**There is something explosive about an era in which interest in politics grows while faith in politics declines. What does it mean for the stability of a country if more and more people warily keep track of the activities of an authority that they increasingly distrust? How much derision can a system endure, especially now that everyone can share their deeply felt opinions online?**

**Fifty years ago, we lived in a world of greater political apathy and yet greater trust in politics. Now there is both passion and distrust. These are turbulent times, as the events of the past week demonstrate all too clearly. And yet, for all this turbulence, there has been little reflection on the tools that our democracies use. It is still a heresy to ask whether elections, in their current form, are a badly outmoded technology for converting the collective will of the people into governments and policies.**

**We discuss and debate the outcome of a referendum without discussing its principles. This should be surprising. In a referendum, we ask people directly what they think when they have not been obliged to think – although they have certainly been bombarded by every conceivable form of manipulation in the months leading up to the vote. But the problem is not confined to referendums: in an election, you may cast your vote, but you are also casting it away for the next few years. This system of delegation to an elected representative may have been necessary in the past – when communication was slow and information was limited – but it is completely out of touch with the way citizens interact with each other today. Even in the 18th century, Jean-Jacques Rousseau had already observed that elections alone were no guarantee of liberty: “The people of England deceive themselves when they fancy they are free; they are so, in fact, only during the election of members of parliament: for, as soon as a new one is elected, they are again in chains, and are nothing.”**

**Referendums and elections are both arcane instruments of public deliberation. If we refuse to update our democratic technology, we may find the system is beyond repair.**

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**Q.31**

**All of the following are true, as per the passage, except:**

---

- 1 ☐ the existing system of delegated representation is not effective.
- 2 ☐ people have become more averse to the idea of democracy.
- 3 ☐ the questions in referendums don't necessarily reflect the latter's purpose.
- 4 ☐ Rousseau was concerned about the nature of electoral freedom.

**Solution:**

**Correct Answer : 2**

**Genre: Political Science**

**Word Count# 502**

**Option 1 – It is true as per the entire passage. This is the main complain the author has with respect to the current status of democracy.**

**Option 2 – It is negated by the line “It would appear that people like the idea of democracy but loathe the reality.” So, this is the answer.**

**Option 3 – This is true as per the lines – “In a referendum, we ask people directly what they think when they have not been obliged to think – although they have certainly been bombarded by every conceivable form of manipulation in the months leading up to the vote.”**

**Option 4 – This is definitely true. The author quotes Rousseau in this context.**

FeedBack

 **Bookmark**

 **Answer key/Solution**

**Directions for question 32: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.**

**Q.32**

- 1. Because of the deep sea's vast scale—it constitutes more than 65 percent of the world's surface and more than 90 percent of its biosphere—these archaea-virus relationships could have large effects on global biogeochemical cycles.**
- 2. On the deep sea floor, bacteria are more abundant than archaea, but the latter suffer viral infections twice as often.**
- 3. Although little is known about deep-sea ecosystems, this study is still an important advance in understanding their uniqueness and significance.**
- 4. For example, deep-sea deaths of bacteria and archaea release between 0.37 and 0.63 gigatons of carbon per year.**
- 5. Nearly all mortality of these microbes in the deep sea is due to viral infections.**

**Solution:****Correct Answer : 25143****This is a slightly tricky question.**

**The strongest clue is sentence 4. 'For example' explains the fact mentioned in sentence 1. So, sentences 1 and 4 make a mandatory pair.**

**Sentence 3 introduces a slightly new idea. So, it has to come at the end of the paragraph.**

**Sentence 5 has 'these microbes'. So, it will come after sentence 2.**

**So, the correct sequence is 25143.**

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

FeedBack

**Directions for question 33: 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.33**

- 1. Then came Facebook, the encyclopaedia of common people; YouTube gave everybody their own TV channel, Blogger and Tumblr made us all creative writers; Twitter brought in tons of followers and LinkedIn positive endorsements – because who cares about our faults?**
- 2. And if your concern is to remain connected after death, there is a whole movement, the digital afterlife industry, dedicated to the preservation of your narcissistic social media activity after you die.**
- 3. At the same time, there has been a steep decline in altruism and empathy levels since the advent of Facebook and Twitter.**
- 4. As Liveson's slogan puts it, "when your heart stops beating, just keep tweeting".**
- 5. It all begun with MySpace, a directory for wannabe pop stars and DJ's.**

**Solution:****Correct Answer : 3****The correct order is 5124.**

**This can be answered by just noticing the tone of the sentence.**

**Sentences 1, 2, 4, and 5 talk about people and their obsession with social media. The author is sarcastic and humorous.**

**Sentence 3 is too negative and direct. The author has not focused on the lack of empathy in people. And the author has not blamed the social media platforms for this. So, sentence 3 is the odd one out.**

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

FeedBack

**Directions for question 34:** The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

### Q.34

1. In fact, the wage gap has been at a standstill of sorts for the past decade, in part because women's wages haven't grown.
2. For as long as women have been in the workplace, they have faced questions about whether they are really up to the job.
3. Looking at some of the excuses for the gender wage gap in the last half a century, it's clear that those questions tend to stick around.
4. Equal Pay Day – which in 2018 falls on Tuesday, April 10 – is an annual time to reflect on the persistence of the gender wage gap.
5. And the more women break into male-dominated fields, the more they discover such prejudices – and the ways those ideas affect how much money they make.

**Solution:**

**Correct Answer : 41253**

**Sentence 4 mentions the issue or topic of the paragraph: Equal Pay Day.**

**Sentence 1 explains the 'persistence of the gender wage gap' mentioned in sentence 4. So, sentences 4 and 1 make a mandatory pair.**

**Sentence 2 further adds the historical perspective on the topic.**

**5 has 'And' at the beginning. So, it has to add to another sentence.**

**Sentence 3 says 'those questions' which adds to sentence 5. So, sentence 2 has to come before 3. Thus, 253 makes a mandatory sequence.**

**So, the correct sequence is 41253.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

## Sec 2

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

In an island, there were four friends – Raju, Ravi, Ritesh and Rajiv – belonging to four different tribes – akkad, bakkad, aadikali and konova, not necessarily in the same order. It is known that people of different tribes have a different peculiar way of counting.

Raju belongs to akkad tribe. People belonging to this tribe skip the number 7 whenever this digit is used in counting i.e, while they count, they directly write or count 8 after 6, similarly directly write or count 80 after 69.

Ravi belongs to bakkad tribe. People belonging to this tribe do not use multiple of 3 while counting i.e, while they count or write they skip 3, 6, 9 and so on. For example, if Ravi is asked to write the counting from 1 to 9, he will write as (1, 2, 4, 5, 7, 8, 10, 11, 13).

Ritesh belongs to aadikali tribe and people belonging to this tribe do not use multiple of 8 while counting i.e, if he is asked to write the count till 8, he will write as (1, 2, 3, 4, 5, 6, 7, 9). Rajiv belongs to konova tribe and people belonging there skip the digits 3 and 5 while counting. They skip any number containing these digits. For example, if they starts counting they will count as 1, 2, 4, 6 and so on.

**Q.35**

Ravi found some marbles on the island and after counting them (in his peculiar manner) he wrote 277 marbles on the paper. If he asked all his three friends to count the marbles (with their peculiarity) and wrote the number on a piece of paper, then which of the following cannot be the number written by any of the three friends?

1 ☐ 225

2 ☐ 211

3 ☐ 291

4 ☐ 264

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

The question is about the using of or counting in different base system. If a person skips a digit i.e. person from Akkad and person from konova, they are using different base system.

Person from Bakkad and Aadikali tribes use the numbers which are not multiple of 3 and 8 respectively.

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

As Ravi belongs to Bakkad tribe and have found 277 marbles according to his peculiarity, so to find the actual number of marbles with him one needs to count the numbers which are coprime to 3 and less than 277. That number is 185.

Now these 185 marbles when counted by Raju, belonging to aakad tribe, will be same as counting them in base 9. So, he wrote the number on paper as  $(185)_9$ , so Raju must have written 225.

When counted by Ritesh, belonging to aadikali tribe, number written by Ritesh would be 211. As adding  $X(7/8) = 182$  (number closest to 185 which is a multiple of 7) i.e,  $X = 208$  and hence the total number of marbles written by Ritesh is  $208 + 3 = 211$ .

Similarly numbers written by Rajiv, would be as As in first 100 numbers he skipped 36 numbers and counted only 64 numbers, so upto 100 he counted only 64 marbles. Then from 101 to 200 he counted next 64 marbles, making a total of 128 marbles he had counted already. Now remaining  $185 - 128 = 57$  marbles would be counted by him in from 201 to 291. So, the number written by Rajiv is 291.

So 264 is not the number of marbles written on any piece of paper.

[FeedBack](#)

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

In an island, there were four friends – Raju, Ravi, Ritesh and Rajiv – belonging to four different tribes – akkad, bakkad, aadikali and konova, not necessarily in the same order. It is known that people of different tribes have a different peculiar way of counting.

Raju belongs to akkad tribe. People belonging to this tribe skip the number 7 whenever this digit is used in counting i.e, while they count, they directly write or count 8 after 6, similarly directly write or count 80 after 69.

Ravi belongs to bakkad tribe. People belonging to this tribe do not use multiple of 3 while counting i.e, while they count or write they skip 3, 6, 9 and so on. For example, if Ravi is asked to write the counting from 1 to 9, he will write as (1, 2, 4, 5, 7, 8, 10, 11, 13).

Ritesh belongs to aadikali tribe and people belonging to this tribe do not use multiple of 8 while counting i.e, if he is asked to write the count till 8, he will write as (1, 2, 3, 4, 5, 6, 7, 9). Rajiv belongs to konova tribe and people belonging there skip the digits 3 and 5 while counting. They skip any number containing these digits. For example, if they starts counting they will count as 1, 2, 4, 6 and so on.

#### Q.36

Ritesh had 283 coins with him (counted according to his tribe peculiarity) and he passed it to Raju with writing the number of coins on a piece of paper. What is the difference between the number written by Ritesh on the paper and the number that Raju got after counting the coins? (both numbers considered in decimal)

**Solution:**

**Correct Answer : 22**

The question is about the using of or counting in different base system. If a person skips a digit i.e. person from Akkad and person from konova, they are using different base system.

Person from Bakkad and Aadikali tribes use the numbers which are not multiple of 3 and 8 respectively.

The number of coins with Ritesh is 283 according to his peculiarity.

As Ritesh skipped every 8th number, so actual coins with him will be  $280 \times (7/8) = 245 + 3 = 248$ .

So, Ritesh gave Raju 248 coins.

Now, the number of coins according to Raju's counting peculiarity is 305 i.e, 248 in base 9.

So, the required difference(in decimal system) of values =  $305 - 283 = 22$ .

FeedBack

 **Bookmark**

 **Answer key/Solution**



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

In an island, there were four friends – Raju, Ravi, Ritesh and Rajiv – belonging to four different tribes – akkad, bakkad, aadikali and konova, not necessarily in the same order. It is known that people of different tribes have a different peculiar way of counting.

Raju belongs to akkad tribe. People belonging to this tribe skip the number 7 whenever this digit is used in counting i.e, while they count, they directly write or count 8 after 6, similarly directly write or count 80 after 69.

Ravi belongs to bakkad tribe. People belonging to this tribe do not use multiple of 3 while counting i.e, while they count or write they skip 3, 6, 9 and so on. For example, if Ravi is asked to write the counting from 1 to 9, he will write as (1, 2, 4, 5, 7, 8, 10, 11, 13).

Ritesh belongs to aadikali tribe and people belonging to this tribe do not use multiple of 8 while counting i.e, if he is asked to write the count till 8, he will write as (1, 2, 3, 4, 5, 6, 7, 9). Rajiv belongs to konova tribe and people belonging there skip the digits 3 and 5 while counting. They skip any number containing these digits. For example, if they starts counting they will count as 1, 2, 4, 6 and so on.

**Q.37**

Rajiv counted (in his peculiar manner) that he had 784 marbles with him. What is the actual number of marbles with him?

**Solution:**

**Correct Answer : 371**

The question is about the using of or counting in the different base system. If a person skips a digit i.e. person from Akkad and person from konova, they are using different base system.

Person from Bakkad and Aadikali tribes use the numbers which are not multiple of 3 and 8 respectively.

 **Bookmark**

 **Answer key/Solution**

Rajiv counted that he had 784 marbles with him according to his peculiarity.

Lets count the number of marbles originally.

In first 100, there are 36 numbers using digit 3 or 5 or both. So, he skipped these numbers.

Then from 101 to 200, he skipped 36 numbers.

Then from 201 to 299, he skipped 36 numbers.

Then from 300 to 400, he skipped the 100 numbers.

From 401 to 499, he skipped 36 numbers.

From 500 to 600, he skipped 100 numbers.

From 601 to 700, he skipped 36 numbers.

From 701 to 784, he skipped 33 numbers.

So, the actual number of marbles =  $784 - (36 + 36 + 36 + 100 + 36 + 100 + 36 + 33) = 371$

FeedBack

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

In an island, there were four friends – Raju, Ravi, Ritesh and Rajiv – belonging to four different tribes – akkad, bakkad, aadikali and konova, not necessarily in the same order. It is known that people of different tribes have a different peculiar way of counting.

Raju belongs to akkad tribe. People belonging to this tribe skip the number 7 whenever this digit is used in counting i.e, while they count, they directly write or count 8 after 6, similarly directly write or count 80 after 69.

Ravi belongs to bakkad tribe. People belonging to this tribe do not use multiple of 3 while counting i.e, while they count or write they skip 3, 6, 9 and so on. For example, if Ravi is asked to write the counting from 1 to 9, he will write as (1, 2, 4, 5, 7, 8, 10, 11, 13).

Ritesh belongs to aadikali tribe and people belonging to this tribe do not use multiple of 8 while counting i.e, if he is asked to write the count till 8, he will write as (1, 2, 3, 4, 5, 6, 7, 9). Rajiv belongs to konova tribe and people belonging there skip the digits 3 and 5 while counting. They skip any number containing these digits. For example, if they starts counting they will count as 1, 2, 4, 6 and so on.

**Q.38**

If one of the four friends wrote a number 8568 on a slip, then he could belong to which of the following tribe?

1 ☐ Akkad

2 ☐ bakkad

3 ☐ aadikali

4 ☐ konovo

**Solution:**

**Correct Answer : 1**

The question is about the using of or counting in different base system. If a person skips a digit i.e. person from Akkad and person from konova, they are using different base system.

Person from Bakkad and Aadikali tribes use the numbers which are not multiple of 3 and 8 respectively.

As Ritesh and Ravi do not write the multiple of 3 and 8 and the number 8568 is multiple of both 3 and 8 so can not be used by them.

Further Rajiv skips the digits both 3 and 5 so again he cannot be the person who has written the number. So only person to write that number is Raju, belonging to akkad tribe.

FeedBack

 **Bookmark**

 **Answer key/Solution**

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

P, Q, R are three adjacent buildings. P is to the west of Q. Q is to the west of R. Each building has different number of floors with the lowest floor numbered as 1, floor above it numbered as 2 and so on. The height of floors in each building is the same i.e. the same numbered floors are at equal height from the ground. A through I are living in nine different floors in no particular order. The rest of the houses are vacant. No building has more than ten floors.

- (i) G lived on the floor which was exactly below H's floor but in a different building.
- (ii) G and E live on the same floor but in a different building such that G is to the left of E.
- (iii) The number of floors in building P is three more than A's floor number. A lives in building P.
- (iv) A and B lived on the same floor but in a different building such that A is to left of B and B lived 2nd from the top of his building.
- (v) C lives in building Q and the number of floors in his building is twice as that of his floor number.
- (vi) I lived on the floor which was immediately below F's floor but in a different building. I is to the left of F. I and H are not in the same building.
- (vii) D lived in floor 4 but neither in I's nor in E's building.
- (viii) A's floor number was twice as that of C's floor number, whose floor number is thrice I's floor number.
- (ix) B and F are not in the same building.
- (x) B and H lived in different buildings.
- (xi) In every building the top floor is vacant.

**Q.39**

**How many floors are there in building R?**

1 ☐ 6

2 ☐ 7

3 ☐ 8

4 ☐ 9

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

By statement (viii), let floor number of

I be 'a', then floor number of C is '3a' and floor number of A is '6a'. Also by statement (iii), A Lives in building P, and P has  $6a + 3$  floors and by statement (v), C lives in building Q and the number of floors in building Q is '6a'.

∴ only possible value of 'a' will be '1'

By statement (iv), A and B lives on the same floor that is, 6<sup>th</sup> floor but in different building such that B lived 2<sup>nd</sup> from the top of his building, which is possible only if R has exactly 7 floors since Q has exactly 6 floors. Also By (xi), top floor of every building is vacant.

9			
8			
7			
6	A		B
5			
4			
3		C	
2			
1			
	P	Q	R

By statement (vi), and (ix) I lived on floor immediately below F, i.e. F lives on 2<sup>nd</sup> floor and in building Q since B and F are not in the same building therefore, F is definitely in building Q and I is in building P.

9			
8			
7			
6	A		B
5			
4			
3		C	
2		F	
1	I		
	P	Q	R

By statement (vii) D can be in either building Q or R at 4<sup>th</sup> floor.

Case I : – D is in building Q.

By statement (i) and (x), G lived on floor exactly below H floor and H doesnot live in the building where I and B lives. So only option for H is 5<sup>th</sup> floor in building Q.

9			
8			
7			
6	A		B
5		H	
4	G	D	E
3		C	
2		F	
1	I		
	P	Q	R

Case II : – D is in building R

9			
8			
7			
6	A		B
5		H	
4	G	E	D
3		C	
2		F	
1	I		
	P	Q	R

**7 floors are there in building R.**

[FeedBack](#)

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

P, Q, R are three adjacent buildings. P is to the west of Q. Q is to the west of R. Each building has different number of floors with the lowest floor numbered as 1, floor above it numbered as 2 and so on. The height of floors in each building is the same i.e. the same numbered floors are at equal height from the ground. A through I are living in nine different floors in no particular order. The rest of the houses are vacant. No building has more than ten floors.

- (i) G lived on the floor which was exactly below H's floor but in a different building.
- (ii) G and E live on the same floor but in a different building such that G is to the left of E.
- (iii) The number of floors in building P is three more than A's floor number. A lives in building P.
- (iv) A and B lived on the same floor but in a different building such that A is to left of B and B lived 2nd from the top of his building.
- (v) C lives in building Q and the number of floors in his building is twice as that of his floor number.
- (vi) I lived on the floor which was immediately below F's floor but in a different building. I is to the left of F. I and H are not in the same building.
- (vii) D lived in floor 4 but neither in I's nor in E's building.
- (viii) A's floor number was twice as that of C's floor number, whose floor number is thrice I's floor number.
- (ix) B and F are not in the same building.
- (x) B and H lived in different buildings.
- (xi) In every building the top floor is vacant.

**Q.40**

**How many persons lives above C in the same building in which C lives?**

1 ☐ 0

2 ☐ 2

3 ☐ 3

4 ☐ 5

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

By statement (viii), let floor number of

I be 'a', then floor number of C is '3a' and floor number of A is '6a'. Also by statement (iii), A Lives in building P, and P has  $6a + 3$  floors and by statement (v), C lives in building Q and the number of floors in building Q is '6a'.

∴ only possible value of 'a' will be '1'

By statement (iv), A and B lives on the same floor that is, 6<sup>th</sup> floor but in different building such that B lived 2<sup>nd</sup> from the top of his building, which is possible only if R has exactly 7 floors since Q has exactly 6 floors. Also By (xi), top floor of every building is vacant.

9			
8			
7			
6	A		B
5			
4			
3		C	
2			
1			
	P	Q	R

By statement (vi), and (ix) I lived on floor immediately below F, i.e. F lives on 2<sup>nd</sup> floor and in building Q since B and F are not in the same building therefore, F is definitely in building Q and I is in building P.

9			
8			
7			
6	A		B
5			
4			
3		C	
2		F	
1	I		
	P	Q	R

By statement (vii) D can be in either building Q or R at 4<sup>th</sup> floor.

Case I : – D is in building Q.

By statement (i) and (x), G lived on floor exactly below H floor and H doesnot live in the building where I and B lives. So only option for H is 5<sup>th</sup> floor in building Q.

9			
8			
7			
6	A		B
5		H	
4	G	D	E
3		C	
2		F	
1	I		
	P	Q	R

Case II : – D is in building R

9			
8			
7			
6	A		B
5		H	
4	G	E	D
3		C	
2		F	
1	I		
	P	Q	R

**Two persons stay above C.**

[FeedBack](#)

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

P, Q, R are three adjacent buildings. P is to the west of Q. Q is to the west of R. Each building has different number of floors with the lowest floor numbered as 1, floor above it numbered as 2 and so on. The height of floors in each building is the same i.e. the same numbered floors are at equal height from the ground. A through I are living in nine different floors in no particular order. The rest of the houses are vacant. No building has more than ten floors.

- (i) G lived on the floor which was exactly below H's floor but in a different building.
- (ii) G and E live on the same floor but in a different building such that G is to the left of E.
- (iii) The number of floors in building P is three more than A's floor number. A lives in building P.
- (iv) A and B lived on the same floor but in a different building such that A is to left of B and B lived 2nd from the top of his building.
- (v) C lives in building Q and the number of floors in his building is twice as that of his floor number.
- (vi) I lived on the floor which was immediately below F's floor but in a different building. I is to the left of F. I and H are not in the same building.
- (vii) D lived in floor 4 but neither in I's nor in E's building.
- (viii) A's floor number was twice as that of C's floor number, whose floor number is thrice I's floor number.
- (ix) B and F are not in the same building.
- (x) B and H lived in different buildings.
- (xi) In every building the top floor is vacant.

**Q.41**

**How many vacant floors are there in building P?**

1 ☐ 6

2 ☐ 4

3 ☐ 7

4 ☐ 5

**Solution:**

**Correct Answer : 1**

 **Bookmark**

 **Answer key/Solution**

By statement (viii), let floor number of

I be 'a', then floor number of C is '3a' and floor number of A is '6a'. Also by statement (iii), A Lives in building P, and P has  $6a + 3$  floors and by statement (v), C lives in building Q and the number of floors in building Q is '6a'.

∴ only possible value of 'a' will be '1'

By statement (iv), A and B lives on the same floor that is, 6<sup>th</sup> floor but in different building such that B lived 2<sup>nd</sup> from the top of his building, which is possible only if R has exactly 7 floors since Q has exactly 6 floors. Also By (xi), top floor of every building is vacant.

9			
8			
7			
6	A		B
5			
4			
3		C	
2			
1			
	P	Q	R

By statement (vi), and (ix) I lived on floor immediately below F, i.e. F lives on 2<sup>nd</sup> floor and in building Q since B and F are not in the same building therefore, F is definitely in building Q and I is in building P.

9			
8			
7			
6	A		B
5			
4			
3		C	
2		F	
1	I		
	P	Q	R

By statement (vii) D can be in either building Q or R at 4<sup>th</sup> floor.

Case I : – D is in building Q.

By statement (i) and (x), G lived on floor exactly below H floor and H doesnot live in the building where I and B lives. So only option for H is 5<sup>th</sup> floor in building Q.

9			
8			
7			
6	A		B
5		H	
4	G	D	E
3		C	
2		F	
1	I		
	P	Q	R

Case II : – D is in building R

9			
8			
7			
6	A		B
5		H	
4	G	E	D
3		C	
2		F	
1	I		
	P	Q	R

**6 floors are vacant in building P.**



FeedBack

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

P, Q, R are three adjacent buildings. P is to the west of Q. Q is to the west of R. Each building has different number of floors with the lowest floor numbered as 1, floor above it numbered as 2 and so on. The height of floors in each building is the same i.e. the same numbered floors are at equal height from the ground. A through I are living in nine different floors in no particular order. The rest of the houses are vacant. No building has more than ten floors.

- (i) G lived on the floor which was exactly below H's floor but in a different building.
- (ii) G and E live on the same floor but in a different building such that G is to the left of E.
- (iii) The number of floors in building P is three more than A's floor number. A lives in building P.
- (iv) A and B lived on the same floor but in a different building such that A is to left of B and B lived 2nd from the top of his building.
- (v) C lives in building Q and the number of floors in his building is twice as that of his floor number.
- (vi) I lived on the floor which was immediately below F's floor but in a different building. I is to the left of F. I and H are not in the same building.
- (vii) D lived in floor 4 but neither in I's nor in E's building.
- (viii) A's floor number was twice as that of C's floor number, whose floor number is thrice I's floor number.
- (ix) B and F are not in the same building.
- (x) B and H lived in different buildings.
- (xi) In every building the top floor is vacant.

**Q.42**

**Which floor is not vacant in any of the three buildings?**

1 ☐ 1<sup>st</sup>

2 ☐ 3<sup>rd</sup>

3 ☐ 4<sup>th</sup>

4 ☐ 7<sup>th</sup>

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

By statement (viii), let floor number of

I be 'a', then floor number of C is '3a' and floor number of A is '6a'. Also by statement (iii), A Lives in building P, and P has  $6a + 3$  floors and by statement (v), C lives in building Q and the number of floors in building Q is '6a'.

∴ only possible value of 'a' will be '1'

By statement (iv), A and B lives on the same floor that is, 6<sup>th</sup> floor but in different building such that B lived 2<sup>nd</sup> from the top of his building, which is possible only if R has exactly 7 floors since Q has exactly 6 floors. Also By (xi), top floor of every building is vacant.

9			
8			
7			
6	A		B
5			
4			
3		C	
2			
1			
	P	Q	R

By statement (vi), and (ix) I lived on floor immediately below F, i.e. F lives on 2<sup>nd</sup> floor and in building Q since B and F are not in the same building therefore, F is definitely in building Q and I is in building P.

9			
8			
7			
6	A		B
5			
4			
3		C	
2		F	
1	I		
	P	Q	R

By statement (vii) D can be in either building Q or R at 4<sup>th</sup> floor.

Case I : – D is in building Q.

By statement (i) and (x), G lived on floor exactly below H floor and H doesnot live in the building where I and B lives. So only option for H is 5<sup>th</sup> floor in building Q.

9			
8			
7			
6	A		B
5		H	
4	G	D	E
3		C	
2		F	
1	I		
	P	Q	R

Case II : – D is in building R

9			
8			
7			
6	A		B
5		H	
4	G	E	D
3		C	
2		F	
1	I		
	P	Q	R

**4<sup>th</sup> floor does not have any vacant buildings.**

FeedBack

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

Seven friends - Abhishek, Ashish, Somil, Avinash, Lokpriya, Inshia and Mohit - decided to study together on a day starting from morning until evening at a park. On a particular day, their plan failed as no one was able to come on time and all left the park before 12 noon. They arrived at 7:30am, 9 am, 8:20 am, 8am, 9:50 am, 8:15 am and 7:45am respectively. But they all left on some different time at 10 am, 10:30 am, 10:50 am, 11 am, 11:05 am, 11:05 am and 11:20, not necessarily in the same order. Further, it is known that:

- I. Everyone studied for more than one hour.
- II. Mohit spent the maximum time and Lokpriya spent the least time at the park.
- III. Ashish was not the first person to leave the park and difference between the time spent by Ashish and Inshia in the park was 40 minutes.
- IV. The difference between the time spent by Somil and Abhishek in the park was 20 minutes.

---

**Q.43**

**If Lokpriya was not the last person to leave the park, then who could be the two persons leaving together at 11:05 am?**

- 1 ☐ Lokpriya and Ashish
  - 2 ☐ Mohit and Abhishek
  - 3 ☐ Somil and Avinash
  - 4 ☐ Lokpriya and Mohit
-

**Solution:****Correct Answer : 1****Using the data given in the question, we can conclude as:** **Bookmark** **Answer key/Solution**

From statement III, we can conclude that the difference between the time of leaving of Inshia and Ashish is of 5 minutes, as their arrival time is 8:15 and 9:00 respectively. So we can conclude that Inshia must have left at 11:00 am and Ashish at 11:05.

From statement IV and the arrival time of Somil and Abhishek, we can conclude that they must have left at 10:30 am and 10:00 am respectively.

From statement I, we can conclude that Lokpriya will leave at either 11:00 am, 11:05 am or 11:20 am. But we already had concluded that Inshia left at 11:00 am, so that is not possible for Lokpriya also.

From statement II, we can conclude that Mohit must have left at either 11:05 or 11:20 as he spends the maximum time. Also Avinash cannot leave at 11:05 or 11:20 as he would be the one who will spend the maximum time in both the cases. So, Avinash must have left at 10:50 am.

So these are two possible cases:

**CASE 1:**

	Time Arrived	Time Left	Duration
Somil	8:20:00	10:30:00	2:10:00
Abhishek	7:30:00	10:00:00	2:30:00
Avinash	8:00:00	10:50:00	2:50:00
Inshia	8:15:00	11:00:00	2:45:00
Ashish	9:00:00	11:05:00	2:05:00
Lokpriya	9:50:00	11:05:00	1:15:00
Mohit	7:45:00	11:20:00	3:35:00

**CASE 2:**

	Time Arrived	Time Left	Duration
Somil	8:20:00	10:30:00	2:10:00
Abhishek	7:30:00	10:00:00	2:30:00
Avinash	8:00:00	10:50:00	2:50:00
Inshia	8:15:00	11:00:00	2:45:00
Ashish	9:00:00	11:05:00	2:05:00
Lokpriya	9:50:00	11:20:00	1:30:00
Mohit	7:45:00	11:05:00	3:20:00

As we can see in the case 1, Lokpriya and Ashish left together at 11:05 am.

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

**Seven friends - Abhishek, Ashish, Somil, Avinash, Lokpriya, Inshia and Mohit - decided to study together on a day starting from morning until evening at a park. On a particular day, their plan failed as no one was able to come on time and all left the park before 12 noon. They arrived at 7:30am, 9 am, 8:20 am, 8am, 9:50 am, 8:15 am and 7:45am respectively. But they all left on some different time at 10 am, 10:30 am, 10:50 am, 11 am, 11:05 am, 11:05 am and 11:20, not necessarily in the same order. Further, it is known that:**

- I. Everyone studied for more than one hour.**
- II. Mohit spent the maximum time and Lokpriya spent the least time at the park.**
- III. Ashish was not the first person to leave the park and difference between the time spent by Ashish and Inshia in the park was 40 minutes.**
- IV. The difference between the time spent by Somil and Abhishek in the park was 20 minutes.**

**Q.44**

**If Avinash spent 2 hrs and 50 minutes in the park, then at what time did Somil left?**

1 ☐ 10:30 am

2 ☐ 10:00 am

3 ☐ 11:05 am

4 ☐ 11:20 am

**Solution:****Correct Answer : 1****Using the data given in the question, we can conclude as:** **Bookmark** **Answer key/Solution**

From statement III, we can conclude that the difference between the time of leaving of Inshia and Ashish is of 5 minutes, as their arrival time is 8:15 and 9:00 respectively. So we can conclude that Inshia must have left at 11:00 am and Ashish at 11:05.

From statement IV and the arrival time of Somil and Abhishek, we can conclude that they must have left at 10:30 am and 10:00 am respectively.

From statement I, we can conclude that Lokpriya will leave at either 11:00 am, 11:05 am or 11:20 am. But we already had concluded that Inshia left at 11:00 am, so that is not possible for Lokpriya also.

From statement II, we can conclude that Mohit must have left at either 11:05 or 11:20 as he spends the maximum time. Also Avinash cannot leave at 11:05 or 11:20 as he would be the one who will spend the maximum time in both the cases. So, Avinash must have left at 10:50 am.

So these are two possible cases:

**CASE 1:**

	Time Arrived	Time Left	Duration
Somil	8:20:00	10:30:00	2:10:00
Abhishek	7:30:00	10:00:00	2:30:00
Avinash	8:00:00	10:50:00	2:50:00
Inshia	8:15:00	11:00:00	2:45:00
Ashish	9:00:00	11:05:00	2:05:00
Lokpriya	9:50:00	11:05:00	1:15:00
Mohit	7:45:00	11:20:00	3:35:00

**CASE 2:**

	Time Arrived	Time Left	Duration
Somil	8:20:00	10:30:00	2:10:00
Abhishek	7:30:00	10:00:00	2:30:00
Avinash	8:00:00	10:50:00	2:50:00
Inshia	8:15:00	11:00:00	2:45:00
Ashish	9:00:00	11:05:00	2:05:00
Lokpriya	9:50:00	11:20:00	1:30:00
Mohit	7:45:00	11:05:00	3:20:00

Somil left the park at 10:30 am in both the cases.

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

Seven friends - Abhishek, Ashish, Somil, Avinash, Lokpriya, Inshia and Mohit - decided to study together on a day starting from morning until evening at a park. On a particular day, their plan failed as no one was able to come on time and all left the park before 12 noon. They arrived at 7:30am, 9 am, 8:20 am, 8am, 9:50 am, 8:15 am and 7:45am respectively. But they all left on some different time at 10 am, 10:30 am, 10:50 am, 11 am, 11:05 am, 11:05 am and 11:20, not necessarily in the same order. Further, it is known that:

- I. Everyone studied for more than one hour.
- II. Mohit spent the maximum time and Lokpriya spent the least time at the park.
- III. Ashish was not the first person to leave the park and difference between the time spent by Ashish and Inshia in the park was 40 minutes.
- IV. The difference between the time spent by Somil and Abhishek in the park was 20 minutes.

**Q.45**

**If Mohit has spent less than 3.5 hours, then at what time did Lokpriya leave?**

1 ☐ 11:00 am

2 ☐ 10:50 am

3 ☐ 11:20 am

4 ☐ 11:05 am

**Solution:****Correct Answer : 3****Using the data given in the question, we can conclude as:** **Bookmark** **Answer key/Solution**

From statement III, we can conclude that the difference between the time of leaving of Inshia and Ashish is of 5 minutes, as their arrival time is 8:15 and 9:00 respectively. So we can conclude that Inshia must have left at 11:00 am and Ashish at 11:05.

From statement IV and the arrival time of Somil and Abhishek, we can conclude that they must have left at 10:30 am and 10:00 am respectively.

From statement I, we can conclude that Lokpriya will leave at either 11:00 am, 11:05 am or 11:20 am. But we already had concluded that Inshia left at 11:00 am, so that is not possible for Lokpriya also.

From statement II, we can conclude that Mohit must have left at either 11:05 or 11:20 as he spends the maximum time. Also Avinash cannot leave at 11:05 or 11:20 as he would be the one who will spend the maximum time in both the cases. So, Avinash must have left at 10:50 am.

So these are two possible cases:

**CASE 1:**

	Time Arrived	Time Left	Duration
Somil	8:20:00	10:30:00	2:10:00
Abhishek	7:30:00	10:00:00	2:30:00
Avinash	8:00:00	10:50:00	2:50:00
Inshia	8:15:00	11:00:00	2:45:00
Ashish	9:00:00	11:05:00	2:05:00
Lokpriya	9:50:00	11:05:00	1:15:00
Mohit	7:45:00	11:20:00	3:35:00

**CASE 2:**

	Time Arrived	Time Left	Duration
Somil	8:20:00	10:30:00	2:10:00
Abhishek	7:30:00	10:00:00	2:30:00
Avinash	8:00:00	10:50:00	2:50:00
Inshia	8:15:00	11:00:00	2:45:00
Ashish	9:00:00	11:05:00	2:05:00
Lokpriya	9:50:00	11:20:00	1:30:00
Mohit	7:45:00	11:05:00	3:20:00

Mohit spent less than 3.5 hours as per the schedule in case 2 and according to that Lokpriya left at 11:20 am.



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

Seven friends - Abhishek, Ashish, Somil, Avinash, Lokpriya, Inshia and Mohit - decided to study together on a day starting from morning until evening at a park. On a particular day, their plan failed as no one was able to come on time and all left the park before 12 noon. They arrived at 7:30am, 9 am, 8:20 am, 8am, 9:50 am, 8:15 am and 7:45am respectively. But they all left on some different time at 10 am, 10:30 am, 10:50 am, 11 am, 11:05 am, 11:05 am and 11:20, not necessarily in the same order. Further, it is known that:

- I. Everyone studied for more than one hour.
- II. Mohit spent the maximum time and Lokpriya spent the least time at the park.
- III. Ashish was not the first person to leave the park and difference between the time spent by Ashish and Inshia in the park was 40 minutes.
- IV. The difference between the time spent by Somil and Abhishek in the park was 20 minutes.

**Q.46**

**What is the difference between the time spent by Mohit and the time spent by Inshia?**

1 ☐ 50 Minutes

2 ☐ 35 minutes

3 ☐ 20 Minutes

4 ☐ Cannot be determined

**Solution:****Correct Answer : 4****Using the data given in the question, we can conclude as:** **Bookmark** **Answer key/Solution**

From statement III, we can conclude that the difference between the time of leaving of Inshia and Ashish is of 5 minutes, as their arrival time is 8:15 and 9:00 respectively. So we can conclude that Inshia must have left at 11:00 am and Ashish at 11:05.

From statement IV and the arrival time of Somil and Abhishek, we can conclude that they must have left at 10:30 am and 10:00 am respectively.

From statement I, we can conclude that Lokpriya will leave at either 11:00 am, 11:05 am or 11:20 am. But we already had concluded that Inshia left at 11:00 am, so that is not possible for Lokpriya also.

From statement II, we can conclude that Mohit must have left at either 11:05 or 11:20 as he spends the maximum time. Also Avinash cannot leave at 11:05 or 11:20 as he would be the one who will spend the maximum time in both the cases. So, Avinash must have left at 10:50 am.

So these are two possible cases:

**CASE 1:**

	Time Arrived	Time Left	Duration
Somil	8:20:00	10:30:00	2:10:00
Abhishek	7:30:00	10:00:00	2:30:00
Avinash	8:00:00	10:50:00	2:50:00
Inshia	8:15:00	11:00:00	2:45:00
Ashish	9:00:00	11:05:00	2:05:00
Lokpriya	9:50:00	11:05:00	1:15:00
Mohit	7:45:00	11:20:00	3:35:00

**CASE 2:**

	Time Arrived	Time Left	Duration
Somil	8:20:00	10:30:00	2:10:00
Abhishek	7:30:00	10:00:00	2:30:00
Avinash	8:00:00	10:50:00	2:50:00
Inshia	8:15:00	11:00:00	2:45:00
Ashish	9:00:00	11:05:00	2:05:00
Lokpriya	9:50:00	11:20:00	1:30:00
Mohit	7:45:00	11:05:00	3:20:00

Difference between the time spent by Mohit and Inshia in the park is either 50 minutes or 35 minutes.

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

**A, B, C and D ate 4 different type of fruits – Apples, Mangoes, Bananas and Guavas. Each person ate at least one fruit of each type. The total number of mangoes eaten by all was the same as the total number of Guavas eaten by all. A total of 24 fruits was taken. The total number of mangoes eaten by all was 6. Exactly 2 persons C and D, ate the same total number of fruits, which was 6 in number. The total number of apples and the total number of bananas eaten by all were distinct. No one ate more than a total of 7 fruits. Exactly 1 person ate four fruits of a particular type. No person ate exactly 3 fruits of any particular type of fruit.**

**Q.47**

**If 'A' ate 2 bananas, then 'C' ate how many apples?**

**Solution:**

**Correct Answer : 1**

 **Bookmark**

 **Answer key/Solution**

	Apples	Manoges	Bananas	Guava	Total
A					Y
B					Z
C					6
D					6
Total		6		6	24

$$y, z \geq 4$$

$$\Rightarrow y + z = 12$$

Also,  $y \neq z$

$\therefore y = 8$  or  $7$ , that means  $z = 7$  or  $5$ .

Case I:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	1	2	1	5
C/D	1	2	1	2	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

Case II:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	2	1	1	5
C/D	1	1	2	2	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

Case III:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	1	1	2	5
C/D	1	2	2	1	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

If 'A' ate 2 bananas, Case I.

$\therefore$  'C' ate 1 apple.

FeedBack

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

**A, B, C and D ate 4 different type of fruits – Apples, Mangoes, Bananas and Guavas. Each person ate at least one fruit of each type. The total number of mangoes eaten by all was the same as the total number of Guavas eaten by all. A total of 24 fruits was taken. The total number of mangoes eaten by all was 6. Exactly 2 persons C and D, ate the same total number of fruits, which was 6 in number. The total number of apples and the total number of bananas eaten by all were distinct. No one ate more than a total of 7 fruits. Exactly 1 person ate four fruits of a particular type. No person ate exactly 3 fruits of any particular type of fruit.**

**Q.48**

**Which of the following statements must be false?**

1 ☐ 'C' ate 2 guavas

2 ☐ 'B' ate 2 apples

3 ☐ 'B' ate 4 apples

4 ☐ 'C' ate 4 bananas

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

	Apples	Manoges	Bananas	Guava	Total
A					Y
B					Z
C					6
D					6
Total		6		6	24

$$y, z \geq 4$$

$$\Rightarrow y + z = 12$$

Also,  $y \neq z$

$\therefore y = 8$  or  $7$ , that means  $z = 7$  or  $5$ .

Case I:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	1	2	1	5
C/D	1	2	1	2	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

Case II:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	2	1	1	5
C/D	1	1	2	2	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

Case III:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	1	1	2	5
C/D	1	2	2	1	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

'C' did not eat 4 bananas.

FeedBack

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

**A, B, C and D ate 4 different type of fruits – Apples, Mangoes, Bananas and Guavas. Each person ate at least one fruit of each type. The total number of mangoes eaten by all was the same as the total number of Guavas eaten by all. A total of 24 fruits was taken. The total number of mangoes eaten by all was 6. Exactly 2 persons C and D, ate the same total number of fruits, which was 6 in number. The total number of apples and the total number of bananas eaten by all were distinct. No one ate more than a total of 7 fruits. Exactly 1 person ate four fruits of a particular type. No person ate exactly 3 fruits of any particular type of fruit.**

**Q.49**

**If 'D' ate 2 apples, then which of the following statements must be true?**

1 ☐ **Either 'A' or 'B' ate 4 bananas**

2 ☐ **'C' ate 2 guavas**

3 ☐ **'C' ate 2 mangoes**

4 ☐ **All of the above**

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

	Apples	Manoges	Bananas	Guava	Total
A					Y
B					Z
C					6
D					6
Total		6		6	24

$$y, z \geq 4$$

$$\Rightarrow y + z = 12$$

Also,  $y \neq z$

$\therefore y = 8$  or  $7$ , that means  $z = 7$  or  $5$ .

Case I:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	1	2	1	5
C/D	1	2	1	2	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

Case II:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	2	1	1	5
C/D	1	1	2	2	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

Case III:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	1	1	2	5
C/D	1	2	2	1	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

D ate 2 apples. Either case II or case III.

FeedBack



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

**A, B, C and D ate 4 different type of fruits – Apples, Mangoes, Bananas and Guavas. Each person ate at least one fruit of each type. The total number of mangoes eaten by all was the same as the total number of Guavas eaten by all. A total of 24 fruits was taken. The total number of mangoes eaten by all was 6. Exactly 2 persons C and D, ate the same total number of fruits, which was 6 in number. The total number of apples and the total number of bananas eaten by all were distinct. No one ate more than a total of 7 fruits. Exactly 1 person ate four fruits of a particular type. No person ate exactly 3 fruits of any particular type of fruit.**

**Q.50**

**What is the total number of fruits A and B ate together?**

**Solution:**

**Correct Answer : 12**

 **Bookmark**

 **Answer key/Solution**

	Apples	Manoges	Bananas	Guava	Total
A					Y
B					Z
C					6
D					6
Total		6		6	24

$$y, z \geq 4$$

$$\Rightarrow y + z = 12$$

Also,  $y \neq z$

$\therefore y = 8$  or  $7$ , that means  $z = 7$  or  $5$ .

Case I:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	1	2	1	5
C/D	1	2	1	2	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

Case II:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	2	1	1	5
C/D	1	1	2	2	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

Case III:

	Bananas/ Apples	Guavas/ Mangoes	Apples/ Bananas	Mangoes/ Guavas	Total
A/B	4	1	1	1	7
B/A	1	1	1	2	5
C/D	1	2	2	1	6
D/C	1	2	1	2	6
Total	7	6	5	6	24

A and B together ate 12 fruits.

FeedBack

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

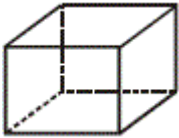
**Rajat designed a large cube for his Mathematics Project but later on he finds out that 17 cuts are made on his designed cube by his little brother but fortunately he observes an interesting thing and therefore changes the topic of his mathematics project accordingly. Answer the following questions (51 and 52)**

**Q.51**

**What is the least number of identical pieces obtained from a large cube by 17 cuts?**

**Solution:**

**Correct Answer : 0**



**If we make 17 cuts of varying lengths then no piece will be identical hence, the least number of identical pieces will be 0.**

FeedBack

 **Bookmark**

 **Answer key/Solution**

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

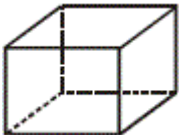
**Rajat designed a large cube for his Mathematics Project but later on he finds out that 17 cuts are made on his designed cube by his little brother but fortunately he observes an interesting thing and therefore changes the topic of his mathematics project accordingly. Answer the following questions (51 and 52)**

**Q.52**

**What is the maximum number of pieces obtained from a large cube by 17 cuts?**

**Solution:**

**Correct Answer : 294**



**To maximize the number of pieces, we need to make cuts along different axes.**

**So,  $17 = 6 + 6 + 5$ .**

**These numbers should be as close as possible then only product can be maximized.**

**So, cuts along X, Y and Z axes are 6, 6 and 5.**

**So, number of pieces will be  $7 \times 7 \times 6 = 294$ .**

FeedBack

 **Bookmark**

 **Answer key/Solution**

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

Rajat designed a large cube for his Mathematics Project but later on he finds out that certain cuts are made on his designed cube by his little brother but fortunately he observes an interesting thing that those cuts have divided the cube in 51 identical pieces and therefore changes the topic of his mathematics project accordingly. Answer the following questions (53 and 54)

**Q.53**

**What is the least possible number of cuts required to cut the cube into 51 identical pieces?**

1 ☐ 50

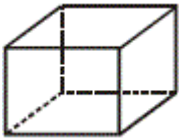
2 ☐ 28

3 ☐ 18

4 ☐ 17

**Solution:**

**Correct Answer : 3**



$$51 = 1 \times 3 \times 17$$

$$(a + 1) (b + 1) (c + 1)$$

So cuts along X axis = 0

cuts along Y axis = 2

cuts along Z axis = 16

So, total cuts = 2 + 16 = 18

FeedBack

 **Bookmark**

 **Answer key/Solution**

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

Rajat designed a large cube for his Mathematics Project but later on he finds out that certain cuts are made on his designed cube by his little brother but fortunately he observes an interesting thing that those cuts have divided the cube in 51 identical pieces and therefore changes the topic of his mathematics project accordingly. Answer the following questions (53 and 54)

**Q.54**

**What is the maximum number of cuts required to cut the cube into 51 identical pieces?**

---

1 ☐ 17

---

2 ☐ 28

---

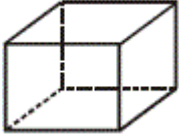
3 ☐ 50

---

4 ☐ 21

**Solution:**

**Correct Answer : 3**



Here, all the cuts should be on the same axis, hence to get 51 pieces, we need 50 cuts.

FeedBack

 **Bookmark**

 **Answer key/Solution**

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

A company has 6 people in its board of directors B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>4</sub>, B<sub>5</sub>, B<sub>6</sub> and 4 presidents P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>. Three working committees C<sub>1</sub>, C<sub>2</sub>, and C<sub>3</sub> are to be formed out of these members. Each of given members of the company has to be a member of exactly one of the committees. Committee C<sub>1</sub> has the highest number of members and C<sub>3</sub> has the least number of members with no two committees having equal number of members. Some additional information are as follows:

1. P<sub>3</sub> is not in C<sub>2</sub>.
2. B<sub>3</sub> and P<sub>4</sub> only work in the same committee.
3. Each committee has atleast 1 director and 1 president.
4. B<sub>1</sub> and P<sub>1</sub> can not come in same committee.
5. B<sub>5</sub> will work only in committee C<sub>3</sub> and P<sub>2</sub> only in C<sub>1</sub>.
6. No more than 2 out of B<sub>2</sub>, B<sub>4</sub> and B<sub>6</sub> can work in the same committee.

---

**Q.55**

**Which of the following can never be a part of C<sub>1</sub>**

---

1 ☐ P<sub>2</sub>

---

2 ☐ P<sub>1</sub>

---

3 ☐ B<sub>6</sub>

---

4 ☐ B<sub>3</sub>

---

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

Since  $C_1$  has highest members and  $C_3$  has lowest members and no two committees have equal number of members so, the number of members in  $C_1$ ,  $C_2$ ,  $C_3$  can only be 5, 3 and 2 respectively.

Following the constraints, given 2 cases arise,

$C_1$	$C_2$	$C_3$
$P_2$	$B_4B_2/B_4B_6/B_2B_6$	$B_5$
$B_1$	$P_1$	$P_3$
$B_3$		
$P_4$		
$B_6/B_2/B_4$		

or

$C_1$	$C_2$	$C_3$
$P_2, P_3$	$B_3$	$B_5$
$B_4B_6/B_4B_2/B_2B_6$	$P_4$	$P_1$
$B_1$	$B_2/B_6/B_4$	

So,  $P_1$  can never be a part of  $C_1$ .

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

A company has 6 people in its board of directors  $B_1, B_2, B_3, B_4, B_5, B_6$  and 4 presidents  $P_1, P_2, P_3, P_4$ . Three working committees  $C_1, C_2$ , and  $C_3$  are to be formed out of these members. Each of given members of the company has to be a member of exactly one of the committees. Committee  $C_1$  has the highest number of members and  $C_3$  has the least number of members with no two committees having equal number of members. Some additional information are as follows:

1.  $P_3$  is not in  $C_2$ .
2.  $B_3$  and  $P_4$  only work in the same committee.
3. Each committee has atleast 1 director and 1 president.
4.  $B_1$  and  $P_1$  can not come in same committee.
5.  $B_5$  will work only in committee  $C_3$  and  $P_2$  only in  $C_1$ .
6. No more than 2 out of  $B_2, B_4$  and  $B_6$  can work in the same committee.

**Q.56**

If  $B_6$  and  $P_1$  are in same committee, then which of the following are definitely in a committee together?

1 ☐  $B_1B_3$

2 ☐  $B_1B_4$

3 ☐ B<sub>2</sub>B<sub>3</sub>4 ☐ B<sub>2</sub>B<sub>1</sub>**Solution:****Correct Answer : 1**

From above tables, it can easily be deduced that if B<sub>5</sub> and P<sub>1</sub> are in same team i.e. Case I then either B<sub>2</sub> or B<sub>4</sub> will be in C<sub>1</sub> ∴ options having B<sub>2</sub> and B<sub>4</sub> are eliminated So, only option left is (1)




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

A company has 6 people in its board of directors B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>4</sub>, B<sub>5</sub>, B<sub>6</sub> and 4 presidents P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>. Three working committees C<sub>1</sub>, C<sub>2</sub>, and C<sub>3</sub> are to be formed out of these members. Each of given members of the company has to be a member of exactly one of the committees. Committee C<sub>1</sub> has the highest number of members and C<sub>3</sub> has the least number of members with no two committees having equal number of members. Some additional information are as follows:

1. P<sub>3</sub> is not in C<sub>2</sub>.
2. B<sub>3</sub> and P<sub>4</sub> only work in the same committee.
3. Each committee has atleast 1 director and 1 president.
4. B<sub>1</sub> and P<sub>1</sub> can not come in same committee.
5. B<sub>5</sub> will work only in committee C<sub>3</sub> and P<sub>2</sub> only in C<sub>1</sub>.
6. No more than 2 out of B<sub>2</sub>, B<sub>4</sub> and B<sub>6</sub> can work in the same committee.

**Q.57**

If P<sub>1</sub> is in committee C<sub>3</sub> then who can not be in C<sub>2</sub>

1 ☐ B<sub>3</sub>2 ☐ P<sub>4</sub>3 ☐ B<sub>6</sub>4 ☐ B<sub>1</sub>**Solution:****Correct Answer : 4**

From case 2, it can be found out if P<sub>1</sub> is in C<sub>3</sub>, only B<sub>1</sub> among the given persons can not be in C<sub>2</sub>.

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

A company has 6 people in its board of directors B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>4</sub>, B<sub>5</sub>, B<sub>6</sub> and 4 presidents P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>. Three working committees C<sub>1</sub>, C<sub>2</sub>, and C<sub>3</sub> are to be formed out of these members. Each of given members of the company has to be a member of exactly one of the committees. Committee C<sub>1</sub> has the highest number of members and C<sub>3</sub> has the least number of members with no two committees having equal number of members. Some additional information are as follows:

1. P<sub>3</sub> is not in C<sub>2</sub>.
2. B<sub>3</sub> and P<sub>4</sub> only work in the same committee.
3. Each committee has atleast 1 director and 1 president.
4. B<sub>1</sub> and P<sub>1</sub> can not come in same committee.
5. B<sub>5</sub> will work only in committee C<sub>3</sub> and P<sub>2</sub> only in C<sub>1</sub>.
6. No more than 2 out of B<sub>2</sub>, B<sub>4</sub> and B<sub>6</sub> can work in the same committee.

**Q.58**

If P<sub>1</sub> is in C<sub>2</sub> then which of the following can not be in committee C<sub>1</sub>

1 ☐ P<sub>2</sub>B<sub>3</sub>P<sub>4</sub>B<sub>1</sub>B<sub>2</sub>

2 ☐ P<sub>2</sub>B<sub>3</sub>P<sub>4</sub>B<sub>2</sub>B<sub>4</sub>

3 ☐ P<sub>2</sub>B<sub>3</sub>P<sub>4</sub>B<sub>1</sub>B<sub>4</sub>

4 ☐ P<sub>2</sub>B<sub>3</sub>P<sub>4</sub>B<sub>1</sub>B<sub>6</sub>

**Solution:**

**Correct Answer : 2**

From case 1, it is clear only P<sub>2</sub>B<sub>3</sub>P<sub>4</sub>B<sub>2</sub>B<sub>4</sub> is not a possible combination for C<sub>1</sub>.

FeedBack

 **Bookmark**

 **Answer key/Solution**



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

**4 persons, A through D, work in the same office. The table below provides the number of days that each person worked in each month from Feb-17 to May-17, as a percentage of total number of days that he worked during that period. The number of days that any person worked in any month is not necessarily an integer.**

May	29%	15%	15%	30%
April	25%	10%	20%	45%
March	18%	50%	25%	15%
Feb	28%	25%	40%	10%
	A	B	C	D

**Q.59**

**During the given period, find the max number of days (approximately), that any person could work.**

1 ☐ 106.9

2 ☐ 120

3 ☐ 115.3

4 ☐ 100

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

Let the total number of days that A went to the office be 'a'. In May he worked for ' $0.29 \times a$ ' days. However there are only 31 days in May. Hence the maximum possible number of days that he could have worked during the given period is  $0.29 \times a = 31$ .

$$\therefore a = \frac{31}{0.29} = 106.9$$

- However, if he worked on 106.9 days from February to May then, in Feb, he must have worked for  $0.27 \times 106.9 = 28.862$  days, but since there are 28 days in Feb, this is not possible.
- In Feb, he went to the office for ' $0.28 \times a$ ' days  
 $\therefore a_{\max} = 100$
- Hence he must have worked for 100 days during the given period. Similarly,  
 $\therefore$  B must have worked on maximum  $31/0.5 = 62$  days.  
 $\therefore$  C must have worked on maximum  $28/0.4 = 70$  days.  
 $\therefore$  D must have worked on maximum  $30/0.45 = 66.67$  days.

Therefore, 100 could be the maximum number of days any person could work.

FeedBack

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

**4 persons, A through D, work in the same office. The table below provides the number of days that each person worked in each month from Feb-17 to May-17, as a percentage of total number of days that he worked during that period. The number of days that any person worked in any month is not necessarily an integer.**

May	29%	15%	15%	30%
April	25%	10%	20%	45%
March	18%	50%	25%	15%
Feb	28%	25%	40%	10%
	A	B	C	D

**Q.60**

**What is the difference between the maximum number of days that A could have worked in March 2017 and the maximum number of days that B could have worked in Feb 2017?**

**Solution:**

**Correct Answer : 2.5**

 **Bookmark**

 **Answer key/Solution**

Let the total number of days that A went to the office be 'a'. In May he worked for ' $0.29 \times a$ ' days. However there are only 31 days in May. Hence the maximum possible number of days that he could have worked during the given period is  $0.29 \times a = 31$ .

$$\therefore a = \frac{31}{0.29} = 106.9$$

- However, if he worked on 106.9 days from February to May then, in Feb, he must have worked for  $0.27 \times 106.9 = 28.862$  days, but since there are 28 days in Feb, this is not possible.
- In Feb, he went to the office for ' $0.28 \times a$ ' days  
 $\therefore a_{\max} = 100$
- Hence he must have worked for 100 days during the given period. Similarly,  
 $\therefore$  B must have worked on maximum  $31/0.5 = 62$  days.  
 $\therefore$  C must have worked on maximum  $28/0.4 = 70$  days.  
 $\therefore$  D must have worked on maximum  $30/0.45 = 66.67$  days.

$$A_{\max} = 18, B_{\max} = 62 \times 0.25 = 15.5$$

$$\therefore \text{Required difference} = 18 - 15.5 = 2.5$$

FeedBack

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

**4 persons, A through D, work in the same office. The table below provides the number of days that each person worked in each month from Feb-17 to May-17, as a percentage of total number of days that he worked during that period. The number of days that any person worked in any month is not necessarily an integer.**

May	29%	15%	15%	30%
April	25%	10%	20%	45%
March	18%	50%	25%	15%
Feb	28%	25%	40%	10%
	A	B	C	D

**Q.61**

**If in a particular month during the given period, each person worked on exactly 10 days in that month, which of the following months it can be?**

- 1 ☐ Feb
- 2 ☐ March
- 3 ☐ May
- 4 ☐ More than one of the above.

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

Let the total number of days that A went to the office be 'a'. In May he worked for ' $0.29 \times a$ ' days. However there are only 31 days in May. Hence the maximum possible number of days that he could have worked during the given period is  $0.29 \times a = 31$ .

$$\therefore a = \frac{31}{0.29} = 106.9$$

- However, if he worked on 106.9 days from February to May then, in Feb, he must have worked for  $0.27 \times 106.9 = 28.862$  days, but since there are 28 days in Feb, this is not possible.
- In Feb, he went to the office for ' $0.28 \times a$ ' days  
 $\therefore a_{\max} = 100$
- Hence he must have worked for 100 days during the given period. Similarly,  
 $\therefore$  B must have worked on maximum  $31/0.5 = 62$  days.  
 $\therefore$  C must have worked on maximum  $28/0.4 = 70$  days.  
 $\therefore$  D must have worked on maximum  $30/0.45 = 66.67$  days.

$D_{\max}(\text{Feb}) = 6.67$

In March everyone could have worked on atleast 10 days.

In April,  $B_{\max} = 62 \times 0.1 = 6.2$  days

In May,  $B_{\max} = 62 \times 0.15 = 9.3$

$\therefore$  Answer March

FeedBack

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

**4 persons, A through D, work in the same office. The table below provides the number of days that each person worked in each month from Feb-17 to May-17, as a percentage of total number of days that he worked during that period. The number of days that any person worked in any month is not necessarily an integer.**

May	29%	15%	15%	30%
April	25%	10%	20%	45%
March	18%	50%	25%	15%
Feb	28%	25%	40%	10%
	A	B	C	D

**Q.62**

**In almost how many of the 4 months given is it possible that at least one of the 4 persons could have worked on all the days of the month?**

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

Let the total number of days that A went to the office be 'a'. In May he worked for ' $0.29 \times a$ ' days. However there are only 31 days in May. Hence the maximum possible number of days that he could have worked during the given period is  $0.29 \times a = 31$ .

$$\therefore a = \frac{31}{0.29} = 106.9$$

- However, if he worked on 106.9 days from February to May then, in Feb, he must have worked for  $0.27 \times 106.9 = 28.862$  days, but since there are 28 days in Feb, this is not possible.
- In Feb, he went to the office for ' $0.28 \times a$ ' days  
 $\therefore a_{\max} = 100$
- Hence he must have worked for 100 days during the given period. Similarly,  
 $\therefore$  B must have worked on maximum  $31/0.5 = 62$  days.  
 $\therefore$  C must have worked on maximum  $28/0.4 = 70$  days.  
 $\therefore$  D must have worked on maximum  $30/0.45 = 66.67$  days.

In February, A and C could have worked on all the days.

In March, B could have worked on all the days.

In April, D could have worked on all the days

However, same is not possible for any person in the month of May.

FeedBack

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

**SDM Education Groups has a chain of educational institutions spread across eight major cities of India. It is currently in the news for selecting top-eight professors working in IIMs across India and conducting online sessions that were taken by them for their students in eight cities. They had set up a workshop in one of their institutes from where they provided online sessions to students. The online sessions were conducted for students in the cities of Nagpur, Ahmedabad, Calcutta, Lucknow, Indore, Bangalore, Rohtak, and Shillong individually in a week starting from Sunday to Saturday. The names of the professors who has taken sessions are Raghunath Shankar, Ramadurai Nayar, Amitabh Pandey, Rakesh Verma, Mathew Fernandes, Javed Ali, Navjot Arora and Pankaj Dutta. The subjects for which these experts were invited include Geography, Psychology, Biology, Mathematics, History, Political Science, Computer Science and Business Management, not necessarily in the given order.**

- 1. The session taken by Raghunath Shankar was before the session taken by Ramadurai Nayar but after the session taken by Pankaj Dutta, who is not a professor of Biology.**
- 2. The professor who has taken a session for the students in Calcutta is a professor of Political Science.**
- 3. Amitabh Pandey is a professor of Psychology and he did not take any session on Sunday.**
- 4. The day on which session for the students in Shillong was taken was immediately after the day on which the sessions for the students in Bangalore and Indore were taken.**
- 5. Pankaj Dutta has taken the session for the students in Nagpur and is not a professor of Computer Science.**
- 6. Only two professors have taken a session on the same day. The professor of History has taken his session on Thursday.**
- 7. Ramadurai Nayar has taken his session for the students in Rohtak on the day that falls between the days on which sessions for the students in Lucknow and Shillong were taken.**
- 8. Navjot Arora is a professor of Computer Science and would not take any session on Saturday. The professors of Mathematics and Psychology have taken their sessions on the same day.**
- 9. Mathew Fernandes, who is a professor of History, has taken his session immediately after the day on which the session for the students in Rohtak was taken by a professor of Geography.**
- 10. Raghunath Shankar, who is not a professor of Business Management, has taken a session immediately after the day on which Rakesh Verma has taken his session.**
- 11. Rakesh Verma has taken the session with another professor on the same day but not for the students in Bangalore.**

**Q.63**

**Who is the professor who will conduct a session after three days of Rakesh Verma's session?**

- 1 ☐ The professor who will conduct a session for students in Ahmedabad**
- 2 ☐ Navjot Arora**
- 3 ☐ The professor who will conduct a session for students in Rohtak**

## 4 ● Both (1) and (2)

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

By Statement 6 and 9 History session was on Thursday and was taken by Mathew Fernandes. a, and also, on Wednesday Geography session held in Rohtak.

By statement 7, Ramadurai Nayar took session in Rohtak and this session falls between the session held in Lucknow & Shillong. By statement 1, Raghunath Shankar session was on either Monday or Tuesday and session of Pankaj Dutta was on either Sunday or Monday.

By statement 10 Raghunath Shankar has taken a session immediately after the day on which Rakesh Verma took the session. Therefore Raghunath Shankar, Rakesh Verma and Pankaj Dutta took sessions on Tuesday, Monday and Sunday respectively.

Sunday		Pankaj Dutta	Nagpur
Monday		Rakesh Verma	
Tuesday		Raghunath Shankar	
Wednesday	Geography	Ramadurai Nayar	Rohtak
Thursday	History	Mathew Fernandes	
Friday			
Saturday			

By statement 8 and 11, Mathematics and Psychology session held on same day and Rakesh Verma was one of the professors and it held in Bangalore and Indore by statement (4) and therefore, session in Shillong held on Tuesday and session in Lucknow held on Thursday.

By statement 8, Navjot Arora took session on Friday on computer science and therefore, Javed Ali took session on Saturday in Calcutta on Political science.

Final Table looks like : –

Sunday	Business Management	Pankaj Dutta	Nagpur
Monday	Mathematics/ Psychology	Rakesh Verma/ Amitabh Pandey	Bangalore/ Indore
Tuesday	Biology	Raghunath Shankar	Shillong
Wednesday	Geography	Ramadurai Nayar	Rohtak
Thursday	History	Mathew Fernandes	Lucknow
Friday	Computer Science	Navjot Arora	Ahmedabad
Saturday	Political Science	Javed Ali	Calcutta

According to the table, Navjot Arora would conduct a session for the students in Ahmedabad on Friday.

Feedback

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

**SDM Education Groups has a chain of educational institutions spread across eight major cities of India. It is currently in the news for selecting top-eight professors working in IIMs across India and conducting online sessions that were taken by them for their students in eight cities. They had set up a workshop in one of their institutes from where they provided online sessions to students. The online sessions were conducted for students in the cities of Nagpur, Ahmedabad, Calcutta, Lucknow, Indore, Bangalore, Rohtak, and Shillong individually in a week starting from Sunday to Saturday. The names of the professors who has taken sessions are Raghunath Shankar, Ramadurai Nayar, Amitabh Pandey, Rakesh Verma, Mathew Fernandes, Javed Ali, Navjot Arora and Pankaj Dutta. The subjects for which these experts were invited include Geography, Psychology, Biology, Mathematics, History, Political Science, Computer Science and Business Management, not necessarily in the given order.**

- 1. The session taken by Raghunath Shankar was before the session taken by Ramadurai Nayar but after the session taken by Pankaj Dutta, who is not a professor of Biology.**
- 2. The professor who has taken a session for the students in Calcutta is a professor of Political Science.**
- 3. Amitabh Pandey is a professor of Psychology and he did not take any session on Sunday.**
- 4. The day on which session for the students in Shillong was taken was immediately after the day on which the sessions for the students in Bangalore and Indore were taken.**
- 5. Pankaj Dutta has taken the session for the students in Nagpur and is not a professor of Computer Science.**
- 6. Only two professors have taken a session on the same day. The professor of History has taken his session on Thursday.**
- 7. Ramadurai Nayar has taken his session for the students in Rohtak on the day that falls between the days on which sessions for the students in Lucknow and Shillong were taken.**
- 8. Navjot Arora is a professor of Computer Science and would not take any session on Saturday. The professors of Mathematics and Psychology have taken their sessions on the same day.**
- 9. Mathew Fernandes, who is a professor of History, has taken his session immediately after the day on which the session for the students in Rohtak was taken by a professor of Geography.**
- 10. Raghunath Shankar, who is not a professor of Business Management, has taken a session immediately after the day on which Rakesh Verma has taken his session.**
- 11. Rakesh Verma has taken the session with another professor on the same day but not for the students in Bangalore.**

**Q.64**

**Who among the following is a professor of Political Science?**

- 1 ☐ Javed Ali**
- 2 ☐ Pankaj Dutta**
- 3 ☐ Rakesh Verma**



## 4 ● Navjot Arora

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

By Statement 6 and 9 History session was on Thursday and was taken by Mathew Fernandes. a, and also, on Wednesday Geography session held in Rohtak.

By statement 7, Ramadurai Nayar took session in Rohtak and this session falls between the session held in Lucknow & Shillong. By statement 1, Raghunath Shankar session was on either Monday or Tuesday and session of Pankaj Dutta was on either Sunday or Monday.

By statement 10 Raghunath Shankar has taken a session immediately after the day on which Rakesh Verma took the session. Therefore Raghunath Shankar, Rakesh Verma and Pankaj Dutta took sessions on Tuesday, Monday and Sunday respectively.

Sunday		Pankaj Dutta	Nagpur
Monday		Rakesh Verma	
Tuesday		Raghunath Shankar	
Wednesday	Geography	Ramadurai Nayar	Rohtak
Thursday	History	Mathew Fernandes	
Friday			
Saturday			

By statement 8 and 11, Mathematics and Psychology session held on same day and Rakesh Verma was one of the professors and it held in Bangalore and Indore by statement (4) and therefore, session in Shillong held on Tuesday and session in Lucknow held on Thursday.

By statement 8, Navjot Arora took session on Friday on computer science and therefore, Javed Ali took session on Saturday in Calcutta on Political science.

Final Table looks like : –

Sunday	Business Management	Pankaj Dutta	Nagpur
Monday	Mathematics/ Psychology	Rakesh Verma/ Amitabh Pandey	Bangalore/ Indore
Tuesday	Biology	Raghunath Shankar	Shillong
Wednesday	Geography	Ramadurai Nayar	Rohtak
Thursday	History	Mathew Fernandes	Lucknow
Friday	Computer Science	Navjot Arora	Ahmedabad
Saturday	Political Science	Javed Ali	Calcutta

According to the table, Javed Ali is a professor of Political Science.

FeedBack



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

**SDM Education Groups has a chain of educational institutions spread across eight major cities of India. It is currently in the news for selecting top-eight professors working in IIMs across India and conducting online sessions that were taken by them for their students in eight cities. They had set up a workshop in one of their institutes from where they provided online sessions to students. The online sessions were conducted for students in the cities of Nagpur, Ahmedabad, Calcutta, Lucknow, Indore, Bangalore, Rohtak, and Shillong individually in a week starting from Sunday to Saturday. The names of the professors who has taken sessions are Raghunath Shankar, Ramadurai Nayar, Amitabh Pandey, Rakesh Verma, Mathew Fernandes, Javed Ali, Navjot Arora and Pankaj Dutta. The subjects for which these experts were invited include Geography, Psychology, Biology, Mathematics, History, Political Science, Computer Science and Business Management, not necessarily in the given order.**

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- 2. The professor who has taken a session for the students in Calcutta is a professor of Political Science.**
- 3. Amitabh Pandey is a professor of Psychology and he did not take any session on Sunday.**
- 4. The day on which session for the students in Shillong was taken was immediately after the day on which the sessions for the students in Bangalore and Indore were taken.**
- 5. Pankaj Dutta has taken the session for the students in Nagpur and is not a professor of Computer Science.**
- 6. Only two professors have taken a session on the same day. The professor of History has taken his session on Thursday.**
- 7. Ramadurai Nayar has taken his session for the students in Rohtak on the day that falls between the days on which sessions for the students in Lucknow and Shillong were taken.**
- 8. Navjot Arora is a professor of Computer Science and would not take any session on Saturday. The professors of Mathematics and Psychology have taken their sessions on the same day.**
- 9. Mathew Fernandes, who is a professor of History, has taken his session immediately after the day on which the session for the students in Rohtak was taken by a professor of Geography.**
- 10. Raghunath Shankar, who is not a professor of Business Management, has taken a session immediately after the day on which Rakesh Verma has taken his session.**
- 11. Rakesh Verma has taken the session with another professor on the same day but not for the students in Bangalore.**

**Q.65**

**On which day and for which subjects were two sessions conducted together?**

- 1 ☐ Saturday: Political Science and Computer Science**
- 2 ☐ Monday: Psychology and Mathematics**
- 3 ☐ Wednesday: Political Science and Computer Science**

#### 4 ● Friday: Psychology and Mathematics

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

By Statement 6 and 9 History session was on Thursday and was taken by Mathew Fernandes. a, and also, on Wednesday Geography session held in Rohtak.

By statement 7, Ramadurai Nayar took session in Rohtak and this session falls between the session held in Lucknow & Shillong. By statement 1, Raghunath Shankar session was on either Monday or Tuesday and session of Pankaj Dutta was on either Sunday or Monday.

By statement 10 Raghunath Shankar has taken a session immediately after the day on which Rakesh Verma took the session. Therefore Raghunath Shankar, Rakesh Verma and Pankaj Dutta took sessions on Tuesday, Monday and Sunday respectively.

Sunday		Pankaj Dutta	Nagpur
Monday		Rakesh Verma	
Tuesday		Raghunath Shankar	
Wednesday	Geography	Ramadurai Nayar	Rohtak
Thursday	History	Mathew Fernandes	
Friday			
Saturday			

By statement 8 and 11, Mathematics and Psychology session held on same day and Rakesh Verma was one of the professors and it held in Bangalore and Indore by statement (4) and therefore, session in Shillong held on Tuesday and session in Lucknow held on Thursday.

By statement 8, Navjot Arora took session on Friday on computer science and therefore, Javed Ali took session on Saturday in Cuttack on Political science.

Final Table looks like : –

Sunday	Business Management	Pankaj Dutta	Nagpur
Monday	Mathematics/ Psychology	Rakesh Verma/ Amitabh Pandey	Bangalore/ Indore
Tuesday	Biology	Raghunath Shankar	Shillong
Wednesday	Geography	Ramadurai Nayar	Rohtak
Thursday	History	Mathew Fernandes	Lucknow
Friday	Computer Science	Navjot Arora	Ahmedabad
Saturday	Political Science	Javed Ali	Cuttack

According to the table, the sessions of Amitabh Pandey and Rakesh Verma were conducted on the same day that is on Monday for Psychology and Mathematics.

Feedback

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

**SDM Education Groups has a chain of educational institutions spread across eight major cities of India. It is currently in the news for selecting top-eight professors working in IIMs across India and conducting online sessions that were taken by them for their students in eight cities. They had set up a workshop in one of their institutes from where they provided online sessions to students. The online sessions were conducted for students in the cities of Nagpur, Ahmedabad, Calcutta, Lucknow, Indore, Bangalore, Rohtak, and Shillong individually in a week starting from Sunday to Saturday. The names of the professors who has taken sessions are Raghunath Shankar, Ramadurai Nayar, Amitabh Pandey, Rakesh Verma, Mathew Fernandes, Javed Ali, Navjot Arora and Pankaj Dutta. The subjects for which these experts were invited include Geography, Psychology, Biology, Mathematics, History, Political Science, Computer Science and Business Management, not necessarily in the given order.**

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- 2. The professor who has taken a session for the students in Calcutta is a professor of Political Science.**
- 3. Amitabh Pandey is a professor of Psychology and he did not take any session on Sunday.**
- 4. The day on which session for the students in Shillong was taken was immediately after the day on which the sessions for the students in Bangalore and Indore were taken.**
- 5. Pankaj Dutta has taken the session for the students in Nagpur and is not a professor of Computer Science.**
- 6. Only two professors have taken a session on the same day. The professor of History has taken his session on Thursday.**
- 7. Ramadurai Nayar has taken his session for the students in Rohtak on the day that falls between the days on which sessions for the students in Lucknow and Shillong were taken.**
- 8. Navjot Arora is a professor of Computer Science and would not take any session on Saturday. The professors of Mathematics and Psychology have taken their sessions on the same day.**
- 9. Mathew Fernandes, who is a professor of History, has taken his session immediately after the day on which the session for the students in Rohtak was taken by a professor of Geography.**
- 10. Raghunath Shankar, who is not a professor of Business Management, has taken a session immediately after the day on which Rakesh Verma has taken his session.**
- 11. Rakesh Verma has taken the session with another professor on the same day but not for the students in Bangalore.**

**Q.66**

**Based on the given information, decide which among the following statements hold true.**

- 1 ☐ Pankaj Dutta – Computer Science – Nagpur – Thursday**
- 2 ☐ Ramadurai Nayar – Geography – Rohtak – Wednesday**
- 3 ☐ Raghunath Shankar – Biology – Lucknow – Wednesday**

#### 4 ● Javed Ali – Business Management – Calcutta – Saturday

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

By Statement 6 and 9 History session was on Thursday and was taken by Mathew Fernandes. a, and also, on Wednesday Geography session held in Rohtak.

By statement 7, Ramadurai Nayar took session in Rohtak and this session falls between the session held in Lucknow & Shillong. By statement 1, Raghunath Shankar session was on either Monday or Tuesday and session of Pankaj Dutta was on either Sunday or Monday.

By statement 10 Raghunath Shankar has taken a session immediately after the day on which Rakesh Verma took the session. Therefore Raghunath Shankar, Rakesh Verma and Pankaj Dutta took sessions on Tuesday, Monday and Sunday respectively.

Sunday		Pankaj Dutta	Nagpur
Monday		Rakesh Verma	
Tuesday		Raghunath Shankar	
Wednesday	Geography	Ramadurai Nayar	Rohtak
Thursday	History	Mathew Fernandes	
Friday			
Saturday			

By statement 8 and 11, Mathematics and Psychology session held on same day and Rakesh Verma was one of the professors and it held in Bangalore and Indore by statement (4) and therefore, session in Shillong held on Tuesday and session in Lucknow held on Thursday.

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Thursday	History	Mathew Fernandes	Lucknow
Friday	Computer Science	Navjot Arora	Ahmedabad
Saturday	Political Science	Javed Ali	Calcutta

According to the table, Ramadurai Nayar is a professor of Geography who takes the session in Rohtak on Wednesday.

Feedback

## Sec 3

**Q.67**

**A is 4 times as efficient as B and takes 6 days less to complete a piece of work. Find the number of days taken by A and B together.**

1 ● 2 days

2 ● 1.6 days

3 ☐ 1.8 days

4 ☐ 2.4 days

**Solution:**

**Correct Answer : 2**

Days taken by A and B will be in ratio 1 : 4

$$\therefore 4x - x = 6$$

$$3x = 6$$

$$x = 2$$

So, A takes 2 days and B takes 8 days to complete the work.

$$\therefore \text{Total work done} = \text{LCM} (2, 8) = 8$$

So, A does  $\frac{8}{2} = 4$  units of work in 1 day.

and B does  $\frac{8}{8} = 1$  unit of work in 1 day

$$\therefore \text{Number of days taken by A and B together} = \frac{8}{(4+1)} = \frac{8}{5} = 1.6$$

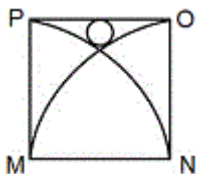
FeedBack

 **Bookmark**

 **Answer key/Solution**

**Q.68**

**MNOP is a square, having side 6 cm, in which MNO and MNP are two quadrants of a circle. If a circle is drawn touching both the quadrants and the square, as shown in the figure given below, then find the area of the circle.**

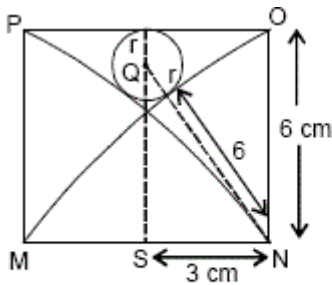


1 ☐ 99/224

2 ☐ 68/225

3 ☐ 47/224

4 ☐ None of these

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

Let  $r$  be the radius of the smaller circle.

The radius of the circle having quadrants MNO and MNP is 6 cm.

$$\therefore QN = r + 6$$

$$QS = 6 - r$$

$$SN = 3 \text{ cm.}$$

In  $\triangle QSN$ , using Pythagoras formula,

$$QN^2 = QS^2 + SN^2$$

$$(r + 6)^2 = (6 - r)^2 + 9$$

$$\Rightarrow 24r = 9$$

$$r = \frac{3}{8}$$

$$\therefore \text{Area of the circle} = \pi \left( \frac{3}{8} \right)^2 = \frac{22}{7} \times \frac{9}{64} = \frac{99}{224}$$

FeedBack

**Q.69**

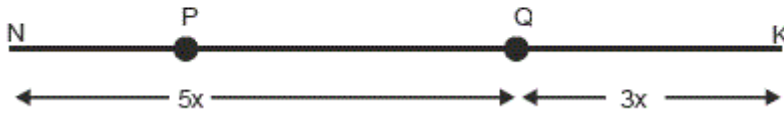
Shasha sets off on his bike from Noida to Kanpur, at a certain speed, intending to reach Kanpur by 5 pm. After covering a certain distance, he realises that he would be able to cover only five-eighth of the intended distance by 5 pm. He therefore increases his speed by 75% and reaches Kanpur at 5 pm. What fraction of the total distance did he cover at his initial speed?

1 ☐ 5/82 ☐ 1/83 ☐ 3/44 ☐ 3/5

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

Let the total distance between Noida (N) and Kanpur(K) be  $8x$  and Shasha's initial speed be  $4a$ , therefore his increased speed is  $7a$ . Let the point where he increased his speed be P and let Q be the point on NK such that  $NQ$

$= \frac{5}{8}(NK)$  as shown i.e.  $NQ = 5x$ ,  $QK = 3x$ .



If he had travelled at  $4a$ , he would be at point Q by 5 p.m. But, after point P, he actually travels at speed of  $7a$  and reaches point K by 5 p.m.

$$\frac{PQ}{PK} = \frac{4}{7} \quad (\text{distance} \propto \text{speed if time is constant})$$

Let  $PQ = 4y$  &  $PK = 7y$

$$QK = 3x = PK - PQ = 7y - 4y = 3y \Rightarrow y = x$$

$$\Rightarrow PQ = 4x \text{ \& } PK = 7x$$

$$\Rightarrow NP = x$$

By the time he changed his speed he had covered  $x$  or  $\frac{1}{8}$ th of the total distance.

Feedback

**Q.70**

If  $abcd = 10000$ , then the value of  $\left( \frac{1}{\log_a 100} + \frac{1}{\log_b 100} + \frac{1}{\log_c 100} + \frac{1}{\log_d 100} \right)$  is

1 ☐ 22 ☒ 83 ☐ 44 ☐ None of these

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

$$\frac{1}{\log_a 100} + \frac{1}{\log_b 100} + \frac{1}{\log_c 100} + \frac{1}{\log_d 100}$$

$$= \frac{1}{2\log_a 10} + \frac{1}{2\log_b 10} + \frac{1}{2\log_c 10} + \frac{1}{2\log_d 10} \quad \dots(1)$$

It is given that  $abcd = 10000$ 

On putting these values in (1), we get,

$$= 4 \times \frac{1}{2\log_{10} 10} = 4 \times \frac{1}{2} = 2. \quad (\because \log_{10} 10 = 1)$$

 **Bookmark**
 **Answer key/Solution**
**Q.71**

In how many ways can 7 identical balls be placed in 4 boxes, P, Q, R and S such that boxes P and Q have at least one ball each?

**Solution:****Correct Answer : 56**

$$p + q + r + s = 7$$

$$p \geq 1, q \geq 1, r \geq 0; s \geq 0. \quad (p, q, r \text{ and } s \text{ are the number of balls})$$

$$\text{Let } p = p_1 + 1 = 0 \quad \text{where } 0 \leq p_1 \leq 5$$

$$q = q_1 + 1 = 0 \quad \text{where } 0 \leq q_1 \leq 5$$

$$\therefore p_1 + q_1 + r + s = 5$$

$$\therefore \text{Number of solutions} = {}^{5+4-1}C_{4-1} = 56.$$

 **Bookmark**
 **Answer key/Solution**
**Q.72**

A Swimmer R swims from point X to Y and back in 10 hours. If he drops his watch at point X, the watch takes 15 hours to float to point Y. What is the ratio of speed of R while swimming in the water to that of current?

1 ☐ 10 : 12 ☐ 6 : 13 ☐ 3 : 14 ☐  $(3 + \sqrt{13}) : 2$



**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**Let R's speed in still water be  $a$  km/hr & current speed be  $c$  km/hr & distance be  $d$ 

$$\frac{d}{a-c} + \frac{d}{a+c} = 10 \quad \dots(1)$$

$$\& \frac{d}{c} = 15 \quad \dots(2)$$

$$15c(a+c) + 15c(a-c) = 10(a^2 - c^2)$$

$$2\left(\frac{a}{c}\right)^2 - 6\left(\frac{a}{c}\right) - 2 = 0 \Rightarrow \frac{a}{c} = \frac{3 \pm \sqrt{9+4}}{2}$$

$$\text{also } \frac{a}{c} > 1 \therefore \frac{a}{c} = \frac{3 + \sqrt{13}}{2}$$

FeedBack

**Q.73**

If  $f(x) = x^2 - 2ax + b$  can be factorised as  $(x - a)(x - b)$ , then find the value of  $f(4)$  where  $a$  and  $b$  are positive real numbers.

1 ☐ 252 ☐ 03 ☐ 94 ☐ **Cannot be determined****Solution:****Correct Answer : 3**

$$f(x) = x^2 - 2ax + b$$

$$\therefore f(a) = a^2 - 2a^2 + b = 0$$

$$\Rightarrow -a^2 + b = 0$$

$$\text{or, } b = a^2 \quad \dots(1)$$

$$f(b) = b^2 - 2ab + b = 0$$

$$\text{So, } b^2 - 2ab + a^2 = 0$$

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

$$\Rightarrow b = a$$

$$\therefore \text{ Put value of } b \text{ in (1), we get, } a = 1, b = 1$$

$$\text{So, } f(4) = 4^2 - 2 \times 1 \times 4 + 1 = 16 - 8 + 1 = 9$$

FeedBack

 **Bookmark** **Answer key/Solution****Q.74**

If  $N = 1! + 2! + 3! + \dots + 10!$ , then what is the unit digit of  $N^{NN}$ ?

1 ☐ 92 ☐ 33 ☐ 74 ☐ 1**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

$N = 1! + 2! + 3! + \dots + 10!$   
 $= 1 + 2 + 6 + \dots + 3628800$   
 $= 4037913$   
 $\therefore$  Unit digit of  $N$  is 3.

Now, cyclicity of 3 is 4. So, the remainder obtained by dividing  $N^N$  by 4 will decide the unit digit of  $N^{N^N}$ .

$$N^N = (1! + 2! + 3! + \dots + 10!)^{(1! + 2! + 3! + \dots + 10!)}$$

$$= (1! + 2! + 3! + \dots + 10!)^{1!} \times (1! + 2! + 3! + \dots + 10!)^{2!} \times (1! + 2! + 3! + \dots + 10!)^{3!} \times \dots \times (1! + 2! + 3! + 10!)^{10!}$$

On dividing  $N^N$  by 4,

$$\frac{(1! + 2! + 3! + \dots + 10!)^{1!}}{4} \Rightarrow \text{Rem}\left(\frac{9}{4}\right) = 1 \quad \left\{ \because \text{From } 4! \text{ to } 10!, \text{ each number is a multiple of 4, hence, we get remainder 0 and } \right.$$

$$1! + 2! + 3! = 9\}$$

$$\frac{(1! + 2! + 3! + \dots + 10!)^{2!}}{4} = \frac{(1! + 2! + 3! + \dots + 10!)(1! + 2! + \dots + 10!)}{4}$$

We get the remainder = 1.

$$\text{Similarly, } (1! + 2! + 3! + \dots + 10!)^{3!} = \frac{(1! + 2! + 3! + \dots + 10!)^6}{4}$$

Remainder = 1.

⋮

and so on.

$\therefore$  Final remainder =  $1 \times 1 \times \dots$  10 times = 1

So, remainder 1 means unit digit of  $N^{N^N} = 3$ .

FeedBack

**Q.75**

In a school, the total number of students is a prime number less than 400. P students have atleast 1 parent and Q students do not have either parent. Which of the following can be the ratio of P and Q?

1 ☐ 211 : 1122 ☐ 250 : 1213 ☐ 225 : 1664 ☐ 207 : 176

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

Each student must either have at least 1 parent or no parent

$\therefore$  Total number of parent =  $P + Q$  by inspection all the ratios in the options are in simplest form. i.e. if we denote 4 ratios as  $P_i/Q_i$  ( $i = 1$  to 4) we need to consider the case  $P_i = P$  &  $Q_i = Q$

Table is as follows:

$P_i$	$Q_i$	$P_i + Q_i$
211	112	$323 = 17(19)$
250	121	$371 = 7(53)$
225	166	$391 = 17(23)$
207	176	383

We see that only in choice (D),  $P + Q$  is prime.

**Q.76**

Which of the following values of 'a' satisfy the inequality  $a(a - 6) > 2a - 12$ ?

1 ☐  $24 < a < 71$

2 ☐  $a > 6$  or  $a < 2$

3 ☐  $a > 40$  or  $a < 31$

4 ☐  $2 < a < 6$

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

$$a(a - 6) > 2a - 12$$

$$a^2 - 6a > 2a - 12$$

$$a^2 - 8a + 12 > 0$$

$$a^2 - 6a - 2a + 12 > 0$$

$$(a - 2)(a - 6) > 0$$

$$\Rightarrow a > 6 \text{ or } a < 2$$

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

The sum of two numbers is 528 and their HCF is 33. The number of pairs of such numbers is

1 ☐ 4

2 ☐ 3

3 ☐ 54 ☐ 1**Solution:****Correct Answer : 1**

HCF = 33

 $\therefore$  Numbers are in the form of  $33a$  and  $33b$  $\therefore 33(a + b) = 528$  $a + b = 16$  $\therefore$  Number of pairs possible (1, 15), (3, 13), (5, 11) and (7, 9) i.e 4 pairs.

FeedBack

 **Bookmark** **Answer key/Solution****Q.78**

The cost of printing a book is divided in such a way that 10% of the cost is invested on paper, 5% on printing ink, 20% on labour, 25% on power and 40% on payment to the author. The book is then sold at a profit of 25%. If the paper cost goes up by 10%, the cost of printing ink goes up by 20% and labour charges by 50% and the selling price remains unchanged, find the profit %.

1 ☐ 13 %2 ☐  $11\frac{17}{28}\%$ 3 ☐  $11\frac{17}{88}\%$ 4 ☐  $12\frac{17}{12}\%$ **Solution:****Correct Answer : 2**

The data is

Cost	Paper	Ink	Labour	P/w	Author	Total
Initial	10	5	20	25	40	100
After Increase	11	6	30	25	40	112

And SP = 125

$$\therefore P\% = \frac{13}{112} \times 100 = 11\frac{17}{28}\%$$

FeedBack

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

**Q.79**

$U = 5(\log_2 x) - 8$ , where  $x$  is a Natural number. If  $x^U = 16$ , then find the value of  $x$ .

1 ☐ 22 ☐ 83 ☐ 64 ☐ 4**Solution:****Correct Answer : 4**

$$U = 5(\log_2 x) - 8$$

$$x^U = 16$$

$$x^{5(\log_2 x) - 8} = 16$$

Taking log both sides,

$$\log_2 x^{5(\log_2 x) - 8} = \log_2 16$$

$$\{5(\log_2 x) - 8\} \log_2 x = \log_2 2^4 = 4$$

$$\Rightarrow 5(\log_2 x)^2 - 8 \log_2 x - 4 = 0$$

Let  $\log_2 x = y$ , so, we get,

$$5y^2 - 8y - 4 = 0$$

$$5y^2 - 10y + 2y - 4 = 0$$

$$(5y + 2)(y - 2) = 0$$

$$\Rightarrow y = 2 \quad (\text{negative value of } y \text{ is not possible})$$

$$\therefore \log_2 x = 2$$

$$\log_2 x = \log_2 2^2$$

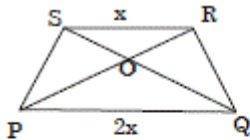
$$\Rightarrow x = 4$$



**Q.80**

In a trapezium PQRS, PQ is parallel to RS such that PQ is 2 times of RS. If diagonals PR and SQ intersect at point O, then what is the ratio of the area of triangle POQ to the area of the triangle SOR?

1 ☐ 2 : 12 ☐ 1 : 23 ☐ 4 : 14 ☐ 1 : 4

**Solution:****Correct Answer : 3**As  $PQ \parallel RS$ , $\therefore \angle RSO = \angle OQP$  (Alternate angles) $\angle SRO = \angle OPQ$  $\angle SOR = \angle POQ$  (Vertically opposite angles) $\therefore \triangle POQ$  and  $\triangle SOR$  are similar triangles.

$$\therefore \frac{\text{Ar}(\triangle POQ)}{\text{Ar}(\triangle SOR)} = \left(\frac{PQ}{SR}\right)^2 = \left(\frac{2x}{x}\right)^2 = 4:1$$



**Q.81**
 $x^2y = 27$ , then find the minimum possible value of  $\frac{x}{2} + \frac{y}{4}$ ?
1 ☐ 3/42 ☐ 9/43 ☐ 94 ☐ None of these**Solution:****Correct Answer : 4**

The value of  $y$  will always be positive whereas the value of  $x$  can be both positive as well as negative.

So, the value of  $y$  will change according to the value of  $x$  and we can take any minimum value of  $x$  (negative value of  $x$  to get the minimum possible value of  $x/2 + y/4$ ). So, answer is cannot be determined.

**Q.82**

Astha, Priya and Kannu bought 1, 10 and 25 notebooks in Rs.14, Rs.130 and Rs.300, respectively, from a stationery shop. In his sales with Astha and Kannu, the shopkeeper made a profit of  $a\%$  and  $b\%$  respectively, where  $a = 2b$ . If the shopkeeper bought all the notebooks at the same price, then how much profit percentage did the shopkeeper make in his sales with Priya?

1 ☐ 302 ☐ 383 ☐ 284 ☐ 40**Solution:****Correct Answer : 1** **Bookmark** **Answer key/Solution**

	Astha	Priya	Kannu
Number of notebooks	1	10	25
Amount	14	130	300
Profit to the shopkeeper	$a\%$	?	$b\%$

When the shopkeeper sold 1 book to Astha for Rs. 14, he made a profit of  $a\%$

$$\therefore \text{C.P. of the book which the shopkeeper paid} = \frac{100}{(100 + a)} \times 14$$

Similarly, when he sold 25 notebooks to Kannu for Rs. 300, he made a profit of  $b\%$   
 S.P of 1 notebook = Rs. 12

$$\therefore \text{C.P. of 1 notebook} = \frac{100}{(100 + b)} \times 12$$

Now, the price of all notebooks is same, therefore

$$\frac{100}{100 + a} \times 14 = \frac{100}{100 + b} \times 12$$

$$100 + 7b = 6a$$

$$100 = 12b - 7b \quad [\because a = 2b]$$

$$5b = 100$$

$$\Rightarrow b = 20 \text{ and } a = 40$$

$$\therefore \text{C.P. of each notebook bought by the shopkeeper} = \frac{100}{100 + b} \times 12 = \frac{100}{120} \times 12 = \text{Rs. } 10$$

$\therefore$  In his sales with Priya, he sold 10 books to her for Rs. 130

$$\therefore \text{C.P. of 10 books} = 10 \times 10 = \text{Rs. } 100$$

$$\therefore P\% = \frac{130 - 100}{100} \times 100 = 30\%$$

FeedBack

**Q.83**

For any values of  $x$ ,  $y$  and  $a$ , what is the point of intersection of the lines  $3x + 2y = a$  and  $20x + 3y = 6(x - 3y)$ ?

1 ☐  $(2a/3, 3a/4)$

2 ☐  $(3a/5, -2a/5)$

3 ☐  $(1, 2a)$

4 ☐ None of these

**Solution:**

**Correct Answer : 2**

$$20x + 3y = 6(x - 3y)$$

$$20x + 3y = 6x - 18y$$

$$14x + 21y = 0$$

$$7(2x + 3y) = 0$$

$$2x + 3y = 0 \quad \dots(i)$$

$$3x + 2y = a \quad \dots(ii)$$

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

$$y = -\frac{2a}{5} \text{ and } x = \frac{3a}{5}$$

$\therefore$  Point of intersection is  $\left(\frac{3a}{5}, -\frac{2a}{5}\right)$ .

FeedBack

 **Bookmark**

 **Answer key/Solution**

**Q.84**

If  $P_1 + P_2 + P_3 = 59$  where  $P_1, P_2, P_3$  are prime numbers and  $P_1 < P_2 < P_3$ , then how many values can  $P_2$  take?



**Solution:****Correct Answer : 6**

$$P_1 + P_2 + P_3 = 59$$

Minimizing  $P_1$  and  $P_2$ , we get

$$\text{Maximum value of } P_3 = 47$$

$$P_1 + P_2 + P_3 = 59$$

$$5 \quad 7 \quad 47$$

$$5 \quad 11 \quad 43$$

$$3 \quad 13 \quad 43$$

$$5 \quad 13 \quad 41$$

$$5 \quad 17 \quad 37$$

$$3 \quad 19 \quad 37$$

$$5 \quad 23 \quad 31$$

$$7 \quad 23 \quad 29$$

So, only possible values of  $P_2$  are 7, 11, 13, 17, 19 and 23.

Ans.: 6 values.

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

What is the approximate difference (in Rs.) between the interest earned on the sum of Rs.20,000 at 20% simple interest for 4 years and the interest earned on Rs.25,000 at 20% compound interest compounded half yearly for 2 years?

1 ☐ 50002 ☐ 42893 ☐ 43974 ☐ 5212**Solution:****Correct Answer : 3**

$$SI = 20,000 \times \frac{20}{100} \times 4 = \text{Rs.} 16000$$

Compound interest is calculated half-yearly for 2 years,

$$r = \frac{20}{2} = 10\%$$

$$t = 2 \times 2 = 4 \text{ years}$$

$$A = 25000 \times \left(\frac{11}{10}\right)^4 = \frac{73205}{2} = \text{Rs.} 36602.5$$

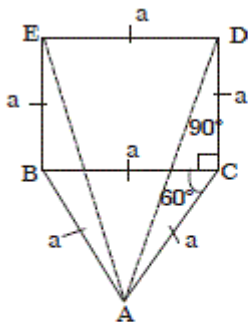
$$CI = 36602.5 - 25000 = \text{Rs.} 11602.5$$

$$\text{Difference between CI and SI} = 16000 - 11602.5 = \text{Rs.} 4697.5 \sim \text{Rs.} 4397.$$

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

**Q.86**

An equilateral triangle ABC is drawn on the side of the square BCDE and outside the square BCDE. Find the ratio of the angle DAC to the angle EAD.

1 ☐ 2 : 12 ☐ 3 : 43 ☐ 2 : 34 ☐ 1 : 2**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**

BCDE is a square

$$\therefore \angle BCD = 90^\circ$$

 $\Delta ABC$  is an equilateral triangle

$$\therefore \angle BCA = 60^\circ$$

$$\Rightarrow \angle DCA = 150^\circ$$

As  $DC = AC$ 

$$\therefore \angle CDA = \angle DAC = \frac{180 - (150^\circ)}{2} = 15^\circ$$

Similarly  $\angle EAB = 15^\circ$ and  $\angle BAC = 60^\circ$  [ $\because \Delta ABC$  is an equilateral  $\Delta$ ]

$$\Rightarrow \angle EAD = 60 - (15 + 15) = 30^\circ$$

$$\therefore \frac{\angle DAC}{\angle EAD} = \frac{15}{30} = 1:2$$

FeedBack

**Q.87**

In alloy A, zinc and iron are mixed in the ratio 1 : 4. In alloy B, iron and copper are mixed in the ratio 2 : 5 whereas in alloy C, copper and aluminium are mixed in the ratio of 4 : 2. All the three alloys are mixed in the ratio of 1 : 2 : 3. Find the percentage of zinc in the mixture.

1 ☐ 3.33%2 ☐ 6%

3 ☐ 6.67%4 ☐ 10%**Solution:****Correct Answer : 1**

A B C  
 Ratio  $\rightarrow 1 : 2 : 3$   
 and in alloy A, Zinc : Iron = 1 : 4

$$\therefore \text{Zinc \%} = \frac{\frac{1}{5} \times 1}{1+2+3} \times 100 = \frac{1}{5 \times 6} \times 100 = 3.33\%$$

FeedBack

Bookmark

Answer key/Solution

**Q.88**

If  $p + q = 8$  and  $p - q = 6$ , where  $p$  and  $q$  are roots of a quadratic equation, then which of the following equations has its roots as  $p^2$  and  $q^4$ ?

1 ☐  $x^2 + 50x + 51 = 0$ 2 ☐  $x^2 - 50x + 49 = 0$ 3 ☐  $x^2 - 49x + 48 = 0$ 4 ☐ None of these**Solution:****Correct Answer : 2**

Bookmark

Answer key/Solution

$$p + q = 8$$

$$p - q = 6$$

On adding, we get  $p = 7$  and  $q = 1$ .

The equation which has its roots as  $p^2$  and  $q^4$  i.e. 49 and 1 will be  $x^2 - 50x + 49 = 0$  as it gives the sum of the roots as 50 i.e.  $(49 + 1)$  and product of the roots as 49 i.e.  $49 \times 1$ .

FeedBack

**Q.89**

If  $M = 40^{50^{60^{70}}}$  and  $N = 9$ , then what is the remainder when  $M$  is divided by  $N$ ?

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

$$\frac{40^{50^{60^{70}}}}{9} \equiv \frac{(36+4)^{50^{60^{70}}}}{9} \equiv \frac{4^{50^{60^{70}}}}{9}$$

$$\frac{4^{3K+1}}{9} \rightarrow R = 4 \quad \frac{4^{3K+2}}{9} \rightarrow R = 7 \quad \frac{4^{3K+3}}{9} \rightarrow R = 1$$

Where  $K = 0, 1, 2, 3, 4, \dots$ So, need to check whether  $50^{60^{70}}$  belongs to  $(3K + 1)$ ,  $(3K + 2)$  or  $(3K + 3)$ .

$$\frac{50^{60^{70}}}{3} \equiv \frac{(51-1)^{60^{70}}}{3} \rightarrow R = 1 \text{ i.e. } 50^{60^{70}} \equiv 3K + 1$$

Hence, Remainder is 4.

Feedback

Bookmark

Answer key/Solution

**Q.90**

If the average of  $n$  consecutive natural numbers starting with " $a$ " is 29 then the average of  $n$  natural numbers starting with " $2a + 29$ " will be  
(Write '0' if your answer is cannot be determined)

**Solution:****Correct Answer : 0**If we take  $n = 1$  and  $a = 29$ , new average = 87If we take  $n = 3$  and  $a = 28$ , new average = 86If we take  $n = 5$  and  $a = 27$ , new average = 85.

and so on.

So, average cannot be determined uniquely.

Feedback

Bookmark

Answer key/Solution

**Q.91**

Let the ratio of male population to female population be 3 : 4 in the first year and in the second year be 4 : 5. If their population grows at a uniform rate then find the ratio of male population to female population in the third year.

1 ☐ 5 : 62 ☐ 64 : 753 ☐ 16 : 254 ☐ Cannot be determined

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

M                  F

In the 1<sup>st</sup> year, ratio is    3x    :    4x

In the 2<sup>nd</sup> year, ratio is   4y    :    5y

As the growth rate has remained the same the ratio of males to females in the third year will be

$$4y \left( 1 + \frac{4y - 3x}{3x} \right) : 5y \left( 1 + \frac{5y - 4x}{4x} \right)$$

$$4y \times \frac{4y}{3x} : 5y \times \frac{5y}{4x}$$

On solving

$$\frac{16}{3} : \frac{25}{4}$$

$$64 : 75$$

FeedBack

**Q.92**

**Find the 578th term in the series 1,2,2,4,4,4,4,8,8,8,8,8,8,8,.....**

**Solution:****Correct Answer : 512**

1, 2, 2, 4, 4, 4, 4, 8, 8, 8, 8, 8, 8, 8, 8,.....

1 → 2<sup>0</sup> → 1 time → 2<sup>1</sup> - 1 → 1<sup>st</sup> term ends

2 → 2<sup>1</sup> → 2 times → 2<sup>2</sup> - 1 → 3<sup>rd</sup> term ends

4 → 2<sup>2</sup> → 4 times → 2<sup>3</sup> - 1 → 7<sup>th</sup> term ends

⋮

256 → 2<sup>8</sup> → 256 times → 2<sup>9</sup> - 1 → 511<sup>th</sup> term ends

512 → 2<sup>9</sup> → 512 times → 2<sup>10</sup> - 1 → 1024<sup>th</sup> term ends

Clearly, 578<sup>th</sup> term will be 512.

FeedBack

 **Bookmark** **Answer key/Solution****Q.93**

**How many acute angled triangles with integral sides are possible if two of the sides are 7 and 11?**

1 ☐ 12

2 ☐ 13

3 ☐ 5

4 ☐ 7

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

Let 3rd side be  $x$ .  
 So,  $4 < x < 18$   
 $x^2 + 7^2 > 11^2$   
 $x^2 > 72$   
 and  $11^2 + 7^2 > x^2$   
 $170 > x^2$   
 $\Rightarrow 72 < x^2 < 170$   
 $\therefore$  Values of  $x$  satisfying,  
 $x = 9, 10, 11, 12, 13$ .  
 So, 5 acute angled triangles with integral sides are possible.

[Feedback](#)
[Bookmark](#)
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**Q.94**

On a biased dice every odd number appears four times as the frequency of every even number. If the dice is rolled three times, what is the probability that the sum of those appeared numbers is 17 or more?

1 ☐ 1/33752 ☐ 12/6253 ☐ 13/6254 ☐ 13/3375**Solution:****Correct Answer : 4**

$P(O) = 4P(e)$   
 also  $3P(O) + 3P(e) = 1$

$$\therefore P(e) = \frac{1}{15}$$

$$P(O) = \frac{4}{15}$$

When 3 dice are thrown for getting sum equal to 17 or more, it is possible when we get, (5, 6, 6), (6, 6, 5), (6, 5, 6), (6, 6, 6).

Probability of getting 5 =  $\frac{4}{15}$

Probability of getting 6 =  $\frac{1}{15}$

$$\therefore \text{Required probability is } 3 \left[ \frac{4}{15} \times \frac{1}{15} \times \frac{1}{15} \right] + \frac{1}{15} \times \frac{1}{15} \times \frac{1}{15} = \frac{13}{3375}$$

[Feedback](#)
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**Q.95**

The loss on selling an article at Rs.950 is 25% more than the profit on selling the same article at Rs.1040. Find the profit percentage if it is sold at Rs.1100.

**Solution:**

**Correct Answer : 10**

$$CP - 950 = \frac{125}{100}[1040 - CP]$$

$$4 CP - 950 \times 4 = 5 \times 1040 - 5 CP$$

$$9 CP = 9000$$

$$CP = \text{Rs. } 1000$$

$$P\% = \frac{1100 - 1000}{1000} \times 100 = \frac{100}{10} = 10\%$$

FeedBack

 **Bookmark**

 **Answer key/Solution**

**Q.96**

Find the number of integral solutions of the equation  $4x - 7y = 35$ , if  $x$  lies in the interval  $-50 < x < 50$ .

**Solution:**

**Correct Answer : 15**

 **Bookmark**

 **Answer key/Solution**

$$4x - 7y = 35 \text{ if } -50 < x < 50$$

$$\text{At } x = 0, y = -5$$

Now, the value of  $x$  will change according to the coefficient of  $y$  and the value of  $y$  will change according to the coefficient of  $x$ .

$\therefore$  Possible values of  $x$  between 0 and 50 will be 7, 14, ..., 49 i.e. multiples of 7, similarly total 7 values are possible between 0 and -50.

$\therefore$  Total 15 values are possible including 0 for which we get integer solutions.

FeedBack

**Q.97**

A Spice airline has a free luggage allowance upto a certain kg and if there is extra luggage, it is charged at constant rate per kg. The total luggage charge paid by M and S is Rs. 1050. If both M and S has carried twice the luggage they actually did then charge would be Rs. 2400 & Rs.900 respectively. Find the luggage charge paid by M(in Rs.).

1 ☐ 750

2 ☐ 900

3 ☐ 12004 ☐ 1500**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

Let the airline has a free luggage allowance up to 'f' kg.

Let luggage carried by M and S be m and s kg respectively and the rate charged beyond 'f' kg be Rs. 'e' per kg.

∴ Extra luggage of M = (m - f) kg

∴ Extra luggage of S = (s - f) kg

$e(2m - f) = 2400$  ... (1)

$e(2s - f) = 900$  ... (2)

Add (1) and (2),

$e(2m + 2s - 2f) = 3300$

∴  $e(m + s - f) = 1650$

Also,  $e(m - f) + e(s - f) = 1050$

or,  $e(m + s - f) - ef = 1050$

i.e.  $1650 - ef = 1050$  i.e.  $ef = 600$

i.e. extra luggage for M =  $e(m - f)$

$$= \frac{e(2m - 2f)}{2} = \frac{e(2m - f) - ef}{2}$$

this is  $\frac{2400 - 600}{2} = \text{Rs. } 900.$

FeedBack

**Q.98**

**Find the average of the following series  $1 \times 2 \times 3 \times 4 + 2 \times 3 \times 4 \times 5 + 3 \times 4 \times 5 \times 6 + \dots + 11 \times 12 \times 13 \times 14$**

**Solution:****Correct Answer : 6552** **Bookmark** **Answer key/Solution**



Series is  $1 \times 2 \times 3 \times 4 + 2 \times 3 \times 4 \times 5 + 3 \times 4 \times 5 \times 6 + \dots + 11 \times 12 \times 13 \times 14$

The general form of the series is  $n(n+1)(n+2)(n+3)$ .

$$\therefore t_n = n(n+1)(n+2)(n+3)$$

$$\text{Let } X_n = n(n+1)(n+2)(n+3)(n+4) \quad \dots (i)$$

$$X_{n-1} = (n-1)(n)(n+1)(n+2)(n+3)$$

$$\therefore X_n - X_{n-1} = 5n(n+1)(n+2)(n+3) = 5t_n$$

$$\therefore t_n = \frac{1}{5}(X_n - X_{n-1})$$

$$\Rightarrow t_1 = \frac{1}{5}(X_1 - X_0)$$

$$t_2 = \frac{1}{5}(X_2 - X_1)$$

$$t_3 = \frac{1}{5}(X_3 - X_2)$$

$\vdots$

$$t_n = \frac{1}{5}(X_n - X_{n-1})$$

On adding all these terms, we get

$$\Sigma t_n = \frac{1}{5}(X_n - X_0)$$

Put  $n = 0$  in equation (i), we get the value of  $X_0 = 0$

$$\Sigma t_n = \frac{1}{5} X_n = \frac{1}{5} n(n+1)(n+2)(n+3)(n+4)$$

$$\therefore \text{Average of these } n \text{ terms} = \frac{1}{5}(n+1)(n+2)(n+3)(n+4)$$

$$\text{As } n = 11, \text{ therefore, average} = \frac{1}{5} \times 12 \times 13 \times 14 \times 15 = 6552.$$

FeedBack

### Q.99

Price of the diesel is increased from Rs 60/litre to Rs 70/litre. By how much percent should the consumption of the diesel be reduced by Ravi so as to increase his expenditure by only 5%?

1 ☐ 15

2 ☐ 7.5

3 ☐ 12

4 ☐ 10

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

Price of diesel is increased from Rs. 60 to Rs 70

i.e. New price (P') is  $\frac{7}{6}$  times the old price (P).

Expenditure increases by 5%,

 $\therefore$  New expenditure (E') becomes  $\frac{21}{20}$  times the old expenditure (E). $E' = P' \times C'$  (where C' is the new consumption)

$$\frac{21E}{20} = \frac{7P}{6} \times fC \quad (f \text{ is the reduced fraction of the consumption})$$

$$\frac{21}{20} \times P \times C = \frac{7}{6} \times P \times fC$$

$$\Rightarrow f = \frac{9}{10}$$

$$\Rightarrow \% \text{ Reduction in consumption} = \frac{1}{10} \times 100 = 10\%.$$

FeedBack

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 **Answer key/Solution**

**Q.100****F(x) is a quadratic polynomial with maximum value of 3 at x = -2 . If F(0) = 2, find F (6).****Solution:****Correct Answer : -13**Let  $F(x) = ax^2 + bx + c$  $F(0) = 2$  $a(0)^2 + b(0) + c = 2$  $\Rightarrow c = 2$  $F(-2) = 3$  $a(-2)^2 + b(-2) + 2 = 3$  $4a - 2b = 1 \quad \dots(i)$ The given equation has maximum value at  $x = -2$ 

$$\therefore \frac{-b}{2a} = -2$$

$$\Rightarrow b = 4a$$

Put in equation (i), we get,  $a = \frac{-1}{4}$ ,  $b = -1$ 

$$\therefore F(6) = -\frac{1}{4}(6)^2 + (-1)(6) + 2 = -9 - 6 + 2 = -13.$$

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