

## Mock CAT – 08 2018

Scorecard (procreview.jsp?sid=aaa5BycB\_LJvH-TdBuPHwSun Jan 20 08:25:13 UTC 2019&qsetId=ZDaxl4IK2Zc=&qsetName=Mock CAT – 08 2018)

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Qs Analysis (QsAnalysis.jsp?sid=aaa5BycB\_LJvH-TdBuPHwSun Jan 20 08:25:13 UTC 2019&qsetId=ZDaxl4IK2Zc=&qsetName=Mock CAT – 08 2018)

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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.

What makes a communications technology revolutionary? One answer to this is to ask whether it fundamentally changes the way society is organized. This can be a very hard question to answer, because true fundamental changes alter society in such a way that it becomes difficult to speak of past society without imposing our present understanding.

Today we rightly think of the internet and the mobile phone, but long ago, the printing press and the telegraph both had just as heavy an impact on the development of society.

Before the printing press there were no books, not in the sense that we understand them. There were manuscripts that were copied by scribes, which contained inconsistencies and embellishments, and modifications that suited who the scribe was working for.

The printing press increased the speed of communication and the spread of knowledge: Far less man hours were needed to turn out 50 printed books than 50 scribed manuscripts.

Henry Ford famously said of life before the car "If I had asked people what they wanted, they would have said faster horses". This sentiment could be equally applied to the telegraph, a communications technology that came about 400 years after the printing press.

The telegraph brought changes similar in many ways to the printing press: It allowed for an accumulation of knowledge and increased the availability of this knowledge; more people had access to more information.

Once the telegraph was widespread, there was no longer a way to do business without using it. Having up to the minute stock quotes changed the way businesses evaluated their holdings. Being able to communicate with various offices across the country created centralization and middle management.

One can argue that the more revolutionary an invention is, the slower the initial uptake into society, as society must do a fair amount of reorganizing to integrate the invention.

Such was the case for both the telegraph and printing press, as they allowed for things that were never before possible. Not being possible, they were rarely considered. Being rarely considered, there wasn't a large populace pining for them to happen. So when new options presented themselves, no one was rushing to embrace them, because there was no general appreciation of their potential. This is, of course, a fundamental aspect of revolutionary technology. Everyone has to figure out how (and why) to use it.

It took years for people to see advantages with the telegraph. Even after the first lines were built, and the accuracy and speed of the communications they could carry verified, Morse realized that "everybody still thought of the telegraph as a novelty, as nothing more than an amusing subject for a newspaper article, rather than the revolutionary new form of communication that he envisaged."

The new technology might confer great benefits, but it took a lot of work building the infrastructure, both physical and mental, to take any advantage of them.

The printing press faced similar challenges. In fact, books printed from Gutenberg until 1501 have their own term, incunabula, which reflects the transition from manuscript to book. Eisenstein writes: "Printers and scribes copied each other's products for several decades and duplicated the same texts for the same markets during the age of incunabula."

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Q.1

The telegraph has been termed revolutionary for which one of the following reasons?

- 
- 1 ☐ Before the telegraph came into being, people did not consider the possibility of something like it.
  - 2 ☐ The telegraph enabled quicker sharing of gathered knowledge.
  - 3 ☐ The telegraph helped in duplication of accumulated knowledge.
-

4 ● The telegraph helped in quickening business transactions.



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

**Genre: Science and Technology**

It is a moderate level question which is also factual in nature. Refer to the lines: "The telegraph brought changes similar in many ways to the printing press: It allowed for an accumulation of knowledge and increased the availability of this knowledge; more people had access to more information." So, option 2 is the correct answer.

Option 1 – It is a generic observation that the author makes for any new invention. It is true also for the printing press. So, it can't be applied only to telegraph.

Option 4- It is too narrow. It is a feature of telegraph but it doesn't talk about the overall impact of the invention.

Option 3 – It is out of context. It is mentioned with reference to the printing press.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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Q.2

Henry Ford's statement goes to show that:

- 1 ☐ people are obsessed with speed.
- 2 ☐ cars faced a lot of backlash when they were first introduced.
- 3 ☐ people seldom think beyond existing structures or entities.
- 4 ☐ inventions are revolutionary as long as they are envisioned and accepted by people.



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

**Genre: Science and Technology**

It is an inferential question which is also very tricky. The method of elimination will help us answer this question.

Option 1 – It is vague and out of context. So, it can be easily eliminated.

Option 2 – It is not mentioned in the passage. Hence, it is an alien option. Ford mentions that people didn't want or expect cars. It doesn't mention anything about a backlash.

Option 3 - Ford's quote shows how people wanted faster transportation but they could not think beyond what already existed. Hence, it is the correct option.

Option 4 – It is incorrect. The passage categorically mentions that revolutionary inventions are seldom easily accepted by people. So, it can be eliminated too.

 **Bookmark**

 **Answer key/Solution**

FeedBack

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markets during the age of incunabula.”

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Q.3

The telegraph and the printing press have been likened to the internet because:

- 1 ☐ they have helped liberate societies which had been suppressed by rulers.
- 2 ☐ they changed the basic structure of society.
- 3 ☐ they ushered in a revolutionary knowledge.
- 4 ☐ they helped people fight repressive thinking within societies.



Solution:

Correct Answer : 2

Your Answer : 2

Genre: Science and Technology

It is an easy question. In the passage it stated that, 'What makes a communications technology revolutionary? One answer to this is to ask whether it fundamentally changes the way society is organized.' Then the second paragraph states how this is true for the Internet today and similarly can be extended to the telegraph and printing press. So, option 2 is the clear answer.

Options 1, 3, and 4 – Alien options. They are not mentioned in the passage.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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Q.4

Which of the following is true about fundamental changes?

- 1 ☐ They make an impact on the society by reshaping it.
- 2 ☐ They alter society by imposing the present on the interpretation of the past.
- 3 ☐ They shroud the truth about the society by making it impossible to be neutral about the past.
- 4 ☐ They are the inevitable consequences of any new technology.

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**Solution:**

**Correct Answer : 1**

**Your Answer : 2**

**Genre: Science and Technology**

**This is a difficult factual question, especially due to the way the options are written.**

**Refer to the first paragraph. "What makes a communications technology revolutionary? One answer to this is to ask whether it fundamentally changes the way society is organized." Thus, option 1 is the correct answer.**

**Options 3 – This is a distorted option. The author mentions this as a difficulty associated with fundamental changes. However, there is no mention of 'shrouding of the truth'. This phrase makes it an extreme option.**

**Option 2 – It misses a very crucial word 'understanding'. The present is not imposed, rather it is the understanding of the present.**

**Option 4 – It is another distorted option. The author talks about fundamental changes being part of any revolutionary, not new, technology.**

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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Q.5

The example of incunabula is used to show:

- 1 ☐ the malpractices rampant during the early days of printing.
- 2 ☐ how copying is key to sharing knowledge.
- 3 ☐ how manuscripts were used before the advent of the press.
- 4 ☐ the evolution and spreading of technology.

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**Solution:**

**Correct Answer : 4**

**Your Answer : 1**

**Genre: Science and Technology**

It's an easy factual question. In the passage it is stated that, 'The new technology might confer great benefits, but it took a lot of work building the infrastructure, both physical and mental, to take any advantage of them.' This is followed by the example of incunabula.

Options 1 and 2 – These are negative in tone. The author gives the example of incunabula in a positive context.

Option 3 – This is a very narrow interpretation of the example. It might sound true but this is not the intention of the author behind giving the example.

Option 4 – It best suits the overall tone and intention of the author. Hence, it is the answer.

🔖 **Bookmark**

🔍 **Answer key/Solution**

FeedBack

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Q.6

The main conclusion that can be drawn from the passage is that:

- 1 ☐ revolution is the only way through which society can be bettered.
- 2 ☐ benefits of radical changes take time to bear fruit.
- 3 ☐ technology is revolution as long as it is accessible.
- 4 ☐ general population is unwilling to accept changes.



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

**Genre: Science and Technology**

It is a moderate inferential question. The entire passage argues how revolutionary technologies do not make an immediate impact for various reasons and how their true benefit and potential is revealed with time.

Option 1 – It is too extreme ('only') and it talks about revolution in a generic sense.

Option 2 – It is the correct answer.

Option 3 – It doesn't match the idea of the passage. The passage doesn't mention 'accessibility' as a criterion of 'revolutionary technology'.

Option 4 – It goes beyond the scope of the passage. The author doesn't state that people are 'unwilling' to accept any change. The passage states that people are slow to accept new things.

**Bookmark**

**Answer key/Solution**

FeedBack

Directions for questions (7 to12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

The emergence of anthropology as a distinct discipline occurred only recently in nineteenth century. Sydney Slotkin in his book 'Readings in early Anthropology' traced the history of many anthropological sub-disciplines from seventeenth and eighteenth century. But he also agreed that the real professional interest of the subject did not appear until nineteenth century.

The unusual peoples and their unknown way of life evoked interest of navigators and other explorers. As a result in 1800 a society named as 'Observers of Man' was founded in Paris by the union of naturalists and medical-men. This society promoted the study of natural history by providing guidance to the travelers and explorers of far places. But meanwhile, for the long series of Napoleonic wars, the commerce and the foreign travel were interrupted. Naturally the study of natural history was neglected and instead, the questions of philosophy, ethnology and politics came forward. The society could not stand long and in 1838 another society for the protection of aborigines was established in London. Eminent scholars joined in that society whose aim was political and social, rather than scientific. Again, within a very short period need of a scientific society was realized. One of the influential members, Mr.Hodgkin in collaboration with several other distinguished persons, in 1839 inaugurated an 'Ethnological Society' in Berlin. Eminent naturalist Milne-Edwards took there an active part. In 1841, a similar type of society was formed in London and soon after that in 1842 the third 'Ethnological Society' was founded in New York. The establishment of ethnological societies can be taken as an important landmark in the emergence of anthropology.

Anthropology is therefore considered as the product of scientific developments in western world. The tradition of social philosophies continued till the advent of industrialization in west and it emerged as a distinct discipline in the nineteenth century; Charles Darwin's Origin of Species (1859) perhaps boosted the zeal of all scientists in different fields. Darwin showed that life had evolved from the unicellular organism and went to the way of complex multicellular organism, through the process of evolution. This idea not only opened the new avenues for zoology, anatomy, physiology, philology, palaeontology, archaeology and geology; it also accelerated the pace of socio-cultural studies. Being influenced by Darwin, a group of intellectual namely Spencer, Morgan, Tylor reached to the conclusion that evolution did not operate only in case of physical aspect of mankind, but also in cultural life. Accordingly, the year 1859 may be taken as the date of birth of anthropology; R.R. Marret (1912) termed anthropology as 'child of Darwin'. In the same year 1859, Paul Broca founded an 'Anthropological Society' in Paris. Broca himself was an anatomist and human biologist. He advocated the idea of general biology by synthesizing all specialized studies in order to understand a man. Anthropology made a significant progress in America following Broca's light.

In 1863, James Hunt established an Anthropological Society in London. Hunt declared anthropology as "a whole science of man". In 1863, Thomas Huxley was elected the president of the anthropological society. He belonged to the Ethnological society in London for a considerable span of time. From that time onwards, the work of Ethnological society and the Anthropological society merged together.

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Q.7

In paragraph 2, why does the author talk about 'ethnological societies'?

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1 ☐ To show that the absence of ethnological societies would have inhibited the development of anthropology

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2 ☐ To show that without these societies, classifying human races and studying their physical characteristics would have been close to impossible

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3 ☐ To show that the study of natural history had often been side lined for the development of ethnology

4 ☐ To show that anthropology may have remained subservient without the existence of these societies

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**Solution:**

**Correct Answer : 1**

**Your Answer : 2**

**Genre: Anthropology**

It is a moderate factual question. The passage states- "The establishment of ethnological societies can be taken as an important landmark in the emergence of anthropology", making 1 the correct answer.

Option 2 – It cannot be verified from the passage. It goes beyond the scope of the passage.

Option 3- It is a distorted option. It is factually correct. But it is not the reason why the author mentions 'ethnological societies'.

Option 4 – It is distorted as without its development, anthropology wouldn't have remained subservient. It first needs to emerge in order to be domineering, or subservient.

**Bookmark**

**Answer key/Solution**

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Anthropology is therefore considered as the product of scientific developments in western world. The tradition of social philosophies continued till the advent of industrialization in west and it emerged as a distinct discipline in the nineteenth century; Charles Darwin's Origin of Species (1859) perhaps boosted the zeal of all scientists in different fields. Darwin showed that life had evolved from the unicellular organism and went to the way of complex multicellular organism, through the process of evolution. This idea not only opened the new avenues for zoology, anatomy, physiology, philology, palaeontology, archaeology and geology; it also accelerated the pace of socio-cultural studies. Being influenced by Darwin, a group of intellectual namely Spencer, Morgan, Tylor reached to the conclusion that evolution did not operate only in case of physical aspect of mankind, but also in cultural life. Accordingly, the year 1859 may be taken as the date of birth of anthropology; R.R. Marret (1912) termed anthropology as 'child of Darwin'. In the same year 1859, Paul Broca founded an 'Anthropological Society' in Paris. Broca himself was an anatomist and human biologist. He advocated the idea of general biology by synthesizing all specialized studies in order to understand a man. Anthropology made a significant progress in America following Broca's light.

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Q.8

Which of the following statements best captures the thematic highlight of the passage?

- 
- 1 ☐ Man and his surroundings have been a perennial source of wonder for navigators and explorers.
- 
- 2 ☐ During different periods of time, different societies were formed for the benefit of man.
- 
- 3 ☐ The study of natural man and creation of different societies led to the birth of anthropology.
-

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4 ☐ Anthropology developed while gathering detailed information about human nature and human surrounding.

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**Solution:**

**Correct Answer : 3**

**Genre: Anthropology**

It is an easy main idea question. The passage is academic and factual in nature. So, identifying the main idea should not be very difficult.

**Option 1 – It is incorrect as only unusual people and their way of life was studied by explorers and navigators. Moreover, this study had remained on and off in History.**

**Option 2 – It is incorrect since societies were not formed only for the benefit of man.**

**Option 3 - Moreover, the development of societies led the development of anthropology. This is best elucidated in option 3, which also mentions scientific developments (like the study of natural man). Hence, 3 is the correct answer.**

**Option 4 is distorted and does not mention the creation of societies.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

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The emergence of anthropology as a distinct discipline occurred only recently in nineteenth century. Sydney Slotkin in his book 'Readings in early Anthropology' traced the history of many anthropological sub-disciplines from seventeenth and eighteenth century. But he also agreed that the real professional interest of the subject did not appear until nineteenth century.

The unusual peoples and their unknown way of life evoked interest of navigators and other explorers. As a result in 1800 a society named as 'Observers of Man' was founded in Paris by the union of naturalists and medical-men. This society promoted the study of natural history by providing guidance to the travelers and explorers of far places. But meanwhile, for the long series of Napoleonic wars, the commerce and the foreign travel were interrupted. Naturally the study of natural history was neglected and instead, the questions of philosophy, ethnology and politics came forward. The society could not stand long and in 1838 another society for the protection of aborigines was established in London. Eminent scholars joined in that society whose aim was political and social, rather than scientific. Again, within a very short period need of a scientific society was realized. One of the influential members, Mr.Hodgkin in collaboration with several other distinguished persons, in 1839 inaugurated an 'Ethnological Society' in Berlin. Eminent naturalist Milne-Edwards took there an active part. In 1841, a similar type of society was formed in London and soon after that in 1842 the third 'Ethnological Society' was founded in New York. The establishment of ethnological societies can be taken as an important landmark in the emergence of anthropology.

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Q.9

According to the passage:

- 
- 1 ☐ by 1830's, Anthropology had earned a great professional interest.
- 
- 2 ☐ by 1850's, Anthropology had cemented its position as a discipline.
- 
- 3 ☐ by 1860, Anthropological and ethnological societies had combined.
-



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4  by 1860, formation of anthropological societies had started.

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**Solution:**

**Correct Answer : 4**

**Genre: Anthropology**

**It is an easy factual question.**

**Option 1 - It is factually untrue. The passage states that recently in nineteenth century, an interest in the discipline developed. The exact time has not been mentioned.**

**Option 2 – It is incorrect as anthropology emerged as a discipline in the 19th century. The year of birth is taken to be 1859. So, it could not have cemented its position by the end of that year.**

**Option 3 – The year mentioned is 1863 and not 1860. So, it is incorrect.**

**Option 4 - The passage states that in 1859, an anthropological society was created in Paris. So this is the correct answer.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

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Q.10

All of the following are true according to the passage EXCEPT:

- 
- 1 ☐ The emergence of anthropology is a result of scientific developments in western world.
- 
- 2 ☐ Wars and political turmoil sometimes impacted the study of natural history.
- 
- 3 ☐ Darwin's revelations about complex multicellular organisms revolutionized socio-cultural events.
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4 ● Mr.Hodgkin contributed to the growth of Anthropology.

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**Solution:**

**Correct Answer : 3**

**Genre: Anthropology**

It is a tricky factual question. But it is not difficult to answer if one pays close attention to the passage.

**Option 1 – Correct.** Refer to the lines – “The establishment of ethnological societies can be taken as an important landmark in the emergence of anthropology. Anthropology is therefore considered as the product of scientific developments in western world.”

**Option 2 – Correct.** Refer to the line – “Naturally the study of natural history was neglected and instead, the questions of philosophy, ethnology and politics came forward.”

**Option 3 – Incorrect.** The option uses ‘events’ in place of ‘field of studies’. So, it is a distorted option.

**Option 4 – Correct.** Refer to the line – “Mr.Hodgkin in collaboration with several other distinguished persons, in 1839 inaugurated an ‘Ethnological Society’ in Berlin.” Indirectly, he contributed to the growth of the field.

🔖 Bookmark

🔍 Answer key/Solution

FeedBack

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Q.11

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

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1 ☐ James Hunt and Thomas Huxley would have found some common ground to discuss on Anthropology.

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2 ☐ Darwin, with his theory on multicellular organisms, motivated all the major theories of different fields of science.

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3 ☐ 'Observers of Man' was the result of the lofty ambitions of navigators and other explorers to tame unusual peoples.

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4 ☐ Paul Broca was a colleague of R.R. Marret.

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**Solution:**

**Correct Answer : 1**

**Genre: Anthropology**

**It is an easy inferential question.**

**Option 1 – Can be surely inferred from the last paragraph. They were both interested in Anthropology. So, they surely could have found at least one common ground to discuss on the subject.**

**Option 2 – Illogical inference. "All the major theories" is too extreme and can't be supported by the passage. The author clearly states 'perhaps' in the passage.**

**Option 3 – Illogical inference. 'Taming the unusual peoples' is not mentioned in the passage.**

**Option 4 – Can't be ascertained. The passage doesn't give enough data on this.**

 **Bookmark**

 **Answer key/Solution**

FeedBack

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The emergence of anthropology as a distinct discipline occurred only recently in nineteenth century. Sydney Slotkin in his book 'Readings in early Anthropology' traced the history of many anthropological sub-disciplines from seventeenth and eighteenth century. But he also agreed that the real professional interest of the subject did not appear until nineteenth century.

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Q.12

The passage mentions that Darwin influenced at least three scientists with his theory. Which of the following is logically similar to this?

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1 ☐ Plato talked about the existence of an ideal land called Utopia. His student Aristotle disputed this by citing that there is no external existence of Utopia.

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2 ☐ Gandhi followed the path of non-violence. Bose agreed with him but didn't practice non-violence himself.

---

3 ● Sampras, a tennis champion, motivated Nadal, a young amateur tennis player, to change his playing style by adapting the former's more aggressive approach.

4 ● Obama, a successful politician, influenced Cortezia, a young lady from New York, to break away from her regular job and become a social worker.

**Solution:**

**Correct Answer : 3**

**Genre: Anthropology**

This is a further application question. Such questions are normally difficult.

The answer can be found by reading the following portion of the passage very carefully:

"Charles Darwin's Origin of Species (1859) perhaps boosted the zeal of all scientists in different fields. Darwin showed that life had evolved from the unicellular organism and went to the way of complex multicellular organism, through the process of evolution. This idea not only opened the new avenues for zoology, anatomy, physiology, philology, palaeontology, archaeology and geology; it also accelerated the pace of socio-cultural studies. Being influenced by Darwin, a group of intellectual namely Spencer, Morgan, Tylor reached to the conclusion that evolution did not operate only in case of physical aspect of mankind, but also in cultural life."

Two things are clear. Darwin influenced at least three people who were from a similar field. The three people mentioned didn't contradict Darwin. Rather they extended his theory.

Option 1 – Aristotle contradicts the theory. Hence, it is not logically analogous.

Option 2 – It is not mentioned if Bose shared a similar background with Gandhi. Secondly, he doesn't practice. It means he didn't fully agree with the idea.

Option 3 – It is logically analogous. Sampras influenced another person of the same field. And Nadal adopted Sampras's playing style.

Option 4 – A politician should influence another person to become a politician. 'Social worker' makes it logically incongruous to the example given in the question.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

**Directions for questions (13 to18):** The passage below is accompanied by a set of six questions. Choose the best answer to each question.

Imagine a planet like Jupiter zipping around its host star every day and a half, superheated to temperatures hotter than most stars and sporting a giant, glowing gas tail like a comet. That's what astronomers think they have found orbiting a massive star they have labeled KELT-9, located 650 light years from Earth in the constellation Cygnus.

With a day-side temperature peaking at 4,600 Kelvin (more than 7,800 degrees Fahrenheit), the newly discovered exoplanet, designated KELT-9b, is hotter than most stars and only 1,200 Kelvin (about 2,000 degrees Fahrenheit) cooler than our own sun. In fact, the ultraviolet radiation from the star it orbits is so brutal that the planet may be literally evaporating away under the intense glare, producing a glowing gas tail.

The super-heated planet has other unusual features as well. For instance, it's a gas giant 2.8 times more massive than Jupiter but only half as dense, because the extreme radiation from its host star has caused its atmosphere to puff up like a balloon. Because it is tidally locked to its star—as the moon is to Earth—the day side of the planet is perpetually bombarded by stellar radiation and, as a result, it is so hot that molecules such as water, carbon dioxide and methane can't form there. It's a planet by any of the typical

definitions based on mass, but its atmosphere is almost certainly unlike any other planet we've ever seen just because of the temperature of its day side.

The reason the exoplanet is so hot is because the star it orbits is more than twice as large and nearly twice as hot as our sun. KELT-9 radiates so much ultraviolet radiation that it may completely evaporate the planet. Or, if gas giant planets like KELT-9b possess solid rocky cores as some theories suggest, the planet may be boiled down to a barren rock, like Mercury.

On the other hand, the planet's orbit is extremely close to the star so if the star begins to expand it will engulf it. "KELT-9 will swell to become a red giant star in about a billion years," said Stassun. "The long-term prospects for life, or real estate for that matter, on KELT-9b are not looking good."

"We were pretty lucky to catch the planet while its orbit transits the face of the star," said co-author Karen Collins, a post-doctoral fellow at Vanderbilt. "Because of its extremely short period, near-polar orbit and the fact that its host star is oblate, rather than spherical, we calculate that orbital precession will carry the planet out of view in about 150 years, and it won't reappear for roughly three and a half millennia."

In 2014 astronomers spotted the exoplanet using one of two telescopes specially designed to detect planets orbiting bright stars—one in the northern and one in the southern hemisphere—jointly operated by Ohio State, Vanderbilt and Lehigh universities. The instruments, "Kilodegree Extremely Little Telescopes" or KELTs, fill a large gap in the available technologies for finding extrasolar planets. They use mostly off-the-shelf technology to provide a low-cost means of planet hunting. Whereas a traditional astronomical telescope costs millions of dollars to build, the hardware for a KELT telescope runs less than \$75,000. Where other telescopes are designed to look at very faint stars in small sections of the sky at very high resolution, KELTs look at millions of very bright stars at once, over broad sections of sky, at relatively low resolution.

Using the KELT-North telescope at Winer Observatory in Arizona, the astronomers noticed a tiny drop in the star's brightness—only about half of one percent—which indicated that a planet may have passed in front of it. The brightness dipped once every 1.5 days, which means the planet completes a "yearly" circuit around its star every 1.5 days. Subsequent observations confirmed that the signal was caused by a transiting planet and revealed that it was what astronomers call a "hot Jupiter"—an ideal kind of planet for the KELT telescopes to spot.

The astronomers hope to take a closer look at KELT-9b with other telescopes—including Spitzer, the Hubble Space Telescope (HST) and eventually the James Webb Space Telescope after it launches in 2018. Observations with HST would enable them to see if the planet really does have a cometary tail and allow them to estimate how much longer the planet will survive its current hellish condition.

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Q.13

Which of the following is not a feature of KELT-9 ?

- 1 ☐ It has a puffed up atmosphere.
- 2 ☐ It is hotter than the Sun.
- 3 ☐ It is oblate in shape.
- 4 ☐ It will become a red giant star in 1 billion years from now.





**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

**Genre- Astrophysics / Cosmology**

**It is an easy factual question.**

**Options 2, 3, and 4 are true with relation to KELT-9, which is a star.**

**Option 1 - It is a feature of KELT-9, which an exoplanet attached to KELT-9.**

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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Q.14

Which of the following statements is true according to the passage?

- 1 ☐ KELT-9 is smaller and hotter than our Sun.
- 2 ☐ KELTs were operated and developed by the Ohio state University.
- 3 ☐ No life is possible on KELT-9b.
- 4 ☐ KELT-9 completes a yearly circuit around its star every 1.5 days.



Solution:

Correct Answer : 3

Your Answer : 3

Genre- Astrophysics / Cosmology

It is another easy fact based question.

Option 1 – It is factually incorrect. KELT-9 is larger and hotter than our Sun.

Option 2 – It is incorrect. The passage states that three universities jointly operated KELTs.

Option 3 – It is correct. The passage categorically states that the amount of ultraviolet radiation will make life impossible on KELT-9b.

Option 4 – It is a tricky and distorted option. KELT-9b completes the circuit. KELT-9 is the star itself.

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Answer key/Solution

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The super-heated planet has other unusual features as well. For instance, it's a gas giant 2.8 times more massive than Jupiter but only half as dense, because the extreme radiation from its host star has caused its atmosphere to puff up like a balloon. Because it is tidally locked to its star—as the moon is to Earth—the day side of the planet is perpetually bombarded by stellar radiation and, as a result, it is so hot that molecules such as water, carbon dioxide and methane can't form there. It's a planet by any of the typical definitions based on mass, but its atmosphere is almost certainly unlike any other planet we've ever seen just because of the temperature of its day side.

The reason the exoplanet is so hot is because the star it orbits is more than twice as large and nearly twice as hot as our sun. KELT-9 radiates so much ultraviolet radiation that it may completely evaporate the planet. Or, if gas giant planets like KELT-9b possess solid rocky cores as some theories suggest, the planet may be boiled down to a barren rock, like Mercury.

On the other hand, the planet's orbit is extremely close to the star so if the star begins to expand it will engulf it. "KELT-9 will swell to become a red giant star in about a billion years," said Stassun. "The long-term prospects for life, or real estate for that matter, on KELT-9b are not looking good."

"We were pretty lucky to catch the planet while its orbit transits the face of the star," said co-author Karen Collins, a post-doctoral fellow at Vanderbilt. "Because of its extremely short period, near-polar orbit and the fact that its host star is oblate, rather than spherical, we calculate that orbital precession will carry the planet out of view in about 150 years, and it won't reappear for roughly three and a half millennia."

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Q.15

Which of the following is an advantage of KELT microscope?

- 1 ☐ It can spot all the extrasolar planets.
- 2 ☐ It can look at very bright stars at once, at a relatively low resolution.
- 3 ☐ It is a low cost means of planet hunting that employs out of use technology.
- 4 ☐ It was developed by the Natural science foundation.



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

**Genre- Astrophysics / Cosmology**

**It is an easy factual question.**

**Refer to these lines in the passage- "Where other telescopes are designed to look at very faint stars in small sections of the sky at very high resolution, KELTs look at millions of very bright stars at once, over broad sections of sky, at relatively low resolution." This makes option 2 correct. The other options are incorrect and not factually supported by the passage. Option 1 – 'all' makes this option extreme.**

**Option 3 – 'out of use' is incorrect. The technology is not obsolete.**

**Option 4 – Not mentioned in the passage.**

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**Bookmark**

**Answer key/Solution**

**Directions for questions (13 to18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

**Imagine a planet like Jupiter zipping around its host star every day and a half, superheated to temperatures hotter than most stars and sporting a giant, glowing gas tail like a comet. That's what astronomers think they have found orbiting a massive star they have labeled KELT-9, located 650 light years from Earth in the constellation Cygnus.**

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Q.16

What is the reason given for the assertion that the exoplanet will cease to exist after a billion years?

- 1 ☐ It is emitting ultraviolet radiation at a very fast pace, so it will evaporate.
- 2 ☐ Its host star is twice as large and twice as hot as the sun.
- 3 ☐ It has a nearly polar orbit and a very short orbital time so it will complete its shelf life.
- 4 ☐ Its orbit is very close to the star and the star will expand and swallow it.



**Solution:**

**Correct Answer : 4**

**Your Answer : 4**

**Genre- Astrophysics / Cosmology**

**It is a moderate factual question.**

**Refer to the lines - " On the other hand, the planet's orbit is extremely close to the star so if the star begins to expand it will engulf it. "KELT-9 will swell to become a red giant star in about a billion years," said Stassun. Option 4 is the clear answer.**

**Option 1 – Not the correct reason.**

**Option 2 – It is factually true but it doesn't answer the question.**

**Option 3 – It is out of context.**

FeedBack

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🔍 Answer key/Solution

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Q.17

All of the following are not true according to the passage except:

- 1 ☐ The constellation Cygnus is at least 650 light years away from Earth.
- 2 ☐ Karen Collins attributes luck as the most significant force behind the development of the KELTs.
- 3 ☐ The hardware of a KELT telescope is relatively cost effective.
- 4 ☐ Ultraviolet rays will completely swallow KELT9.

×

Solution:

Correct Answer : 3

Your Answer : 4

Genre- Astrophysics / Cosmology

It is a moderate factual question. The options are tricky. The question asks us to find out a statement which is true according to the passage.

Option 1 – Can not be determined. KELT 9b is 650 light years away. The constellation might be nearer.

Option 2 – Distorted option. Karen Collins is mentioned in a different context.

Option 3 – Definitely correct. It costs \$75000 as compared to one million dollars of its predecessor.

Option4 – It’s possibly true about the planet. Can’t be surely predicted for the star.

FeedBack

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🔍 Answer key/Solution

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Q.18

Why is the atmosphere of the exoplanet puffed like a balloon?

- 1 ☐ As it is hotter than the Sun
- 2 ☐ As it is tidily locked to its host star
- 3 ☐ As its host star emits ultraviolet radiation
- 4 ☐ As its host star is twice as hot and twice as large as the Sun



Solution:

Correct Answer : 3

Your Answer : 3

Genre- Astrophysics / Cosmology

It is a very easy factual question.

Refer to the line – “...because the extreme radiation from its host star has caused its atmosphere to puff up like a balloon.” Option 3 is the clear answer.

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Answer key/Solution

Directions for questions (19 to 21): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

Vikings are also called Norseman or Northman member of the Scandinavia seafaring warriors who raided and colonized wide areas of Europe from the 9th to the 11th century and whose disruptive influence profoundly affected European history. These pagan Danish, Norwegian, and Swedish warriors were probably prompted to undertake their raids by a combination of factors ranging from overpopulation at home to the relative helplessness of victims abroad.

The Vikings were made up of landowning chieftains and clan heads, their retainers, freemen, and any energetic young clan members who sought adventure and bounty overseas. At home these Scandinavians were independent farmers, but at sea they were raiders and pillagers. During the Viking period the Scandinavian countries seem to have possessed a practically inexhaustible surplus of manpower, and leaders of ability, who could organize groups of warriors into conquering bands and armies, were seldom lacking. These bands would negotiate the seas in their longships and mount hit-and-run raids at cities and towns along the coasts of Europe. Their burning, plundering, and killing earned them the name *vikingr*, meaning “pirate” in the early Scandinavian languages.

The exact ethnic composition of the Viking armies is unknown in particular cases, but the Vikings' expansion in the Baltic lands and in Russia can reasonably be attributed to the Swedes. Elsewhere, the nonmilitary colonization of the Orkney Islands, the Faroe Islands, and Iceland was clearly accomplished by the Norwegians.

Q.19

Which of the following is not shown as a reason behind the raids and colonization by the Vikings?

1 ☐ Superior leadership ability of the raiders

2 ☐ Overpopulation at home

3 ☐ The helplessness of their victims

4 ☐ Their legacy as pirates

×

Solution:

Correct Answer : 4

Your Answer : 1

Genre: History

It is a tricky factual question. It can be answered by the method of elimination.

Option 1 – It is mentioned in the second paragraph.

Options 2 and 3 – These are mentioned in the first paragraph.

Option 4 – It is a result of their raids. It is not a reason behind it.

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🔍 Answer key/Solution

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Q.20

Which of the following earned them the name Viking?

- 
- 1 ☐ They colonized the entire north Europe by 11<sup>th</sup> century.
- 
- 2 ☐ Their nature of colonizing other countries
- 
- 3 ☐ They attacked via the seas which earned them the title Viking which means pirate.
- 
- 4 ☐ The imperialist policies of their leaders
- 



Solution:

Correct Answer : 2

Your Answer : 3

Genre: History

It is an easy and direct question.

Refer to the last line of the 2nd paragraph- "Their burning, plundering, and killing earned them the name vikingr, meaning "pirate" in the early Scandinavian languages." This particular sentence shows their nature of colonizing. Hence 2 is the correct answer.

Option 3 – It looks correct but it doesn't mention the actual reason the question asks.

Option 1 – It cannot be factually verified.

Option 4 – It is true according to the passage but it becomes out of context to the given question.

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Answer key/Solution

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Q.21

The primary intention of the author behind this passage is to:

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- 
- 1 ☐ showcase the origin of the Vikings.
- 
- 2 ☐ showcase the manpower these Vikings had.
- 
- 3 ☐ showcase the Vikings' practice of colonization.
- 
- 4 ☐ showcase their imperialist policies and the history of their colonization.
- 

**Solution:**

**Correct Answer : 3**

**Genre: History**

It is an easy main idea question. The passage talks less about the origin of the Vikings and the focus is more on how they colonized various European countries by "burning, plundering and killing". 3 is the correct answer.

Option 1 – It is mentioned in passing but it is not the main focus of the author.

Option 2 – It is too narrow.

Option 4 - It does not portray their imperialistic policies as such.

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🔍 Answer key/Solution

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**Directions for questions (22 to24):** The passage below is accompanied by a set of three questions. Choose the best answer to each question.

All kinds of unlikely people have declared themselves communists. When I worked at Marxism Today, posh old ladies would come in to dust the bust of Lenin in the basement. At that point, we all loved Gramsci and Red Bologna, where the Italian Communist party held power: the fun kind of communism, not the "tankie" Stalinist kind. Bologna struggled, as theorist Franco Berardi told us, because workers were pitted against what he called "precarious, underpaid young proletarians". Ring any bells? They did not believe that any party could lead to communism. They wanted to rebuild society with no limitations; they were the Autonomia activists. This idea of cities breathing fire, of socialism in one country: all this was exciting, and like today's young self-declared communists who fetishize automation as the ultimate liberation. "It's about the desire to see the coercive structures of state dismantled, while also having fun," says Sarkar.

But the glossing-over of what communism is, of who it killed and seeing that as a moral equivalence with the deaths caused by capitalism, is idiotic ahistoricism. The idea of talking about communism with no centralised state is just that: an idea. The refusal of parts of the left to criticise Putin, or see the misery of Cuban peasants, Chinese workers, or those starving in Venezuela is sickening. The really great stuff being discussed by young leftists is not communism, it is anarcho-syndicalism – participatory local democracy. Corbyn is an unlikely step on the way to these localised utopias. For if there is any group of people that doesn't allow freethinking, it is some of his followers, who see any micro-aggression against the great leader as punishable by death. Or worse if you are on Twitter.

If you want to be a proper communist you need to understand ideology, and this is currently a big failing. Your case has to connect to freedom. Still the right lays claim to this. Freedom for the many, not the few, yes ... but each of us has also to be free. When communism connotes liberty, I will sign up. But as long as it is associated only with obedience, I literally won't be buying the T-shirt. This fun kind of communism is a lovely commodity indeed. All I see is people saying: "Get with the project or you are persona non grata." Same as it ever was. Comrades: at least read your own history.

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Q.22

What does the author imply through the opening sentence?

- 1 ☐ Communism is viewed as a classic construct.
- 2 ☐ Communism attracts conflicted viewpoints
- 3 ☐ Communism hovers between being a brand and an ideology.
- 4 ☐ Communism is yet to systematise its presence among the mass.

**Solution:**

**Correct Answer : 4**

**Genre: Political Theory / Communism**

It is a difficult to read passage. However, the ideas mentioned in the passage are quite easy. One just needs to skim through the bombastic yet irrelevant sentences.

It is a difficult implied idea or inferential question. The opening sentence specifies that unlikely people have declared themselves to be communists. The second sentence sheds light on the opinion provided in Option 4. 'Posh old ladies' is a humorous reference to Communism being looked at as brand or a cool tag. Option 1 – There is no data to back up 'classic construct'. It is a vague phrase and it also doesn't match the tone of the author.

Option 2 – 'Conflicted' can't be defined by the sentence under consideration.

Option 3 – It interprets a humorous sentence as a literal sentence. Hence, it is distorted. The tone doesn't match.

Option 4 – It is the best answer.

 **Bookmark**

 **Answer key/Solution**

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All kinds of unlikely people have declared themselves communists. When I worked at Marxism Today, posh old ladies would come in to dust the bust of Lenin in the basement. At that point, we all loved Gramsci and Red Bologna, where the Italian Communist party held power: the fun kind of communism, not the “tankie” Stalinist kind. Bologna struggled, as theorist Franco Berardi told us, because workers were pitted against what he called “precarious, underpaid young proletarians”. Ring any bells? They did not believe that any party could lead to communism. They wanted to rebuild society with no limitations; they were the Autonomia activists. This idea of cities breathing fire, of socialism in one country: all this was exciting, and like today’s young self-declared communists who fetishize automation as the ultimate liberation. “It’s about the desire to see the coercive structures of state dismantled, while also having fun,” says Sarkar.

But the glossing-over of what communism is, of who it killed and seeing that as a moral equivalence with the deaths caused by capitalism, is idiotic ahistoricism. The idea of talking about communism with no centralised state is just that: an idea. The refusal of parts of the left to criticise Putin, or see the misery of Cuban peasants, Chinese workers, or those starving in Venezuela is sickening. The really great stuff being discussed by young leftists is not communism, it is anarcho-syndicalism – participatory local democracy. Corbyn is an unlikely step on the way to these localised utopias. For if there is any group of people that doesn’t allow freethinking, it is some of his followers, who see any micro-aggression against the great leader as punishable by death. Or worse if you are on Twitter.

If you want to be a proper communist you need to understand ideology, and this is currently a big failing. Your case has to connect to freedom. Still the right lays claim to this. Freedom for the many, not the few, yes ... but each of us has also to be free. When communism connotes liberty, I will sign up. But as long as it is associated only with obedience, I literally won’t be buying the T-shirt. This fun kind of communism is a lovely commodity indeed. All I see is people saying: “Get with the project or you are persona non grata.” Same as it ever was. Comrades: at least read your own history.

---

Q.23

What is the central point of the second last paragraph?

- 1 ☐ The issues with Communism will get resolved only through the introduction of young bloods.
  - 2 ☐ Communism can be effective locally.
  - 3 ☐ Communism is full of unpalatable realities which get overshadowed by Utopian dreams.
  - 4 ☐ In order to be successfully implemented, Communists need to first focus on micro issues.
-

**Solution:**

**Correct Answer : 3**

**Genre: Political Theory / Communism**

It is a main idea question. However, the scope of this question is one paragraph and not the entire passage. The first paragraph talks about the potential of Communism being fun. The author in the second paragraph however provides an antithetical view which shows the pitfalls that have befallen communism historically and some of the underlying immoral issues associated with it.

Option 1 – An extreme option. 'Only' makes it distorted and it also doesn't match the theme of the paragraph.

Option 2 – It is too narrow. The term 'locally' is not the focus of the author.

Option 3 – It is the best answer. It correctly captures the intention of the author.

Option 4 – It is a conclusion. Also, it is illogical. The author doesn't recommend any 'focus on micro issues'.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

**Directions for questions (22 to 24):** The passage below is accompanied by a set of three questions. Choose the best answer to each question.

All kinds of unlikely people have declared themselves communists. When I worked at Marxism Today, posh old ladies would come in to dust the bust of Lenin in the basement. At that point, we all loved Gramsci and Red Bologna, where the Italian Communist party held power: the fun kind of communism, not the "tankie" Stalinist kind. Bologna struggled, as theorist Franco Berardi told us, because workers were pitted against what he called "precarious, underpaid young proletarians". Ring any bells? They did not believe that any party could lead to communism. They wanted to rebuild society with no limitations; they were the Autonomia activists. This idea of cities breathing fire, of socialism in one country: all this was exciting, and like today's young self-declared communists who fetishize automation as the ultimate liberation. "It's about the desire to see the coercive structures of state dismantled, while also having fun," says Sarkar.

But the glossing-over of what communism is, of who it killed and seeing that as a moral equivalence with the deaths caused by capitalism, is idiotic ahistoricism. The idea of talking about communism with no centralised state is just that: an idea. The refusal of parts of the left to criticise Putin, or see the misery of Cuban peasants, Chinese workers, or those starving in Venezuela is sickening. The really great stuff being discussed by young leftists is not communism, it is anarcho-syndicalism – participatory local democracy. Corbyn is an unlikely step on the way to these localised utopias. For if there is any group of people that doesn't allow freethinking, it is some of his followers, who see any micro-aggression against the great leader as punishable by death. Or worse if you are on Twitter.

If you want to be a proper communist you need to understand ideology, and this is currently a big failing. Your case has to connect to freedom. Still the right lays claim to this. Freedom for the many, not the few, yes ... but each of us has also to be free. When communism connotes liberty, I will sign up. But as long as it is associated only with obedience, I literally won't be buying the T-shirt. This fun kind of communism is a lovely commodity indeed. All I see is people saying: "Get with the project or you are persona non grata." Same as it ever was. Comrades: at least read your own history.

**Q.24**

The author mentions the issue of 'obedience' in the final paragraph because:

1 ☐ communism is a disease.

---

2 ☐ historically communism has been authoritarian.

---

3 ☐ party workers often misunderstand the concept of liberty.

---

4 ☐ it can be forced on people.

---

**Solution:**

**Correct Answer : 2**

**Genre: Political Theory / Communism**

It is a moderate example based question. The normal answer to such question can be found by looking at the relationship of the example with the main idea of the passage.

The author throughout the passage voices the opinion that as long as communism stands for the dictatorial tendencies it has been in the past it is not an ideology to adhere to. Historically it has undervalued individual freedom and only worked at freedom for a homogenous entity they perceive to be the mass. In most cases individuals in a communist nation is expected to be silent workers who cannot voice their disapproval and opinions. This makes option 2 the best choice.

Option 1 – It simply is a line from the passage. It doesn't answer the question.

Option 3 – It again is a narrow example of the example. It doesn't answer the question.

Option 4 – Irrelevant.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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

---

**Q.25**

Altruism is, by far, the most prevalent form of prosocial behavior in social psychological work. While muddled in literature and research, at basis, an altruistic act is an intentional act that helps another with no benefit, and perhaps even a cost, to the one who performs it. While inherent in most definitions of altruism is the tenet that the helper must not benefit from the altruistic act, helping lacks a similar precondition. Helping is any act that one does to assist another, regardless of whether the helper benefits from the act or not. To illustrate, if one accepts the previous definitions, he or she might think of making a charitable donation as an altruistic act, which it is if there is no benefit to the giver. However, if one donates to charity and gets a tax deduction or a public note of recognition in return, such acts might be conceived of as helping behaviors rather than altruistic ones.

1. Between the two prosocial categories, altruism and helping, all successful attempts at altruism might be considered helping, while all successful acts of helping are not altruistic.

2. The two prosocial categories, altruism and helping, though often confused, are slightly different if the idea of personal benefit is considered.

3. The two prosocial categories, altruism and helping, are closely related as they are both connected to selfless helping of others.

4. The two prosocial categories, altruism and helping, are two different sets having different agendas and personal motivations.

---



**Solution:**

**Correct Answer : 2**

Summary questions can be tricky as summary is more of a subjective interpretation of the text. However, the method of elimination helps.

This is a slightly difficult to read paragraph. The main points are:

1. There are two types of prosocial categories. Altruism and helping.
2. The key difference is the factor of personal benefit.

Option 1 – It is a conclusion which is a farfetched one too. It doesn't summarize the paragraph. Most importantly, it is missing the main idea of the paragraph.

Option 2 – It is the most appropriate option as it captures the essence of the entire paragraph.

Option 3 – It is factually incorrect. They are not closely related. The selfless helping of others is not a common factor.

Option 4 – It is distorted as 'different agendas and personal motivations' cannot be verified.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

**Directions for question 26: The passage given below is followed by four summaries. Choose the option that best captures the author's position.**

**Q.26**

Long before the human spirit awoke to clear cognizance of the world and itself, it sometimes stirred in its sleep, opened bewildered eyes, and slept again. One of these moments of precocious experience embraces the whole struggle of the First Men from savagery toward civilization. Within that moment, you stand almost in the very instant when the species attains its zenith. Scarcely at all beyond your own day is this early culture to be seen progressing, and already in your time the mentality of the race shows signs of decline.

1. Men's struggle from savagery to civilization, which currently displays signs of decline, is captured in a moment of precocious experience.
2. Men's development from savagery to civilization, which currently displays signs of decline, has been one of continuous struggle.
3. Men's development from savagery to civilization lies between his becoming inactive, when he goes to sleep and his time of activity.
4. Men's development from savagery to civilization is embraced at the moment in which man attains zenith and realizes that our race has deteriorated.

**Solution:**

**Correct Answer : 1**

This is a not-so-easy to read paragraph. However, there are only two main points:

1. The progress of the human awareness
2. The decline of the race – its glimpse

Option 1 – It talks about both the points. Hence, it is the correct answer.

Option 2 – It is an opinion. 'Has been one of continuous struggle' is beyond the main points of the paragraph. It reads more as a slightly extreme inference.

Option 3 – It is partially complete. It misses the second point i.e. the present mentality of race shows signs of decline.

Option 4 – It is a twisted option. The realization of man's development does not take place at the moment stated in this option. It happens at the moment of a precocious experience. So, it is an incorrect summary.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

**Directions for question 27: The passage given below is followed by four summaries. Choose the option that best captures the author's position.**

**Q.27**

The emotional climate of the home directly influences the person's characteristics pattern of behavior and his characteristics adjustment to life. If the home climate is favorable, the individual will react to personal problems and frustrations in a calm, philosophical manner and to people in a tolerant, cheerful and cooperative way. If the home climate is frictional, he will develop the habit of reacting to family members and outsiders as well in a hostile or antagonistic way. For instance if a child perceives his mother showing favoritism toward a sibling, he develops an attitude of resentment toward people in positions of authority.

1. The home climate influences the person by the effect it has on his attitudes towards people.
2. The home climate probably outweighs the effects of all other environmental impacts.
3. The home climate fostered by families influences the personality pattern of an individual.
4. A positive home climate makes a person's behavior healthy towards the people outside.

**Solution:**

**Correct Answer : 1**

This is an easy question. The main point of the paragraph is:

The emotional climate of the home directly influences the person's characteristics pattern of behavior and his characteristics adjustment to life.

The rest of the paragraph gives examples of this.

Option 1 – This is the most concise and correct option.

Option 2 – It is beyond the scope of the paragraph. No comparison has been made in the paragraph.

Option 3 – It is incorrect since the paragraph is not about personality pattern, but about one's behavior and attitude.

Option 4 – It is ruled out since it is incomplete. It simply is the conclusion and it also talks about the positive aspect. The paragraph talks about both positive and negative aspects.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

Q.28

Directions for question 28: 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.

1. The ideology of male domination, earlier too, prompted men to resist women in their occupations even when they had no anxieties about their economic self-interests.
2. The prevalent beliefs that women should be subordinate and domestic made men unlikely to find women's entry into their occupation pleasant or desirable.
3. It would violate their expectations about commendable female behavior, and raise questions about their distinctively masculine identity.
4. With both self interest and bigotry stoking the fires of men's opposition to women in their trades, it's not surprising that they stayed hot so long.
5. Sharing their jobs with women would rupture the web of men's work culture.

×

**Solution:**

**Correct Answer : 25314**

**Your Answer : 21354**

**Subjective Para Jumble questions are never easy. The points to remember are:**

1. General to specific movement of the thought process
2. Key words or mandatory pairs

In this question, the strongest clue is that there are two themes – the current belief and the past beliefs. So, sentences 2, 3, and 5 talk about the first theme. Sentences 1 and 4 talk about the second.

The word 'too' in 1 rules out it being the opening sentence. So, 2 is the opening sentence. 1 and 4 make a mandatory pair (the theme of resistance is common to both, the tense is past in both these sentences). 5 and 3 are a mandatory pair as 5 mentions "sharing their jobs with women" and "it" in 3 is a reference to the same. Therefore, the correct sequence is 25314.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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### Q.29

Directions for question 29: 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.

1. The crisis was also responsible for widespread unemployment and underemployment of skilled and unskilled workers around the world.
2. It is estimated by many leading economists that if the financial regulatory systems are not tightened, global recessions can be expected periodically.
3. Some of the terrible effects of the crisis were widespread evictions, foreclosures, global stock market collapses, failure of key businesses, economic activity downturn, global recession and European sovereign debt crises.
4. It was entirely avoidable and was caused mainly due to the failure of financial regulators, undisclosed conflicts of interest, risky investments, excessive lending and borrowing, failure of the credit rating agencies and poor corporate governance.
5. The global financial crisis of 2008 is a classic example of human greed, self-indulgence and selfishness.

Solution:

Correct Answer : 54312

This is a tricky question. The strongest clue is the opening sentence. 5 has to be the opening sentence. 5 and 4 is a mandatory pair. The pronoun 'it' in 4 refers to the crisis in 5. 3 takes the idea further by giving examples of the effects. The 'also' in 1 adds to the effects mentioned in 3. 2 is the best conclusion. It predicts a trend for the future.

So, it is not a difficult to solve this para jumble question if one keeps in mind the mandatory pair rules. So, the correct sequence is 54312.

🔖 Bookmark

🔍 Answer key/Solution

FeedBack

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### Q.30

Directions for question 30: 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.

1. He started each company with an idea on how to improve the world and Space Exploration Technologies Corporation is Musk's company to make space travel cheaper and to push space exploration forward.
2. One person who noticed, and asked why, is Elon Musk.
3. Since 1972 when the last Apollo mission landed on the moon, no one has been to the moon, or even out of Low Earth Orbit.
4. He founded many companies, including Zip2, Paypal, Tesla Motors, SpaceX, and SolarCity, quickly becoming a multimillionaire.
5. He looked into why and found that the main reason space exploration slowed almost to a stop was cost.

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**Solution:**

**Correct Answer : 32541**

**Your Answer : 32514**

This is a sitter. Though it is a subjective para jumble questions, the pairs are easy to identify.

3 is the opening sentence as it introduces the idea that no one, post 1972, has been to the moon.

3 and 2 are a mandatory pair as 2 states the name of one person, Elon Musk, who noticed 'this'.

5 follows next as it provides an explanation for what Musk found as the reason for no one going to the moon.

4 and 1 are a mandatory pair as 4 provides names of several companies founded by him and 'each company' in 1 is a reference to the same. Hence, 32541 is the correct sequence.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

**Q.31**

**Directions for question 31:** 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.

1. In the latest report, The International Labour Organisation (ILO) said that India could witness a higher unemployment rate of 3.5 per cent in 2018, a little more than the 3.4 per cent projected earlier.
2. The study further highlighted that the number of jobless in the country will increase to 18.6 million in 2018 and 18.9 million in 2019, against 18.3 million in 2017.
3. Taking a note of this severe situation, a lot of Indian as well as international companies have tapped on the opportunities to create skilled workforce.
4. Looking at the current job market, the comprehensible fact is that many people with serious academic degrees are not being able to find a satisfactory job, which is giving a stagnant rise to the underemployment.
5. According to NITI Aayog, the rate of underemployment is more than unemployment in the nation which is plaguing the country's economy largely.

×

**Solution:**

**Correct Answer : 41253**

**Your Answer : 12453**

It is another 'attemptable' question.

The opening sentence is 4. It talks about the topic under discussion i.e. the current job market. It is also the broadest sentence in the entire paragraph. 4 and 1 create a mandatory pair. 1 provides an example of the what is mentioned in 4.

1 and 2 are a mandatory pair. 2 talks about the report mentioned in 1 ('the study').

3 is the concluding sentence as it summarises the paragraph with the phrase- "Taking a note of this severe situation". So, 41253 is the correct sequence.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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### Q.32

Directions for question 32: Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. The finding, published on Tuesday in the journal Nature Communications, was made by a team of international researchers who spent 22 years studying data on the reproductive strategy and survival of Scandinavian brown bears.
2. Female brown bears have learned to protect themselves from being shot by spending more time caring for their young as they adapt to legislation banning the hunting of mothers with cubs.
3. "Man is now an evolutionary force in the lives of the bears," said Professor Jon Swenson from the Norwegian University of Life Sciences (NMBU).
4. In Sweden, Scandinavian brown bears – *Ursus arctos* – are heavily hunted and anyone can hunt without having a specific licence, but bears in family groups are protected by law.
5. Even a few years back the hunting habit of these bear families did not face any impediment from the new settlers.

Solution:

Correct Answer : 5

It is an easy question. Sentence 5 talks about a different topic altogether. The sentences when arranged properly talk about how a law criminalising hunting of bear families has forced bears to change their natural habits. 5 talks about the hunting habit of bear families and hence stands out as the odd sentence in the given paragraph.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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### Q.33

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.

1. The Parisian terror attacks managed it, partly because the horror of it all warranted such blanket coverage, but also because the resulting conversation about freedom of speech.
  2. There hasn't been this much furious debate about the merits of a cartoon since the introduction of Scrappy Doo.
  3. Still, depressing though January's headlines have been, if you delve a little further and uncover some of the lesser-reported stories, you'll discover to your boundless delight that they are profoundly depressing too.
  4. January is traditionally a fairly sleepy month, current affairs-wise, but a horrified gawp at the news confirms that 2015 has already had one heck of a morning.
  5. For instance, take the story about German AI researchers creating a version of Super Mario World starring a self-aware version of Mario, who is psychologically affected by the experience of the game.
-

**Solution:**

**Correct Answer : 5**

4123 can be arranged into a meaningful paragraph which talks about how usually January is a month when nothing newsworthy takes place but the Paris attack changed that trend and generated much interest. 2 feels odd but it is very much part of the paragraph since the Paris attacks commenced because the extremists found the cartoon of Allah offensive.

5 cannot be placed within this context. It talks about 'the game' and the psychological impact of AI research. It talks about an alien theme. It is the odd sentence.

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

**Q.34**

**Directions for question 34:** Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. Rudolf Schönegger, 55, swapped a signed version of Harry Potter and the Goblet of Fire worth £1,675 with a copy of Late Call, by Angus Wilson, at Hatchards in Piccadilly on New Year's Eve.
2. The novel has generated much fanfare ever since it was put up at the auction.
3. The novel had been on display with a sticker stating its value.
4. An Italian bookseller has been convicted of stealing a first edition Harry Potter book, signed by J K Rowling, by switching it with a different novel in a shop in central London.
5. CCTV footage showed him browsing in the bookshop before removing the rare Harry Potter novel from its shelf behind the till while a staff member had her back turned, and replacing it with the Wilson book moments later.



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

This is a very easy question. Four sentences talk about the stealing of a book.

4153 is the correct sequence. However, one need not solve this arrangement.

2 is the odd one out since it talks about the fanfare generated by the novel.

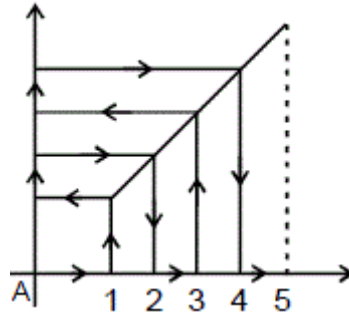
FeedBack

🔖 Bookmark

🔍 Answer key/Solution

## Sec 2

A drunk man was sitting at the centre of a coordinate plane i.e. at  $(0,0)$ . He started moving from there with a speed of 1 unit/ minute but was partially in a subconscious mind and hence moving in an unconventional way following a random path. But while his family tried to trace his path with the help of their dog, they found a certain pattern in the path taken by him. The pattern is as shown below, where initially the man was at A(0,0) and moved along the path as given by arrows in the following figure.



**If that man's family came to know about the path followed by him after 2000 minutes of his start and wanted to know his location at that time, then what are the coordinates of the man's position at that time?**

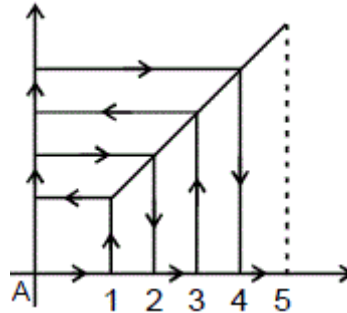
- Solution:**  
**Correct Answer : 2**

**Q Answer key/Solution**

## FeedBack



A drunk man was sitting at the centre of a coordinate plane i.e. at (0,0). He started moving from there with a speed of 1 unit/ minute but was partially in an subconscious mind and hence moving in an unconventional way following a random path. But while his family tried to trace his path with the help of their dog, they found a certain pattern in the path taken by him. The pattern is as shown below, where initially the man was at A(0,0) and moved along the path as given by arrows in the following figure.



**At which of the following time he will not be on a point on diagonal line i.e.  $x = y$ ?**

4 ● 900

**Correct Answer : 4**

 Answer key/Solution

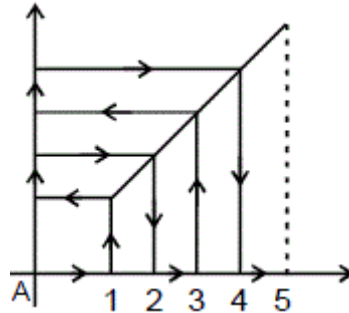
$$2 \times \frac{n(n+1)}{2} = n(n+1)$$

- (a)  $110 = 10 \times 11$   
(b)  $240 = 15 \times 16$   
(c)  $870 = 29 \times 30$   
(d)  $300 = 30 \times 30$

(can't be written as product of two consecutive integers)

## FeedBack

A drunk man was sitting at the centre of a coordinate plane i.e. at  $(0,0)$ . He started moving from there with a speed of 1 unit/ minute but was partially in an subconscious mind and hence moving in an unconventional way following a random path. But while his family tried to trace his path with the help of their dog, they found a certain pattern in the path taken by him. The pattern is as shown below, where initially the man was at  $A(0,0)$  and moved along the path as given by arrows in the following figure.

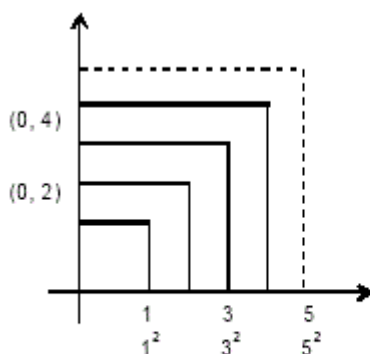


If his brother is sitting at (30, 30) and started moving towards him with twice the speed of the man at the same time the man started moving from (0,0), then the co-ordinates of the point at which they both will meet is, assuming both are moving on the given pattern of path.

- 1 ☐ (13, 17)
- 2 ☐ (17, 13)
- 3 ☐ (20, 12)
- 4 ☐ None of these

**Correct Answer : 1**

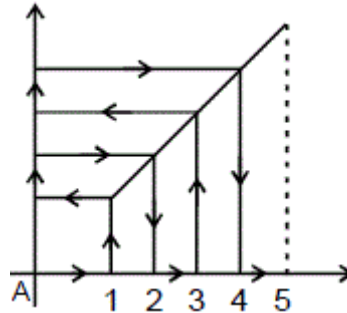
**Q Answer key/Solution**



## FeedBack

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

A drunk man was sitting at the centre of a coordinate plane i.e. at (0,0). He started moving from there with a speed of 1 unit/ minute but was partially in an subconscious mind and hence moving in an unconventional way following a random path. But while his family tried to trace his path with the help of their dog, they found a certain pattern in the path taken by him. The pattern is as shown below, where initially the man was at A(0,0) and moved along the path as given by arrows in the following figure.



**Q.38**

**If his brother is sitting at (20, 40) and started moving towards him with twice the speed of the man at the same time the man started moving from (0,0), then in how much time (in minutes) will they meet?  
(Assuming both are moving on the given pattern of path)**

**Solution:**

**Correct Answer : 540**

If the brother of drunk man is sitting at (20, 40), the total distance between them will be 1620 i.e.  $40^2 + 20$ . The ratio of speeds will be 1 : 2. So ratio of distances will be 1 : 2. So first, the drunk man will cover 540 and another will cover 1080 and because speed is 1 unit so they will next meet after 540 mins.

## FeedBack

 **Bookmark**

 Answer key/Solution

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

ICC Cricket World Cup 2019, a cricket tournament, is to be held in England and Wales. There will be ten teams – England, Australia, Bangladesh, India, New Zealand, Pakistan, South Africa, Sri Lanka, West Indies and Zimbabwe – contesting in the tournament. First stage of the tournament will consist of two groups – Group A and Group B – with five teams each. Each of the five teams in both the groups will play against each other within their group for once. After all these matches of first stage, top two teams i.e., winning maximum number of matches, from each group will be advanced to the second stage.

In the second stage, best team from Group A will play with second best team of Group B and best team from Group B will play with second best team of Group A. In case the top two teams of a group have equal number of winning matches in first stage, the team which would have won the match held between these top two will be declared the best team of first stage of that group. Second stage will be a knockout stage i.e. the losing team in a match is not allowed to play any further. The winners from the two matches of the second stage will then be advanced to the third and final stage. The final stage will be a knockout stage too.

Oobi-Oobi, the koala, predicted that there will be no match ending in a draw in the entire tournament. Following are his some other predictions.

- I) England will lose only to India and Australia in the first stage.
- II) India will lose only to West Indies in the first stage.
- III) In group A in first stage, two teams will win equal number of matches. Same was true for two other teams in this group. The fifth team will win different number of matches with respect to the other four teams.
- IV) All the predictions done by Oobi- Oobi were taken true, unless stated otherwise.

The journalist, who recorded the predictions, shows the tally after the first stage. He missed filling up some data under the column – Matches Won.

	Team	Matches Won
Group A	England	
	Australia	
	Bangladesh	
	India	
	West Indies	1
Group B	New Zealand	4
	Pakistan	2
	South Africa	3
	Sri Lanka	1
	Zimbabwe	0

Q.39

If Australia wins the tournament, then which of the following teams can be the other team to play in third stage?

2 ☐ India

3 ☐ Bangladesh

4 ☐ None of these

**Solution:**

**Correct Answer : 2**

There are total 5 teams in each group, this implies that each team will play 4 matches against other teams.

Also it is given that, England will lose only to India and Australia in the first stage. Therefore, in the group A table, in the second row, England won two matches against Bangladesh and West Indies. This implies both Bangladesh and West Indies lost when played against England.

According to the second point, India will lose only to West Indies in the first stage i.e. it won 3 matches. Also, West Indies won only one match, this clearly indicates that West Indies won against India only. According to the third point, in the first stage, two teams will win equal number of matches and same was true for other two teams while the fifth one won different number of matches so this will be possible only when Australia would win against Bangladesh implies, now the total number of matches won by Australia and India both would be 3. Number of matches won by both Bangladesh and West-Indies was 1 and for England, it was 2.

**Group A:**

	No. of matches won	England	Australia	Bangladesh	India	West Indies
England	2	X	Lose	Win	Lose	Win
Australia	3	Win	X	Win	Lose	Win
Bangladesh	1	Lose	Lose	X	Lose	Win
India	3	Win	Win	Win	X	Lose
West Indies	1	Lose	Lose	Lose	Win	X

**Group B:**

	No. of matches won	New Zealand	Pakistan	South Africa	Sri Lanka	Zimbabwe
New Zealand	4	X	Win	Win	Win	Win
Pakistan	2	Lose	X	Lose	Win	Win
South Africa	3	Lose	Win	X	Win	Win
Sri Lanka	1	Lose	Lose	Lose	X	Win
Zimbabwe	0	Lose	Lose	Lose	Lose	X

Best and second best team in Group A are India and Australia respectively, whereas in group B, New Zealand and South Africa are the best and second best team respectively.

In stage 2, India will play against South Africa and New Zealand will play against Australia.

If Australia wins the tournament, then among the given options, India can be the other team to play in the third stage.

 **Bookmark**

 **Answer key/Solution**

Feedback

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

ICC Cricket World Cup 2019, a cricket tournament, is to be held in England and Wales. There will be ten teams – England, Australia, Bangladesh, India, New Zealand, Pakistan, South Africa, Sri Lanka, West Indies and Zimbabwe – contesting in the tournament. First stage of the tournament will consist of two groups – Group A and Group B – with five teams each. Each of the five teams in both the groups will play against each other within their group for once. After all these matches of first stage, top two teams i.e., winning maximum number of matches, from each group will be advanced to the second stage.

In the second stage, best team from Group A will play with second best team of Group B and best team from Group B will play with second best team of Group A. In case the top two teams of a group have equal number of winning matches in first stage, the team which would have won the match held between these top two will be declared the best team of first stage of that group. Second stage will be a knockout stage i.e. the losing team in a match is not allowed to play any further. The winners from the two matches of the second stage will then be advanced to the third and final stage. The final stage will be a knockout stage too.

Oobi-Oobi, the koala, predicted that there will be no match ending in a draw in the entire tournament. Following are his some other predictions.

- I) England will lose only to India and Australia in the first stage.
- II) India will lose only to West Indies in the first stage.
- III) In group A in first stage, two teams will win equal number of matches. Same was true for two other teams in this group. The fifth team will win different number of matches with respect to the other four teams.
- IV) All the predictions done by Oobi- Oobi were taken true, unless stated otherwise.

The journalist, who recorded the predictions, shows the tally after the first stage. He missed filling up some data under the column – Matches Won.

	Team	Matches Won
Group A	England	
	Australia	
	Bangladesh	
	India	
	West Indies	1
Group B	New Zealand	4
	Pakistan	2
	South Africa	3
	Sri Lanka	1
	Zimbabwe	0

Q.40

If only the (III) numbered prediction was partially true and rest are completely true about first stage of Group A and three teams would have won the same number of matches in this group, then which of the following teams will definitely play in second stage?

---

1 ☐ India

---

2 ☐ West Indies

---

3 ☐ Pakistan

---

4 ☐ Bangladesh

---

**Solution:**

**Correct Answer : 1**

**There are total 5 teams in each group, this implies that each team will play 4 matches against other teams.**

**Also it is given that,England will lose only to India and Australia in the first stage.Therefore,in the group A table,in the second row, England won two matches against Bangladesh and West Indies. This implies both Bangladesh and West Indies lost when played against England.**

**According to the second point, India will lose only to West Indies in the first stage i.e. it won 3 matches .**

**Also ,West Indies won only one match,this clearly indicates that West Indies won against India only.**

**According to the third point, in the first stage ,two teams will win equal number of matches and same was true for other two teams while the fifth one won different number of matches so this will be possible only when Australia would win against Bangladesh implies , now the total number of matches won by Australia and India both would be 3. Number of matches won by both Bangladesh and West-Indies was 1 and for**

 **Bookmark**

 **Answer key/Solution**

## England, it was 2.

### Group A:

	No. of matches won	England	Australia	Bangladesh	India	West Indies
England	2	X	Lose	Win	Lose	Win
Australia	3	Win	X	Win	Lose	Win
Bangladesh	1	Lose	Lose	X	Lose	Win
India	3	Win	Win	Win	X	Lose
West Indies	1	Lose	Lose	Lose	Win	X

### Group B:

	No. of matches won	New Zealand	Pakistan	South Africa	Sri Lanka	Zimbabwe
New Zealand	4	X	Win	Win	Win	Win
Pakistan	2	Lose	X	Lose	Win	Win
South Africa	3	Lose	Win	X	Win	Win
Sri Lanka	1	Lose	Lose	Lose	X	Win
Zimbabwe	0	Lose	Lose	Lose	Lose	X

Best and second best team in Group A are India and Australia respectively, whereas in group B, New Zealand and South Africa are the best and second best team respectively.

If the 3rd prediction was partially true and three teams would have won the same number of matches in group A,

	No. of matches won	England	Australia	Bangladesh	India	West Indies
England	2	X	Lose	Win	Lose	Win
Australia	2	Win	X	Lose	Lose	Win
Bangladesh	2	Lose	Win	X	Lose	Win
India	3	Win	Win	Win	X	Lose
West Indies	1	Lose	Lose	Lose	Win	X

[Table of group B will remain same].

Best team in this group A is India.

In group B, best and second best team will remain same i.e. New Zealand and South Africa.

Among the given options, India will definitely play in the second stage.

FeedBack



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

ICC Cricket World Cup 2019, a cricket tournament, is to be held in England and Wales. There will be ten teams – England, Australia, Bangladesh, India, New Zealand, Pakistan, South Africa, Sri Lanka, West Indies and Zimbabwe – contesting in the tournament. First stage of the tournament will consist of two groups – Group A and Group B – with five teams each. Each of the five teams in both the groups will play against each other within their group for once. After all these matches of first stage, top two teams i.e., winning maximum number of matches, from each group will be advanced to the second stage.

In the second stage, best team from Group A will play with second best team of Group B and best team from Group B will play with second best team of Group A. In case the top two teams of a group have equal number of winning matches in first stage, the team which would have won the match held between these top two will be declared the best team of first stage of that group. Second stage will be a knockout stage i.e. the losing team in a match is not allowed to play any further. The winners from the two matches of the second stage will then be advanced to the third and final stage. The final stage will be a knockout stage too.

Oobi-Oobi, the koala, predicted that there will be no match ending in a draw in the entire tournament. Following are his some other predictions.

- I) England will lose only to India and Australia in the first stage.
- II) India will lose only to West Indies in the first stage.
- III) In group A in first stage, two teams will win equal number of matches. Same was true for two other teams in this group. The fifth team will win different number of matches with respect to the other four teams.
- IV) All the predictions done by Oobi- Oobi were taken true, unless stated otherwise.

The journalist, who recorded the predictions, shows the tally after the first stage. He missed filling up some data under the column – Matches Won.

	Team	Matches Won
Group A	England	
	Australia	
	Bangladesh	
	India	
	West Indies	1
Group B	New Zealand	4
	Pakistan	2
	South Africa	3
	Sri Lanka	1
	Zimbabwe	0

Q.41

New Zealand will face which team in the second stage?

2 ☐ Australia

3 ☐ Bangladesh

4 ☐ Cannot be determined

**Solution:**

**Correct Answer : 2**

There are total 5 teams in each group, this implies that each team will play 4 matches against other teams.

Also it is given that, England will lose only to India and Australia in the first stage. Therefore, in the group A table, in the second row, England won two matches against Bangladesh and West Indies. This implies both Bangladesh and West Indies lost when played against England.

According to the second point, India will lose only to West Indies in the first stage i.e. it won 3 matches. Also, West Indies won only one match, this clearly indicates that West Indies won against India only. According to the third point, in the first stage, two teams will win equal number of matches and same was true for other two teams while the fifth one won different number of matches so this will be possible only when Australia would win against Bangladesh implies, now the total number of matches won by Australia and India both would be 3. Number of matches won by both Bangladesh and West-Indies was 1 and for England, it was 2.

**Group A:**

	No. of matches won	England	Australia	Bangladesh	India	West Indies
England	2	X	Lose	Win	Lose	Win
Australia	3	Win	X	Win	Lose	Win
Bangladesh	1	Lose	Lose	X	Lose	Win
India	3	Win	Win	Win	X	Lose
West Indies	1	Lose	Lose	Lose	Win	X

**Group B:**

	No. of matches won	New Zealand	Pakistan	South Africa	Sri Lanka	Zimbabwe
New Zealand	4	X	Win	Win	Win	Win
Pakistan	2	Lose	X	Lose	Win	Win
South Africa	3	Lose	Win	X	Win	Win
Sri Lanka	1	Lose	Lose	Lose	X	Win
Zimbabwe	0	Lose	Lose	Lose	Lose	X

Best and second best team in Group A are India and Australia respectively, whereas in group B, New Zealand and South Africa are the best and second best team respectively.

New Zealand, which is the best team in group B will face the second best team in group A i.e. Australia.

FeedBack

 **Bookmark**

 **Answer key/Solution**

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

ICC Cricket World Cup 2019, a cricket tournament, is to be held in England and Wales. There will be ten teams – England, Australia, Bangladesh, India, New Zealand, Pakistan, South Africa, Sri Lanka, West Indies and Zimbabwe – contesting in the tournament. First stage of the tournament will consist of two groups – Group A and Group B – with five teams each. Each of the five teams in both the groups will play against each other within their group for once. After all these matches of first stage, top two teams i.e., winning maximum number of matches, from each group will be advanced to the second stage.

In the second stage, best team from Group A will play with second best team of Group B and best team from Group B will play with second best team of Group A. In case the top two teams of a group have equal number of winning matches in first stage, the team which would have won the match held between these top two will be declared the best team of first stage of that group. Second stage will be a knockout stage i.e. the losing team in a match is not allowed to play any further. The winners from the two matches of the second stage will then be advanced to the third and final stage. The final stage will be a knockout stage too.

Oobi-Oobi, the koala, predicted that there will be no match ending in a draw in the entire tournament. Following are his some other predictions.

- I) England will lose only to India and Australia in the first stage.
- II) India will lose only to West Indies in the first stage.
- III) In group A in first stage, two teams will win equal number of matches. Same was true for two other teams in this group. The fifth team will win different number of matches with respect to the other four teams.
- IV) All the predictions done by Oobi- Oobi were taken true, unless stated otherwise.

The journalist, who recorded the predictions, shows the tally after the first stage. He missed filling up some data under the column – Matches Won.

	Team	Matches Won
Group A	England	
	Australia	
	Bangladesh	
	India	
	West Indies	1
Group B	New Zealand	4
	Pakistan	2
	South Africa	3
	Sri Lanka	1
	Zimbabwe	0

Q.42

If South Africa wins in second stage, then maximum how many matches can India win in the entire tournament?

**Solution:**

**Correct Answer : 3**

There are total 5 teams in each group, this implies that each team will play 4 matches against other teams.

Also it is given that, England will lose only to India and Australia in the first stage. Therefore, in the group A table, in the second row, England won two matches against Bangladesh and West Indies. This implies both Bangladesh and West Indies lost when played against England.

According to the second point, India will lose only to West Indies in the first stage i.e. it won 3 matches. Also, West Indies won only one match, this clearly indicates that West Indies won against India only. According to the third point, in the first stage, two teams will win equal number of matches and same was true for other two teams while the fifth one won different number of matches so this will be possible only when Australia would win against Bangladesh implies, now the total number of matches won by Australia and India both would be 3. Number of matches won by both Bangladesh and West-Indies was 1 and for England, it was 2.

**Group A:**

	No. of matches won	England	Australia	Bangladesh	India	West Indies
England	2	X	Lose	Win	Lose	Win
Australia	3	Win	X	Win	Lose	Win
Bangladesh	1	Lose	Lose	X	Lose	Win
India	3	Win	Win	Win	X	Lose
West Indies	1	Lose	Lose	Lose	Win	X

**Group B:**

	No. of matches won	New Zealand	Pakistan	South Africa	Sri Lanka	Zimbabwe
New Zealand	4	X	Win	Win	Win	Win
Pakistan	2	Lose	X	Lose	Win	Win
South Africa	3	Lose	Win	X	Win	Win
Sri Lanka	1	Lose	Lose	Lose	X	Win
Zimbabwe	0	Lose	Lose	Lose	Lose	X

Best and second best team in Group A are India and Australia respectively, whereas in group B, New Zealand and South Africa are the best and second best team respectively.

In the second stage, South Africa will face India. If South Africa wins in this stage, it implies we have to count the total number of matches won by India in the first stage i.e. 3.

FeedBack

Bookmark

Answer key/Solution

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

There is a Query Answering Module (QAM) in which students asked their queries in the 4 subjects - Physics, Chemistry, Maths, Biology. The queries get entered in the module as soon as they are asked by any student and remain in the module until they are answered. All queries that are received in the first half of a day are counted as a part of that day and the ones received in the second half are counted as a part of the next day. There are four teachers – A, B, C, D - who are responsible for answering these queries. Queries can be answered only in the second half of a day.

The following table gives the number of unanswered queries of the previous week i.e. 18th June, 2018 to 24th June, 2018 in the 4 subjects by the end of that week.

Number of unanswered queries of the previous week			
Physics	Chemistry	Maths	Biology
24	17	48	14

The information regarding the number of new queries received in the current week i.e. 25th June, 2018 to 30th June, 2018 is given below:

	Physics	Chemistry	Maths	Biology
Monday	10	2	5	2
Tuesday	12	5	2	3
Wednesday	8	2	5	0
Thursday	4	2	8	5
Friday	2	4	3	6
Saturday	4	5	1	7

- Queries based on Biology are answered by 'C' only and also C answers queries on Biology only.
- Queries in Maths are answered by 'D' only.
- In the current week, if the number of queries answered by A, B, C and D on any day (Monday to Saturday) is denoted by p, q, r and s respectively, then
$$6 \leq p \leq 12$$
$$8 \leq q \leq 18$$
$$5 \leq r \leq 10$$
$$2 \leq s \leq 15$$
- No query is admitted or answered on Sundays.

Q.43

On which day of the current week could 'C' answer the maximum possible number of queries?

1 ☐ Wednesday

2 ☐ Friday

3 ☐ Saturday

4 ☐ Friday or Saturday

**Solution:**

**Correct Answer : 4**

🔖 Bookmark

🔍 Answer key/Solution

- Since 14 queries in Biology are carried over from last week, so we can make a cumulative table of number of queries'
- Monday  $\rightarrow 16$  ( $14 + 2$ )  
Tuesday  $\rightarrow 19$  ( $14 + 2 + 3$ )  
Wednesday  $\rightarrow 19$  ( $14 + 2 + 3 + 0$ )  
Thursday  $\rightarrow 24$  ( $14 + 2 + 3 + 0 + 5$ )  
Friday  $\rightarrow 30$  ( $14 + 2 + 3 + 0 + 5 + 6$ )  
Saturday  $\rightarrow 37$  ( $14 + 2 + 3 + 0 + 5 + 6 + 7$ )

Since everyday 'C' has to answer atleast 5 queries, as (C's range is  $5 \leq r \leq 10$ ).

$\therefore$  To maximize number of queries on a day, lets say he solves 10 queries on Monday, so  $16 - 10 = 6$  queries left for Tuesday, he receives additional 3. So now out of  $6 + 3 = 9$  queries, even if he solves minimum 5, then for Wednesday he is left with only 4 queries and he receives 0 number queries on Wednesday. So, this case is not possible as he has to solve atleast 5 queries on any day. So, till Wednesday, solving 10 queries in a day is not possible.

From Thursday onwards, number of queries he is receiving is more than 5, so in all those cases the minimum value is satisfied.

- Maximize number of queries on Wednesday, which he can solve is 9.  
But lets see if '10' is possible.

If he solves,  
Monday - 5  
Tuesday - 5  
Wednesday - 5

On Thursday, he is left with  $19 - (5 + 5 + 5) = 4$  queries. He receives 5, so  $4 + 5 = 9$ , he has to solve minimum 5, so he is left with maximum  $9 - 5 = 4$  queries for Friday. On Friday he receives 6, so he has  $4 + 6 = 10$  queries on Friday.

$\therefore$  One answer is Friday.

Now, lets check for Saturday, (if he can solve 10 queries).

So, on Friday, if he will solve only 7, then 3 will be carry over, and on Saturday  $\rightarrow 7 + 3 = 10$  queries he have. So, on Saturday also he can solve 10 queries.

$\therefore$  Both Friday and Saturday are possible.

FeedBack

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

There is a Query Answering Module (QAM) in which students asked their queries in the 4 subjects - Physics, Chemistry, Maths, Biology. The queries get entered in the module as soon as they are asked by any student and remain in the module until they are answered. All queries that are received in the first half of a day are counted as a part of that day and the ones received in the second half are counted as a part of the next day. There are four teachers – A, B, C, D - who are responsible for answering these queries. Queries can be answered only in the second half of a day.

The following table gives the number of unanswered queries of the previous week i.e. 18th June, 2018 to 24th June, 2018 in the 4 subjects by the end of that week.

Number of unanswered queries of the previous week			
Physics	Chemistry	Maths	Biology
24	17	48	14

The information regarding the number of new queries received in the current week i.e. 25th June, 2018 to 30th June, 2018 is given below:

	Physics	Chemistry	Maths	Biology
Monday	10	2	5	2
Tuesday	12	5	2	3
Wednesday	8	2	5	0
Thursday	4	2	8	5
Friday	2	4	3	6
Saturday	4	5	1	7

- Queries based on Biology are answered by 'C' only and also C answers queries on Biology only.
- Queries in Maths are answered by 'D' only.
- In the current week, if the number of queries answered by A, B, C and D on any day (Monday to Saturday) is denoted by p, q, r and s respectively, then
$$6 \leq p \leq 12$$
$$8 \leq q \leq 18$$
$$5 \leq r \leq 10$$
$$2 \leq s \leq 15$$
- No query is admitted or answered on Sundays.

Q.44

In the current week if there are no pending queries of Maths by the end of Saturday, then the total number of queries of Maths that were answered on the same day when they were received could not be less than

1 ☐ 4

2 ☐ 3

3 ☐ 2

4 ☐ 1

**Solution:**

**Correct Answer : 4**

🔖 Bookmark

🔍 Answer key/Solution

- Since 14 queries in Biology are carried over from last week, so we can make a cumulative table of number of queries'
- Monday  $\rightarrow 16$  ( $14 + 2$ )  
Tuesday  $\rightarrow 19$  ( $14 + 2 + 3$ )  
Wednesday  $\rightarrow 19$  ( $14 + 2 + 3 + 0$ )  
Thursday  $\rightarrow 24$  ( $14 + 2 + 3 + 0 + 5$ )  
Friday  $\rightarrow 30$  ( $14 + 2 + 3 + 0 + 5 + 6$ )  
Saturday  $\rightarrow 37$  ( $14 + 2 + 3 + 0 + 5 + 6 + 7$ )

For Maths 48 is the carry over. So, making cumulative table for Maths,

	Available		Answered	
	Previous	New	Previous	New
Monday	48	5	15	0
Tuesday	38	2	15	0
Wednesday	25	5	15	0
Thursday	15	8	15	0
Friday	8	3	8	0
Saturday	3	1	3	1

- ∴ The total number of queries of Maths that were answered on the same day when they were received could not be less than 1.

FeedBack



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

There is a Query Answering Module (QAM) in which students asked their queries in the 4 subjects - Physics, Chemistry, Maths, Biology. The queries get entered in the module as soon as they are asked by any student and remain in the module until they are answered. All queries that are received in the first half of a day are counted as a part of that day and the ones received in the second half are counted as a part of the next day. There are four teachers – A, B, C, D - who are responsible for answering these queries. Queries can be answered only in the second half of a day.

The following table gives the number of unanswered queries of the previous week i.e. 18th June, 2018 to 24th June, 2018 in the 4 subjects by the end of that week.

Number of unanswered queries of the previous week			
Physics	Chemistry	Maths	Biology
24	17	48	14

The information regarding the number of new queries received in the current week i.e. 25th June, 2018 to 30th June, 2018 is given below:

	Physics	Chemistry	Maths	Biology
Monday	10	2	5	2
Tuesday	12	5	2	3
Wednesday	8	2	5	0
Thursday	4	2	8	5
Friday	2	4	3	6
Saturday	4	5	1	7

- Queries based on Biology are answered by 'C' only and also C answers queries on Biology only.
- Queries in Maths are answered by 'D' only.
- In the current week, if the number of queries answered by A, B, C and D on any day (Monday to Saturday) is denoted by p, q, r and s respectively, then
$$6 \leq p \leq 12$$
$$8 \leq q \leq 18$$
$$5 \leq r \leq 10$$
$$2 \leq s \leq 15$$
- No query is admitted or answered on Sundays.

Q.45

If all the pending queries of the previous week could be answered by the end of the day 'X' of current week, then which of the following is not possible for 'X'?

1 ☐ Wednesday

2 ☐ Thursday

3 ☐ Friday

4 ☐ Saturday

**Solution:**

**Correct Answer : 1**

🔖 Bookmark

🔍 Answer key/Solution

- Since 14 queries in Biology are carried over from last week, so we can make a cumulative table of number of queries'
- - Monday  $\rightarrow 16$  ( $14 + 2$ )
  - Tuesday  $\rightarrow 19$  ( $14 + 2 + 3$ )
  - Wednesday  $\rightarrow 19$  ( $14 + 2 + 3 + 0$ )
  - Thursday  $\rightarrow 24$  ( $14 + 2 + 3 + 0 + 5$ )
  - Friday  $\rightarrow 30$  ( $14 + 2 + 3 + 0 + 5 + 6$ )
  - Saturday  $\rightarrow 37$  ( $14 + 2 + 3 + 0 + 5 + 6 + 7$ )

As we have seen it, 'C' needs to answer atleast 5 queries on Wednesday,

$\therefore$  It is not possible to answer all queries on Monday.

Also 'D' can answer maximum 15 Maths queries in a day, so Maths previous queries cannot be answered before Thursday.

FeedBack

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

There is a Query Answering Module (QAM) in which students asked their queries in the 4 subjects - Physics, Chemistry, Maths, Biology. The queries get entered in the module as soon as they are asked by any student and remain in the module until they are answered. All queries that are received in the first half of a day are counted as a part of that day and the ones received in the second half are counted as a part of the next day. There are four teachers – A, B, C, D - who are responsible for answering these queries. Queries can be answered only in the second half of a day.

The following table gives the number of unanswered queries of the previous week i.e. 18th June, 2018 to 24th June, 2018 in the 4 subjects by the end of that week.

Number of unanswered queries of the previous week			
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24	17	48	14

The information regarding the number of new queries received in the current week i.e. 25th June, 2018 to 30th June, 2018 is given below:

	Physics	Chemistry	Maths	Biology
Monday	10	2	5	2
Tuesday	12	5	2	3
Wednesday	8	2	5	0
Thursday	4	2	8	5
Friday	2	4	3	6
Saturday	4	5	1	7

- Queries based on Biology are answered by 'C' only and also C answers queries on Biology only.
- Queries in Maths are answered by 'D' only.
- In the current week, if the number of queries answered by A, B, C and D on any day (Monday to Saturday) is denoted by p, q, r and s respectively, then
$$6 \leq p \leq 12$$
$$8 \leq q \leq 18$$
$$5 \leq r \leq 10$$
$$2 \leq s \leq 15$$
- No query is admitted or answered on Sundays.

Q.46

On Monday of the current week, a total of 55 queries were answered. At most how many of them could be of Maths?

1 ☐ 15

2 ☐ 10

3 ☐ 5

4 ☐ Data inconsistent

**Solution:**

**Correct Answer : 4**

🔖 Bookmark

🔍 Answer key/Solution

- Since 14 queries in Biology are carried over from last week, so we can make a cumulative table of number of queries'
- - Monday  $\rightarrow 16$  ( $14 + 2$ )
  - Tuesday  $\rightarrow 19$  ( $14 + 2 + 3$ )
  - Wednesday  $\rightarrow 19$  ( $14 + 2 + 3 + 0$ )
  - Thursday  $\rightarrow 24$  ( $14 + 2 + 3 + 0 + 5$ )
  - Friday  $\rightarrow 30$  ( $14 + 2 + 3 + 0 + 5 + 6$ )
  - Saturday  $\rightarrow 37$  ( $14 + 2 + 3 + 0 + 5 + 6 + 7$ )

As we have seen it, 'C' cannot answer 10 queries on Monday, so maximize he could answer is 9 and minimize he could answer is 5.

For the other people,

$$\left. \begin{array}{l} 6 \leq p \leq 12 \\ 8 \leq q \leq 18 \\ 2 \leq s \leq 15 \end{array} \right\} 12 + 18 + 15 = 45 \text{ queries, at maximize they can answer, and 'C' can answer atmost 9.}$$

$\therefore$  Total  $(12 + 18 + 15) + 9 = 54$  queries they can answer.

Hence data inconsistent.

Feedback

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

Shasha, a party animal, celebrated Christmas, New Year's Eve and his birthday by throwing 3 parties, one each on the 3 occasions. He invited his 5, 10 and 15 friends on Christmas party, New Year's Eve party and Birthday party respectively. All the invitees attended the party they were invited to. In each of the 3 parties, at least 30% of all the invitees were girls and at least 50% of all the invitees were boys. The menu, for each of the 3 parties, comprised of beverages and snacks. The snacks consisted of - Vegetable Burger, Chicken Burger, Slice of Vegetable Pizza and Slice of Chicken Pizza whereas the beverages consisted of Whiskey and Beer.

Following is the additional information given about the cost of the above mentioned items present in the menu:

Items	Cost (In Rs./piece)
Vegetable Burger	100
Chicken Burger	150
Slice of Vegetable Pizza	200
Slice of Chicken Pizza	250
Can of Beer	100
Peg of whiskey	150

All the 6 items were available in each of the 3 parties.

The amount of snacks and beverages a person can consume is called "the Diet of the person".

Following table gives information about the diet of invitees, based on their gender.

Invitee	Diet	
	Minimum	Maximum
A girl	(1 Burger or 1 slice of Pizza) and 1 can of Beer	(2 Burgers or 1 Burger and 1 Slice of Pizza) and 2 cans of Beer
A boy	(2 Burgers or 1 Burger and 1 slice of Pizza) and (2 cans of Beer or 3 pegs of whiskey)	(2 Burgers and 1 Slice of Pizza or 3 Burgers or 2 slices of Pizza) and (5 cans of Beer or 8 pegs of Whiskey)

Note:

1. Burger can be vegetable or Chicken. Same is true with the Slice of Pizza.
2. A person can consume any amount of beverages and snacks, ranging from minimum to maximum diet.

Total cost incurred by Shasha in throwing a party is the sum of the cost of beverages and snacks, consumed by all the invitees. (Excluding Shasha himself)

Q.47

If the combined total cost incurred by Shasha of the 3 parties taken together is the maximum possible, then what could be the maximum number of girl invitees, including all the 3 parties?

---

2 ☐ 10

---

3 ☐ 15

---


4 ☐ 9

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**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

Party	Minimum number of girl invitees
New Year's Eve Party	3
Birthday Party	5
Christmas Party	2
Total	10

Minimum number of total girl invitees is 10, which is nothing but the maximum number of total girl invitees if the objective is to maximize the combined total cost of the 3 parties because in order to maximize total cost, we need to maximize the number of boys since their diet is more than that of girls.

FeedBack

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

Shasha, a party animal, celebrated Christmas, New Year's Eve and his birthday by throwing 3 parties, one each on the 3 occasions. He invited his 5, 10 and 15 friends on Christmas party, New Year's Eve party and Birthday party respectively. All the invitees attended the party they were invited to. In each of the 3 parties, at least 30% of all the invitees were girls and at least 50% of all the invitees were boys. The menu, for each of the 3 parties, comprised of beverages and snacks. The snacks consisted of - Vegetable Burger, Chicken Burger, Slice of Vegetable Pizza and Slice of Chicken Pizza whereas the beverages consisted of Whiskey and Beer.

Following is the additional information given about the cost of the above mentioned items present in the menu:

Items	Cost (In Rs./piece)
Vegetable Burger	100
Chicken Burger	150
Slice of Vegetable Pizza	200
Slice of Chicken Pizza	250
Can of Beer	100
Peg of whiskey	150

All the 6 items were available in each of the 3 parties.

The amount of snacks and beverages a person can consume is called "the Diet of the person".

Following table gives information about the diet of invitees, based on their gender.

Invitee	Diet	
	Minimum	Maximum
A girl	(1 Burger or 1 slice of Pizza) and 1 can of Beer	(2 Burgers or 1 Burger and 1 Slice of Pizza) and 2 cans of Beer
A boy	(2 Burgers or 1 Burger and 1 slice of Pizza) and (2 cans of Beer or 3 pegs of whiskey)	(2 Burgers and 1 Slice of Pizza or 3 Burgers or 2 slices of Pizza) and (5 cans of Beer or 8 pegs of Whiskey)

Note:

1. Burger can be vegetable or Chicken. Same is true with the Slice of Pizza.
2. A person can consume any amount of beverages and snacks, ranging from minimum to maximum diet.

Total cost incurred by Shasha in throwing a party is the sum of the cost of beverages and snacks, consumed by all the invitees. (Excluding Shasha himself)

**Q.48**

In which of the 3 parties, could the total cost incurred in the party be least as compared to the other 2 parties?

- (i) New Year's Eve party
- (ii) Birthday party
- (iii) Christmas party

- 1 ☐ only (iii)
- 2 ☐ only (i) and (iii)
- 3 ☐ only (i) and (ii)
- 4 ☐ All three

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

Invitee	Minimizing the cost of Minimum diet	Maximizing the cost of Maximum diet
Boy	2 Veg Burger & 2 Cans of Beer = $2 \times 100 + 2 \times 100 = \text{Rs. } 400$	2 Chicken Burgers & 1 Slice of Chicken Pizza and 8 pegs of whiskey = $2 \times 150 + 250 + 8 \times 150 = \text{Rs. } 1750$
Girl	1 Vegetable Burger and 1 Can of Beer = $100 + 100 = \text{Rs. } 200$	1 Chicken Burger & 1 Slice of Chicken Pizza and 2 Cans of Beer = $150 + 250 + 2 \times 100 = \text{Rs. } 600$

Maximum total cost of Christmas Party (Taking 3 boy invitees and 2 girl invitees) =  $3 \times 1750 + 2 \times 600 = \text{Rs. } 6450$

Minimum total cost of Birthday Party (Taking 8 boy invitees and 7 girls invitees) =  $8 \times 400 + 7 \times 200 = \text{Rs. } 4600$

Since, the total cost of Christmas Party (Having least number of invitees) Could be more than the total cost of Birthday Party (having maximum number of invitees), therefore the total cost of any of the 3 parties could be least.

FeedBack



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

Shasha, a party animal, celebrated Christmas, New Year's Eve and his birthday by throwing 3 parties, one each on the 3 occasions. He invited his 5, 10 and 15 friends on Christmas party, New Year's Eve party and Birthday party respectively. All the invitees attended the party they were invited to. In each of the 3 parties, at least 30% of all the invitees were girls and at least 50% of all the invitees were boys. The menu, for each of the 3 parties, comprised of beverages and snacks. The snacks consisted of - Vegetable Burger, Chicken Burger, Slice of Vegetable Pizza and Slice of Chicken Pizza whereas the beverages consisted of Whiskey and Beer.

Following is the additional information given about the cost of the above mentioned items present in the menu:

Items	Cost (In Rs./piece)
Vegetable Burger	100
Chicken Burger	150
Slice of Vegetable Pizza	200
Slice of Chicken Pizza	250
Can of Beer	100
Peg of whiskey	150

All the 6 items were available in each of the 3 parties.

The amount of snacks and beverages a person can consume is called "the Diet of the person".

Following table gives information about the diet of invitees, based on their gender.

Invitee	Diet	
	Minimum	Maximum
A girl	(1 Burger or 1 slice of Pizza) and 1 can of Beer	(2 Burgers or 1 Burger and 1 Slice of Pizza) and 2 cans of Beer
A boy	(2 Burgers or 1 Burger and 1 slice of Pizza) and (2 cans of Beer or 3 pegs of whiskey)	(2 Burgers and 1 Slice of Pizza or 3 Burgers or 2 slices of Pizza) and (5 cans of Beer or 8 pegs of Whiskey)

Note:

1. Burger can be vegetable or Chicken. Same is true with the Slice of Pizza.
2. A person can consume any amount of beverages and snacks, ranging from minimum to maximum diet.

Total cost incurred by Shasha in throwing a party is the sum of the cost of beverages and snacks, consumed by all the invitees. (Excluding Shasha himself)

Q.49

What is the maximum possible difference between the total cost incurred in his Christmas party and the total cost incurred in his Birthday party?

2 ☐ Rs. 18900

3 ☐ Rs. 6450

4 ☐ Rs. 1850

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

Invitee	Minimizing the cost of Minimum diet	Maximizing the cost of Maximum diet
Boy	2 Veg Burger & 2 Cans of Beer = $2 \times 100 + 2 \times 100 = \text{Rs. } 400$	2 Chicken Burgers & 1 Slice of Chicken Pizza and 8 pegs of whiskey = $2 \times 150 + 250 + 8 \times 150 = \text{Rs. } 1750$
Girl	1 Vegetable Burger and 1 Can of Beer = $100 + 100 = \text{Rs. } 200$	1 Chicken Burger & 1 Slice of Chicken Pizza and 2 Cans of Beer = $150 + 250 + 2 \times 100 = \text{Rs. } 600$

In order to the maximize the difference between the total cost of Christmas party and the total cost of Birthday Party, Maximize the cost of Birthday Party ( $\because$  number of invitees is more as compared to Christmas Party.  
Maximum total cost of Birthday Party (Taking 10 boys and 5 girls) =  $10 \times 1750 + 5 \times 600 = \text{Rs. } 20500$   
Minimum total cost of Christmas Party (Taking 3 boys and 2 girls) =  $3 \times 400 + 2 \times 200 = \text{Rs. } 1600$   
Difference = Rs. 18900.

FeedBack

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

Shasha, a party animal, celebrated Christmas, New Year's Eve and his birthday by throwing 3 parties, one each on the 3 occasions. He invited his 5, 10 and 15 friends on Christmas party, New Year's Eve party and Birthday party respectively. All the invitees attended the party they were invited to. In each of the 3 parties, at least 30% of all the invitees were girls and at least 50% of all the invitees were boys. The menu, for each of the 3 parties, comprised of beverages and snacks. The snacks consisted of - Vegetable Burger, Chicken Burger, Slice of Vegetable Pizza and Slice of Chicken Pizza whereas the beverages consisted of Whiskey and Beer.

Following is the additional information given about the cost of the above mentioned items present in the menu:

Items	Cost (In Rs./piece)
Vegetable Burger	100
Chicken Burger	150
Slice of Vegetable Pizza	200
Slice of Chicken Pizza	250
Can of Beer	100
Peg of whiskey	150

All the 6 items were available in each of the 3 parties.

The amount of snacks and beverages a person can consume is called "the Diet of the person".

Following table gives information about the diet of invitees, based on their gender.

Invitee	Diet	
	Minimum	Maximum
A girl	(1 Burger or 1 slice of Pizza) and 1 can of Beer	(2 Burgers or 1 Burger and 1 Slice of Pizza) and 2 cans of Beer
A boy	(2 Burgers or 1 Burger and 1 slice of Pizza) and (2 cans of Beer or 3 pegs of whiskey)	(2 Burgers and 1 Slice of Pizza or 3 Burgers or 2 slices of Pizza) and (5 cans of Beer or 8 pegs of Whiskey)

Note:

1. Burger can be vegetable or Chicken. Same is true with the Slice of Pizza.
2. A person can consume any amount of beverages and snacks, ranging from minimum to maximum diet.

Total cost incurred by Shasha in throwing a party is the sum of the cost of beverages and snacks, consumed by all the invitees. (Excluding Shasha himself)

Q.50

In New Year's Eve party, if all the invitees had the diet of their choice, then what could be the maximum number of slices of Chicken Pizza arranged by Shasha for the same?

**Solution:**

**Correct Answer : 17**

All the invitees could have the diet of their choice, implies they all could also opt for maximum diet, with maximum number of slices of chicken pizza.

Taking 7 boys and 3 girls, number of slice of chicken pizza needed  
 $= 7 \times 2 + 3 \times 1 = 17$ .

FeedBack

🔖 Bookmark

🔍 Answer key/Solution

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

Four professors - A, B, C and D - each had to teach four different students - M, N, O and P. Each professor could teach these students for a limited time only. Also each student required only a specific hours of training under each professor.

Some data about the time spent by the professors on students is provided in the table given below. For example, 3 written in first row and first column denotes the teaching time (in hours) spent by professor A on student M. This can be denoted as MA.

		Time spent by professors				average
		A	B	C	D	
Time required by students	M	3		2		
	N	2	7		3	5
	O		6			
	P					
average		2.75	5	3.75	3.5	

- Average time spent by professors A and B on teaching M = Average time spent by professors C and D on teaching M = average time spent by all the professors on teaching M.
- Total teaching time required by M = total teaching time required by O.
- $OC \times OD \times OA = OB$   
and  $OC - OD = OD - OA$   
and  $OC > OD$
- Time spent by any professor on teaching any student is an integral multiple of hours.

**Q.51**

What was the total teaching time (in hours) allotted to P?

**Solution:**

**Correct Answer : 16**

🔖 Bookmark

🔍 Answer key/Solution

The average of time required by N from all 4 professors is 5

$$\therefore \frac{2+7+x+3}{4} = 5 \Rightarrow x = 8$$

By statement 1,  $\frac{3+a}{2} = \frac{2+b}{2} \Rightarrow 1+a=b$

So, if time spent by professor B on M is 'a', then time spent by professor D on M will be 'b' which is equal to a + 1.

By statement 3,

$OC \times OD \times OA = OB = 6$ , then possible numbers are 1, 2, 3 or 1, 1, 6.

Now,  $OC - OD = OD - OA$  is possible only if  $OA = 1$ ,  $OC = 3$ ,  $OD = 2$ , since it is given that  $OC > OD$ .

Therefore,  $a = 3$  and  $b = a + 1 = 4$

Final table is:

	A	B	C	D	total	average
M	3	3	2	4	12	3
N	2	7	8	3	20	5
O	1	6	3	2	12	3
P	5	4	2	5	16	4
Total	11	20	15	14		
average	2.75	5	3.75	3.5		

Total teaching hours allotted to P is 16.

Feedback

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

Four professors - A, B, C and D - each had to teach four different students - M, N, O and P. Each professor could teach these students for a limited time only. Also each student required only a specific hours of training under each professor.

Some data about the time spent by the professors on students is provided in the table given below. For example, 3 written in first row and first column denotes the teaching time (in hours) spent by professor A on student M. This can be denoted as MA.

		Time spent by professors				average
		A	B	C	D	
Time required by students	M	3		2		
	N	2	7		3	5
	O		6			
	P					
average		2.75	5	3.75	3.5	

- Average time spent by professors A and B on teaching M = Average time spent by professors C and D on teaching M = average time spent by all the professors on teaching M.
- Total teaching time required by M = total teaching time required by O.
- $OC \times OD \times OA = OB$   
and  $OC - OD = OD - OA$   
and  $OC > OD$
- Time spent by any professor on teaching any student is an integral multiple of hours.

Q.52

Which student had the lowest total training time?

1 ☐ M and N

2 ☐ N and O

3 ☐ O and M

4 ☐ P and N

**Solution:**

**Correct Answer : 3**

🔖 Bookmark

🔍 Answer key/Solution

The average of time required by N from all 4 professors is 5

$$\therefore \frac{2+7+x+3}{4} = 5 \Rightarrow x = 8$$

By statement 1,  $\frac{3+a}{2} = \frac{2+b}{2} \Rightarrow 1+a=b$

So, if time spent by professor B on M is 'a', then time spent by professor D on M will be 'b' which is equal to a + 1.

By statement 3,

OC × OD × OA = OB = 6, then possible numbers are 1, 2, 3 or 1, 1, 6.

Now, OC – OD = OD – OA is possible only if OA = 1, OC = 3, OD = 2, since it is given that OC > OD.

Therefore, a = 3 and b = a + 1 = 4

Final table is:

	A	B	C	D	total	average
M	3	3	2	4	12	3
N	2	7	8	3	20	5
O	1	6	3	2	12	3
P	5	4	2	5	16	4
Total	11	20	15	14		
average	2.75	5	3.75	3.5		

O and M had the lowest total training time.

Feedback

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

Four professors - A, B, C and D - each had to teach four different students - M, N, O and P. Each professor could teach these students for a limited time only. Also each student required only a specific hours of training under each professor.

Some data about the time spent by the professors on students is provided in the table given below. For example, 3 written in first row and first column denotes the teaching time (in hours) spent by professor A on student M. This can be denoted as MA.

		Time spent by professors				average
		A	B	C	D	
Time required by students	M	3		2		
	N	2	7		3	5
	O		6			
	P					
average		2.75	5	3.75	3.5	

- Average time spent by professors A and B on teaching M = Average time spent by professors C and D on teaching M = average time spent by all the professors on teaching M.
- Total teaching time required by M = total teaching time required by O.
- $OC \times OD \times OA = OB$   
and  $OC - OD = OD - OA$   
and  $OC > OD$
- Time spent by any professor on teaching any student is an integral multiple of hours.

Q.53

How many hours did professor A spend on teaching P?



**Solution:**

**Correct Answer : 5**

 **Bookmark**

 **Answer key/Solution**

The average of time required by N from all 4 professors is 5

$$\therefore \frac{2+7+x+3}{4} = 5 \Rightarrow x = 8$$

By statement 1,  $\frac{3+a}{2} = \frac{2+b}{2} \Rightarrow 1+a=b$

So, if time spent by professor B on M is 'a', then time spent by professor D on M will be 'b' which is equal to a + 1.

By statement 3,

$OC \times OD \times OA = OB = 6$ , then possible numbers are 1, 2, 3 or 1, 1, 6.

Now,  $OC - OD = OD - OA$  is possible only if  $OA = 1$ ,  $OC = 3$ ,  $OD = 2$ , since it is given that  $OC > OD$ .

Therefore,  $a = 3$  and  $b = a + 1 = 4$

Final table is:

	A	B	C	D	total	average
M	3	3	2	4	12	3
N	2	7	8	3	20	5
O	1	6	3	2	12	3
P	5	4	2	5	16	4
Total	11	20	15	14		
average	2.75	5	3.75	3.5		

5 hours was spent by professor A on teaching P.

Feedback

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

Four professors - A, B, C and D - each had to teach four different students - M, N, O and P. Each professor could teach these students for a limited time only. Also each student required only a specific hours of training under each professor.

Some data about the time spent by the professors on students is provided in the table given below. For example, 3 written in first row and first column denotes the teaching time (in hours) spent by professor A on student M. This can be denoted as MA.

		Time spent by professors				average
		A	B	C	D	
Time required by students	M	3		2		
	N	2	7		3	5
	O		6			
	P					
average		2.75	5	3.75	3.5	

- Average time spent by professors A and B on teaching M = Average time spent by professors C and D on teaching M = average time spent by all the professors on teaching M.
- Total teaching time required by M = total teaching time required by O.
- $OC \times OD \times OA = OB$   
and  $OC - OD = OD - OA$   
and  $OC > OD$
- Time spent by any professor on teaching any student is an integral multiple of hours.

Q.54

Which student was allotted the highest training time by professor C?

1 ☐ M

2 ☐ N

3 ☐ O

4 ☐ P

**Solution:**

**Correct Answer : 2**

🔖 Bookmark

🔑 Answer key/Solution

The average of time required by N from all 4 professors is 5

$$\therefore \frac{2+7+x+3}{4} = 5 \Rightarrow x = 8$$

By statement 1,  $\frac{3+a}{2} = \frac{2+b}{2} \Rightarrow 1+a=b$

So, if time spent by professor B on M is 'a', then time spent by professor D on M will be 'b' which is equal to a + 1.

By statement 3,

OC × OD × OA = OB = 6, then possible numbers are 1, 2, 3 or 1, 1, 6.

Now, OC – OD = OD – OA is possible only if OA = 1, OC = 3, OD = 2, since it is given that OC > OD.

Therefore, a = 3 and b = a + 1 = 4

Final table is:

	A	B	C	D	total	average
M	3	3	2	4	12	3
N	2	7	8	3	20	5
O	1	6	3	2	12	3
P	5	4	2	5	16	4
Total	11	20	15	14		
average	2.75	5	3.75	3.5		

Student N was allotted the highest training time by professor C.

Feedback

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

There are seven employees namely - Shalabh, Parag, Shalini, Neha, Raj, Vishal and Richa - in a company. Each of them has their weekly-offs on one of the dates - 5th, 9th, 11th, 13th, 17th, 28th and 31st - in month of July, not necessarily in the same order. Some more information is also available, which is as follows:

1. Dates of weekly-off of Shalabh, Parag and Raj are in A.P.
2. Dates of weekly-off of Shalini, Parag and Neha also form an A.P.
3. Weekly-off of Shalabh, Parag and Raj fall in the same week.
4. Weekly-off of Shalini and Vishal fall on a same week day.
5. Sunday is an official holiday in the company. None of the aforementioned dates falls on Sunday.

**Q.55**

**Weekly-off of Neha falls on**

1 ☐ Wednesday

2 ☐ Thursday

3 ☐ Monday

4 ☐ Friday

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

Since the month of July have 31 days so, the calendar of July would look like:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

We can see every column, except first, has some date of weekly off. Hence 1<sup>st</sup> column dates are Sundays, as nobody would take an off on Sunday, as its already an off.

So now, with the help of information 1, 2, 3 and 4 we can easily mark.

9 → Shalabh / Raj	17 → Shalini
11 → Parag	5 → Neha
13 → Raj / Shalabh	28 → Richa
	31 → Vishal

Weekly off of Neha falls on Thursday.

Feedback

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

There are seven employees namely - Shalabh, Parag, Shalini, Neha, Raj, Vishal and Richa - in a company. Each of them has their weekly-offs on one of the dates - 5th, 9th, 11th, 13th, 17th, 28th and 31st - in month of July, not necessarily in the same order. Some more information is also available, which is as follows:

1. Dates of weekly-off of Shalabh, Parag and Raj are in A.P.
2. Dates of weekly-off of Shalini, Parag and Neha also form an A.P.
3. Weekly-off of Shalabh, Parag and Raj fall in the same week.
4. Weekly-off of Shalini and Vishal fall on a same week day.
5. Sunday is an official holiday in the company. None of the aforementioned dates falls on Sunday.

**Q.56**

Whose weekly-off date is a number which is double the difference between the dates of weekly-offs of Shalini and Vishal?

1 ☐ Neha

2 ☐ Parag

3 ☐ Richa

4 ☐ Shalabh

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

Since the month of July have 31 days so, the calendar of July would look like:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

We can see every column, except first, has some date of weekly off. Hence 1<sup>st</sup> column dates are Sundays, as nobody would take an off on Sunday, as its already an off.

So now, with the help of information 1, 2, 3 and 4 we can easily mark.

9 → Shalabh / Raj	17 → Shalini
11 → Parag	5 → Neha
13 → Raj / Shalabh	28 → Richa
	31 → Vishal

Vishal – Shalini = 31 – 17 = 14.

$2 \times 14 = 28$ , which is Richa's weekly off date.

Feedback

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

There are seven employees namely - Shalabh, Parag, Shalini, Neha, Raj, Vishal and Richa - in a company. Each of them has their weekly-offs on one of the dates - 5th, 9th, 11th, 13th, 17th, 28th and 31st - in month of July, not necessarily in the same order. Some more information is also available, which is as follows:

1. Dates of weekly-off of Shalabh, Parag and Raj are in A.P.
2. Dates of weekly-off of Shalini, Parag and Neha also form an A.P.
3. Weekly-off of Shalabh, Parag and Raj fall in the same week.
4. Weekly-off of Shalini and Vishal fall on a same week day.
5. Sunday is an official holiday in the company. None of the aforementioned dates falls on Sunday.

**Q.57**

**Vishal's weekly-off falls on which date?**

1 ☐ 31<sup>st</sup>

2 ☐ 17<sup>th</sup>

3 ☐ 11<sup>th</sup>

4 ☐ 28<sup>th</sup>



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

 **Bookmark**

 **Answer key/Solution**

Since the month of July have 31 days so, the calendar of July would look like:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

We can see every column, except first, has some date of weekly off. Hence 1<sup>st</sup> column dates are Sundays, as nobody would take an off on Sunday, as its already an off.

So now, with the help of information 1, 2, 3 and 4 we can easily mark.

9 → Shalabh / Raj	17 → Shalini
11 → Parag	5 → Neha
13 → Raj / Shalabh	28 → Richa
	31 → Vishal

Vishal's weekly off falls on 31st.

Feedback

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

There are seven employees namely - Shalabh, Parag, Shalini, Neha, Raj, Vishal and Richa - in a company. Each of them has their weekly-offs on one of the dates - 5th, 9th, 11th, 13th, 17th, 28th and 31st - in month of July, not necessarily in the same order. Some more information is also available, which is as follows:

1. Dates of weekly-off of Shalabh, Parag and Raj are in A.P.
2. Dates of weekly-off of Shalini, Parag and Neha also form an A.P.
3. Weekly-off of Shalabh, Parag and Raj fall in the same week.
4. Weekly-off of Shalini and Vishal fall on a same week day.
5. Sunday is an official holiday in the company. None of the aforementioned dates falls on Sunday.

**Q.58**

**Whose weekly-off's date can be a perfect square of a natural number?**

1 ☐ Shalabh

2 ☐ Parag

3 ☐ Shalini

4 ☐ Vishal



**Solution:**

**Correct Answer : 1**

**Your Answer : 2**

 **Bookmark**

 **Answer key/Solution**

Since the month of July have 31 days so, the calendar of July would look like:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

We can see every column, except first, has some date of weekly off. Hence 1<sup>st</sup> column dates are Sundays, as nobody would take an off on Sunday, as its already an off.

So now, with the help of information 1, 2, 3 and 4 we can easily mark.

9 → Shalabh / Raj	17 → Shalini
11 → Parag	5 → Neha
13 → Raj / Shalabh	28 → Richa
	31 → Vishal

Shalabh's weekly off date can be 9th.

Feedback

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

8 questions are arranged in 4 different orders to create 4 sets of a question paper. This jumbling of questions is done in such a way that no question happens to be at the same question number in any two sets. The sets thus formed are named as Set-A, Set-B, Set-C and Set-D. Further, it is also known that:

- (i) Third question of Set-B, sixth question of Set-D, seventh question of Set-A and fifth question of Set-C are all same.
- (ii) No question, out of the first three questions, of Set-B, Set-C and Set-D is the first or second question of Set-A.
- (iii) First question of Set-C, sixth question of Set-B and eighth question of Set-D are all same.
- (iv) Fifth question of Set-A, sixth question of Set-C and third question of Set-D are all same.
- (v) First question of Set-B, fifth question of Set-D and third question of Set-A are all same.
- (vi) First question of Set-A is the eighth question of Set-B and fifth question of Set-B is the fourth question of Set-D.
- (vii) Second question of Set-B is sixth question of Set-A.

**Q.59**

**Second question of Set-C is**

- 1 ☐ Third question of Set-A
- 2 ☐ First question of Set-D
- 3 ☐ Fifth question of Set-B
- 4 ☐ None of these



**Solution:**

**Correct Answer : 1**

**Your Answer : 1**

 **Bookmark**

 **Answer key/Solution**

If we name the eight questions as 'a', 'b', 'c', 'd', 'e', 'f', 'g' and 'h' and then interpret all the given clues meticulously then we can draw the following table:

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Set-A	b	c	f	d	e	g	a	h
Set-B	f	g	a		c	d		b
Set-C	d	f		b	a	e		
Set-D	g	h	e	c	f	a	b	d

Third question of set-A which is 'f', is second question of set-C.

FeedBack

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

8 questions are arranged in 4 different orders to create 4 sets of a question paper. This jumbling of questions is done in such a way that no question happens to be at the same question number in any two sets. The sets thus formed are named as Set-A, Set-B, Set-C and Set-D. Further, it is also known that:

- (i) Third question of Set-B, sixth question of Set-D, seventh question of Set-A and fifth question of Set-C are all same.
- (ii) No question, out of the first three questions, of Set-B, Set-C and Set-D is the first or second question of Set-A.
- (iii) First question of Set-C, sixth question of Set-B and eighth question of Set-D are all same.
- (iv) Fifth question of Set-A, sixth question of Set-C and third question of Set-D are all same.
- (v) First question of Set-B, fifth question of Set-D and third question of Set-A are all same.
- (vi) First question of Set-A is the eighth question of Set-B and fifth question of Set-B is the fourth question of Set-D.
- (vii) Second question of Set-B is sixth question of Set-A.

**Q.60**

If eighth question of Set-A is seventh question of Set-B, then eighth question of Set-C is

- 1 ☐ Second question of Set-A
- 2 ☐ Second question of Set-B
- 3 ☐ Second question of Set-D
- 4 ☐ Either (1) or (2)





**Solution:**

**Correct Answer : 4**

**Your Answer : 4**

🔖 Bookmark

🔑 Answer key/Solution

If we name the eight questions as 'a', 'b', 'c', 'd', 'e', 'f', 'g' and 'h' and then interpret all the given clues meticulously then we can draw the following table:

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Set-A	b	c	f	d	e	g	a	h
Set-B	f	g	a		c	d		b
Set-C	d	f		b	a	e		
Set-D	g	h	e	c	f	a	b	d

Either (1) or (2).

FeedBack

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

8 questions are arranged in 4 different orders to create 4 sets of a question paper. This jumbling of questions is done in such a way that no question happens to be at the same question number in any two sets. The sets thus formed are named as Set-A, Set-B, Set-C and Set-D. Further, it is also known that:

- (i) Third question of Set-B, sixth question of Set-D, seventh question of Set-A and fifth question of Set-C are all same.
- (ii) No question, out of the first three questions, of Set-B, Set-C and Set-D is the first or second question of Set-A.
- (iii) First question of Set-C, sixth question of Set-B and eighth question of Set-D are all same.
- (iv) Fifth question of Set-A, sixth question of Set-C and third question of Set-D are all same.
- (v) First question of Set-B, fifth question of Set-D and third question of Set-A are all same.
- (vi) First question of Set-A is the eighth question of Set-B and fifth question of Set-B is the fourth question of Set-D.
- (vii) Second question of Set-B is sixth question of Set-A.

**Q.61**

**For how many questions, out of the eight, their question numbers can be uniquely identified in all the four sets?**

×

**Solution:**

**Correct Answer : 4**

**Your Answer : 5**

🔖 Bookmark

🔍 Answer key/Solution

If we name the eight questions as 'a', 'b', 'c', 'd', 'e', 'f', 'g' and 'h' and then interpret all the given clues meticulously then we can draw the following table:

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Set-A	b	c	f	d	e	g	a	h
Set-B	f	g	a		c	d		b
Set-C	d	f		b	a	e		
Set-D	g	h	e	c	f	a	b	d

Question numbers of 4 questions a, b, d and f can be uniquely identified in all sets.

FeedBack

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

8 questions are arranged in 4 different orders to create 4 sets of a question paper. This jumbling of questions is done in such a way that no question happens to be at the same question number in any two sets. The sets thus formed are named as Set-A, Set-B, Set-C and Set-D. Further, it is also known that:

- (i) Third question of Set-B, sixth question of Set-D, seventh question of Set-A and fifth question of Set-C are all same.
- (ii) No question, out of the first three questions, of Set-B, Set-C and Set-D is the first or second question of Set-A.
- (iii) First question of Set-C, sixth question of Set-B and eighth question of Set-D are all same.
- (iv) Fifth question of Set-A, sixth question of Set-C and third question of Set-D are all same.
- (v) First question of Set-B, fifth question of Set-D and third question of Set-A are all same.
- (vi) First question of Set-A is the eighth question of Set-B and fifth question of Set-B is the fourth question of Set-D.
- (vii) Second question of Set-B is sixth question of Set-A.

**Q.62**

**Which of the following is necessarily true?**

- 1 ☐ Fourth question of Set-B is sixth question of Set-C.
- 2 ☐ First question of Set-B is second question of Set-C.
- 3 ☐ Sixth question of Set-A is seventh question of Set-C.
- 4 ☐ First question of Set-B is eighth question of Set-D.



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

🔖 Bookmark

🔍 Answer key/Solution

If we name the eight questions as 'a', 'b', 'c', 'd', 'e', 'f', 'g' and 'h' and then interpret all the given clues meticulously then we can draw the following table:

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Set-A	b	c	f	d	e	g	a	h
Set-B	f	g	a		c	d		b
Set-C	d	f		b	a	e		
Set-D	g	h	e	c	f	a	b	d

First question of set-B is second question of set-C.

FeedBack

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

There is a cube of edge 7 cm. A carpenter was asked, firstly, to paint the faces of the cube in such a way that 3 faces of the cube are painted red, 2 faces are painted blue and 1 face is painted yellow. After he was done painting the cube, he was asked to cut the cube so as to divide it into 343 smaller cubes, each of edge 1 cm.

**Q.63**

If the three faces that are painted red are mutually adjacent to each other, then how many of the smaller cubes have exactly 2 faces painted and that too in 2 different colors?

1 ☐ 84

2 ☐ 56

3 ☐ 40

4 ☐ 37

**Solution:**

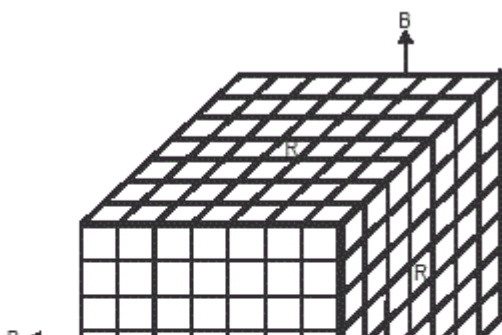
**Correct Answer : 3**

🔖 Bookmark

🔍 Answer key/Solution

There are 3 ways of painting the cube in accordance to the condition given.

**Case I**



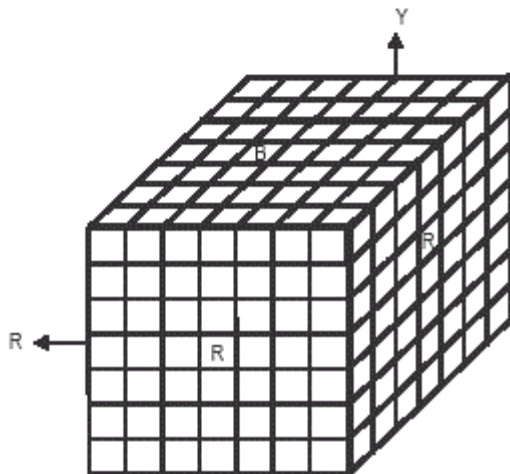


Three mutually adjacent faces are painted Red, 2 faces are painted blue & 1 face is painted yellow.

B → Blue

R → Red

### Case II



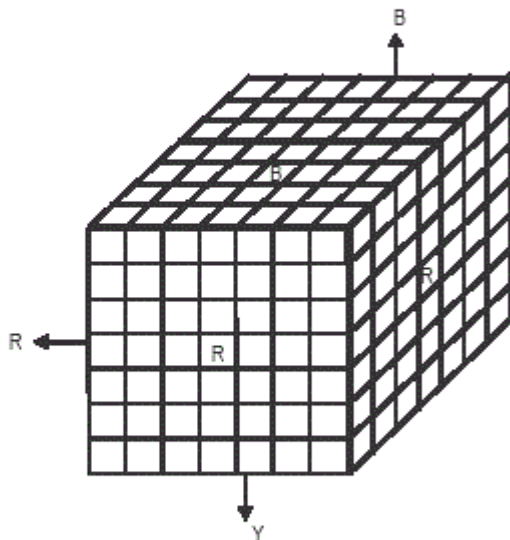
Y → Yellow

R → Red

B → Blue

Top & bottom faces are painted Blue, 2 opposite faces and one other face is painted Red and one remaining face is painted yellow as shown;

### Case III



Two opposite faces and one more face are painted Red, 2 adjacent faces are painted Blue and the remaining face is painted yellow as shown.

### Refer Case I

Smaller cubes having exactly 2 faces painted in 2 different colors, appear on the edges of the bigger cube (excluding the corners of the bigger cube) There are 5 smaller cubes on each edge (excluding the corners) of the bigger cube and out of the 12 edges, 3 edges have only red color and 1 edge has only Blue color. The remaining edges have 2 colors, hence number of smaller cubes with 2 faces painted in 2 different colors =  $8 \times 5 = 40$ .

FeedBack

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

There is a cube of edge 7 cm. A carpenter was asked, firstly, to paint the faces of the cube in such a way that 3 faces of the cube are painted red, 2 faces are painted blue and 1 face is painted yellow. After he was done painting the cube, he was asked to cut the cube so as to divide it into 343 smaller cubes, each of edge 1 cm.

Q.64

If the 3 faces that are painted red are not mutually adjacent to each other, then what could be the maximum number of smaller cubes which have at least one face painted blue?

Solution:

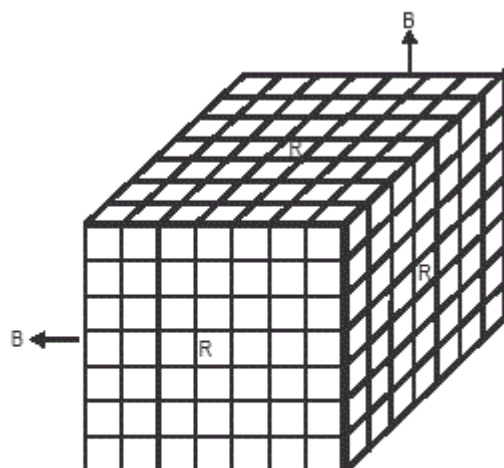
Correct Answer : 98

🔖 Bookmark

🔑 Answer key/Solution

There are 3 ways of painting the cube in accordance to the condition given.

Case I

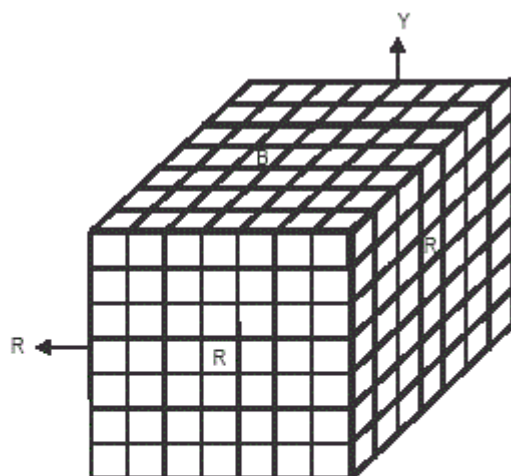


Three mutually adjacent faces are painted Red, 2 faces are painted blue & 1 face is painted yellow.

B → Blue

R → Red

Case II



Y → Yellow

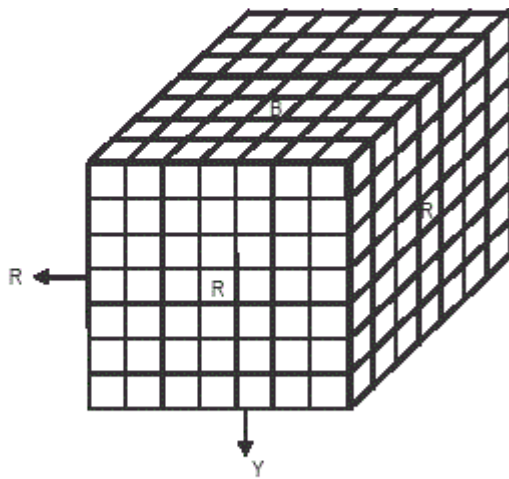
R → Red

B → Blue

Top & bottom faces are painted Blue, 2 opposite faces and one other face is painted Red and one remaining face is painted yellow as shown;

Case III





Two opposite faces and one more face are painted Red, 2 adjacent faces are painted Blue and the remaining face is painted yellow as shown.

Refer Case II

In order to maximize number of smaller cubes with at least one face painted Blue, the 2 faces of the bigger cube which are painted Blue should not share an edge, on one such face, we have 49 smaller cubes, hence number of smaller cubes with at least 1 face painted blue is  $49 \times 2 = 98$ .

FeedBack

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

There is a cube of edge 7 cm. A carpenter was asked, firstly, to paint the faces of the cube in such a way that 3 faces of the cube are painted red, 2 faces are painted blue and 1 face is painted yellow. After he was done painting the cube, he was asked to cut the cube so as to divide it into 343 smaller cubes, each of edge 1 cm.

**Q.65**

What is the minimum possible number of smaller cubes that do not have any face painted red?

**Solution:**

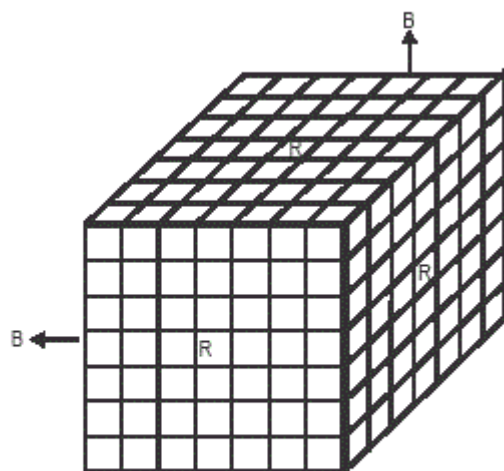
**Correct Answer : 210**

🔖 Bookmark

🔍 Answer key/Solution

There are 3 ways of painting the cube in accordance to the condition given.

**Case I**

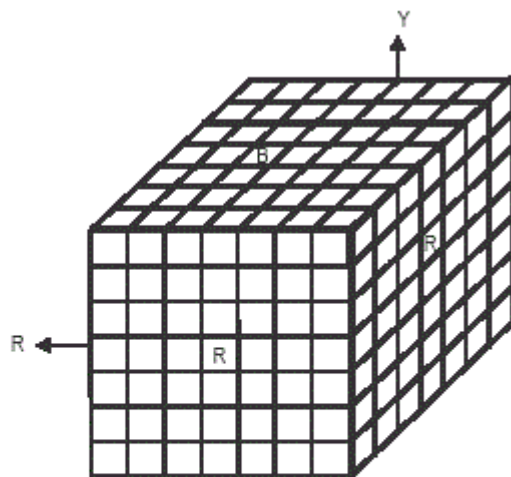


Three mutually adjacent faces are painted Red, 2 faces are painted blue & 1 face is painted yellow.

B → Blue

R → Red

**Case II**



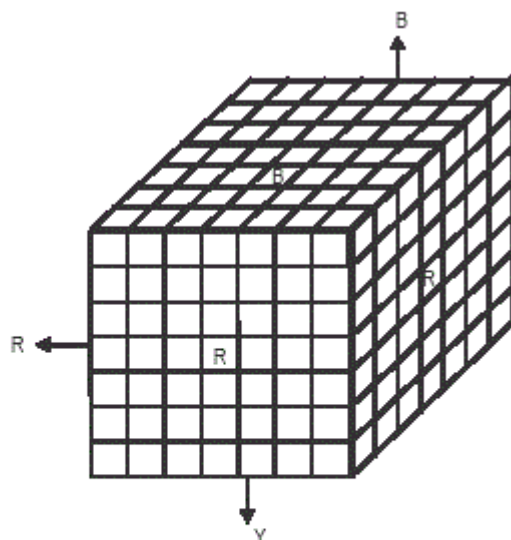
Y → Yellow

R → Red

B → Blue

Top & bottom faces are painted Blue, 2 opposite faces and one other face is painted Red and one remaining face is painted yellow as shown;

**Case III**



Two opposite faces and one more face are painted Red, 2 adjacent faces are painted Blue and the remaining face is painted yellow as shown.

Refer Case II/Case II

Using the same logic as in the previous question, we get  $343 - (49 + 49 + 35) = 210$ .

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

There is a cube of edge 7 cm. A carpenter was asked, firstly, to paint the faces of the cube in such a way that 3 faces of the cube are painted red, 2 faces are painted blue and 1 face is painted yellow. After he was done painting the cube, he was asked to cut the cube so as to divide it into 343 smaller cubes, each of edge 1 cm.

Q.66

What percent of the total surface area of all the 343 smaller cubes is painted?

1 ☐ 12.5%

2 ☐ 25%

3 ☐ 14.28%

4 ☐ Cannot be determined

Solution:

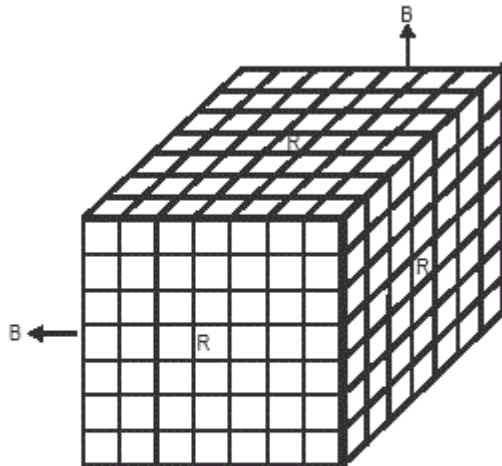
Correct Answer : 3

 Bookmark

 Answer key/Solution

There are 3 ways of painting the cube in accordance to the condition given.

Case I

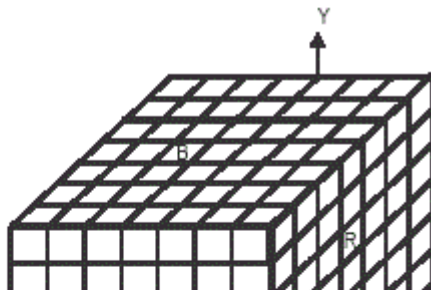


Three mutually adjacent faces are painted Red, 2 faces are painted blue & 1 face is painted yellow.

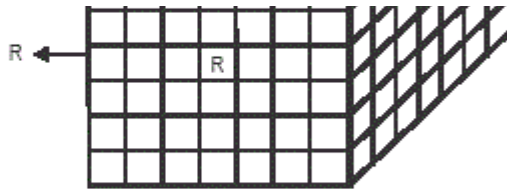
B → Blue

R → Red

Case II







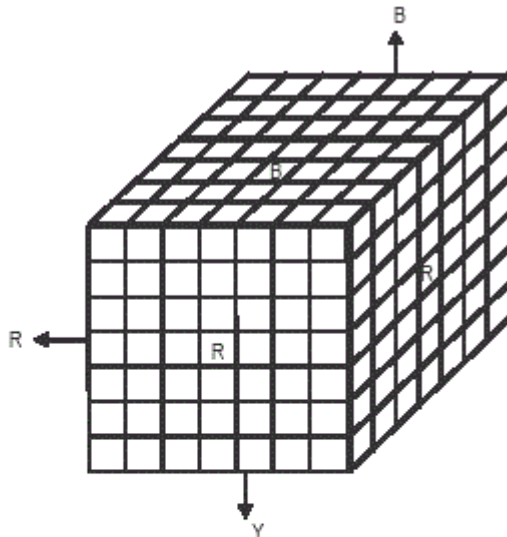
Y → Yellow

R → Red

B → Blue

Top & bottom faces are painted Blue, 2 opposite faces are painted Red and one remaining face is painted yellow as shown;

**Case III**



Two opposite faces and one more face are painted Red, 2 adjacent faces are painted Blue and the remaining face is painted yellow as shown.

With one cut as in the above 3 cases, the surface area increases by  $2a^2$ , where 'a' is the side of the cube. So with 18 cuts, the increase in the surface area is  $18 \times 2a^2 = 36a^2$ .

Percent of painted surface area =  $\frac{6a^2}{42a^2} \times 100 = 14.28\%$ .

FeedBack

## Sec 3

**Q.67**

Base radius of a cylinder is increased in such a way that its volume is increased by 44%. What could be that increase in radius, if height of the cylinder remains constant?

1 ☐ 14.33%

2 ☐ 15%

3 ☐ 20%

4 ☐ 25%



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

Volume of cylinder =  $\pi r^2 h$ , where r and h are its radius and height respectively.  
As height is constant, if radius is increased by x%  
then using successive percentage increase we can say,

$$\left(x + x + \frac{x^2}{100}\right) = 44$$

i.e.,  $x = 20$

So, radius is increased by 20%.

FeedBack

🔖 Bookmark

🔑 Answer key/Solution

**Q.68**

Find the solution set of the inequality:

$\log_{10} x + (\log_{10} 10x)^2 + (\log_{10} 100x)^2 \leq \log_{10} (10)^9$ , where x is a positive real number.

1 ☐  $x < 10^{-4}$

2 ☐  $x \geq 10^{\frac{1}{2}}$

3 ☐  $10^{-4} \leq x \leq 10^{\frac{1}{2}}$

4 ☐ None of these

**Solution:**

**Correct Answer : 3**

Let  $p = \log_{10} x$

then  $p + (p + 1)^2 + (p + 2)^2 \leq 9$

$\Rightarrow 2p^2 + 7p + 5 < 9$

$\Rightarrow (p + 4)(2p - 1) \leq 0$

$\Rightarrow -4 \leq p \leq \frac{1}{2}$  or  $-4 \leq \log_{10} x \leq \frac{1}{2} \Rightarrow 10^{-4} \leq x \leq 10^{\frac{1}{2}}$ .

FeedBack

🔖 Bookmark

🔑 Answer key/Solution

**Q.69**

If  $x/(0.1212121212\ldots) = 1/(0.22222222\ldots)$ , then find x.

1 ☐ 11/6

2 ☐ 6/11

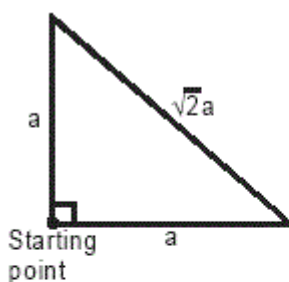
3 ☐ 7/11

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

$$\left(\frac{x}{\frac{12}{99}}\right) = \left(\frac{1}{\frac{2}{9}}\right) \Rightarrow x = \frac{6}{11}$$

[Feedback](#)
[Bookmark](#)
[Answer key/Solution](#)
**Q.70**

A park is in the shape of an isosceles right angled triangle ABC, right angled at B. Two friends - Amit and Raman - started walking from vertex B. Amit walked along the sides of the triangle and returned back to the starting point. Raman walked along such a path such that he can reach the hypotenuse, AC, walking the shortest possible distance and returned to the starting point along the same path. If they both started simultaneously and reached back to the starting point together, then what is the ratio of their speeds?

1 ●  $(\sqrt{2} + 2) : 2$ 2 ●  $\sqrt{2} : (\sqrt{2} + 1)$ 3 ●  $(1 + \sqrt{2}) : 1$ 4 ●  $2\sqrt{2} : (1 + \sqrt{2})$ **Solution:****Correct Answer : 3**
[Bookmark](#)
[Answer key/Solution](#)


As time remains constant for both, ratio of speeds = ratio of their distance.

Now, distance covered by Amit =  $2a + \sqrt{2}a$

Distance covered by Raman =  $2h$ , where  $h$  can be found by comparing area of triangle as

$$\frac{1}{2} \times a \times a = \frac{1}{2} \times h \times \sqrt{2}a \Rightarrow h = \frac{a}{\sqrt{2}}$$

$$\text{So, required ratio} = \frac{(\sqrt{2} + 2)a}{\frac{a}{\sqrt{2}}} = (1 + \sqrt{2}) = (1 + \sqrt{2}) : 1.$$

[Feedback](#)

Q.71

While buying rice, Neerav made profit using a faulty balance of 1200 grams instead of 1000 grams. While selling them, he further marked up the price by 20% and then offered a discount of 25%. Find the net profit /loss of Neerav on the whole transaction.

- 1 ☐ 10% loss
- 2 ☐ 12.5% profit
- 3 ☐ 8% profit
- 4 ☐ 5% loss

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

Profit earned in grams (in weight) =  $1200 - 1000 = 200$  grams.

Profit (on weight) =  $\frac{200}{1000} \times 100 = 20\%$

Further, he marked up the price by 20% and offers a discount of 25% =  $\frac{6}{5} \times \frac{3}{4} = \frac{9}{10} \Rightarrow 10\% \text{ loss}$

So net profit/loss =  $20 + (-10) + \frac{(20 \times (-10))}{100} = 8\% \text{ profit.}$

FeedBack

Q.72

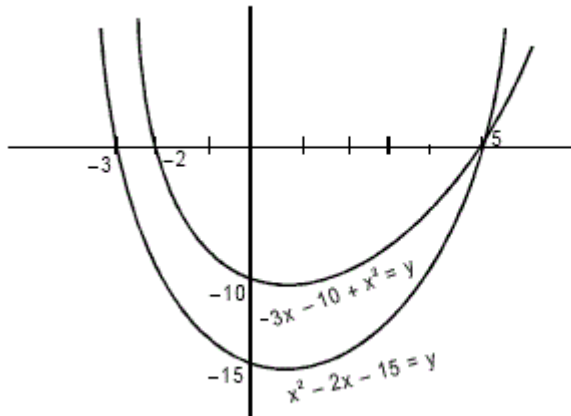
For which of the following range of  $x$ , solution of both the functions :  $f(x) = x^2 - 2x - 15$  and  $f(x) = -(3x + 10 - x^2)$  is greater than zero?

- 1 ☐  $(-3, -2) \cup (4, 5)$
- 2 ☐  $(-\infty, -3) \cup (4, 5)$
- 3 ☐  $(4, 5)$
- 4 ☐  $(-\infty, -3) \cup (5, \infty)$

**Solution:**

**Correct Answer : 4**

Since both are quadratic functions, we can draw their graph as shown below



So, both graphs are positive for  $x \in (-\infty, -3) \cup (5, \infty)$ .

FeedBack

🔖 Bookmark

🔑 Answer key/Solution

**Q.73**

A man travels from city A to city B at speed of 45 km/hr and returns back from city B to city A at a certain speed. If his average speed for the entire journey is 90km/hr, then find his return speed?

1 ☐ 0 km/hr

2 ☐ 45 km/hr

3 ☐ 90 km/hr

4 ☐ Data inconsistent

**Solution:**

**Correct Answer : 4**

In a to and fro motion, the average speed can never be double or more than double of one of the speeds.

FeedBack

🔖 Bookmark

🔑 Answer key/Solution

**Q.74**

If  $t_1 = 10$ ,  $t_2 = 7$ ,  $t_{n+1} = t_n - t_{n-1}$  for  $n > 1$ , then find  $t_1 + t_2 + t_3 + \dots + t_{50}$ .

**Solution:**

**Correct Answer : 17**

$t_1 = 10, t_2 = 7$   
 $t_3 = t_2 - t_1 = 7 - 10 = -3,$   
 $t_4 = -3 - 7 = -10,$   
 $t_5 = -10 + 3 = -7,$   
 $t_6 = -7 + 10 = 3,$   
After  $t_6$ , the series will repeat the values, as  $t_7 = 10, t_8 = 7$ , and so on.  
So,  $t_1 + t_2 + \dots + t_{49} + t_{50} = (10 + 7 - 3 - 10 - 7 + 3) \times 8 + t_{49} + t_{50} = t_{49} + t_{50}$   
 $t_1 + t_2 = 10 + 7 = 17.$

FeedBack

Bookmark

Answer key/Solution

**Q.75**

Apollo's teacher told his colleague "My age is not prime but odd and if you reverse the digits of my age and add that new number to my age, you obtain a perfect square. If you reverse the digits of my age and subtract that number from my age, you again obtain a perfect square." If the age of the teacher was a two-digit number, then his age is divisible by

1 ☐ 7

2 ☐ 9

3 ☐ 13

4 ☐ 15

**Solution:**

**Correct Answer : 3**

Let the teacher's age be  $10x + y$ .  
In first scenario:  
 $10x + y + 10y + x = 11(x + y)$ , is a perfect square.  
Hence  $x + y = 11$ .  
In second scenario:  
 $10x + y - 10y - x = 9(x - y)$  is also a perfect square.  
Hence,  $x - y = 1$  OR  $x - y = 9$ .  
But  $x - y = 9$  is not possible, as on evaluation, we get  $x = 10$ , which is incorrect.  
Hence, correct age is 65, which is divisible by 13.

FeedBack

Bookmark

Answer key/Solution

**Q.76**

A square sheet of side 8 units has 64 smaller squares, of side 1 unit each, drawn on it. Find the number of minimum colours required to paint the sheet such that no two adjacent squares, vertically, horizontally or diagonally, has the same colour.

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

If i paint the first four squares of the sheet with four different colours as shown below

C1	C2
C3	C4

and then replicate each four squares in the same pattern, the required condition will be satisfied.  
Hence, minimum 4 colours are required to paint.

**FeedBack**

**Q.77**

A, B and C have some marbles with them in the ratio 5 : 4 : 3. Mr. X, uncle of B and C, gave both of them some marbles so that the ratio of marbles with A, B and C now becomes 3 : 4 : 5. Find the ratio of marbles given by Mr. X to B and C.

1 ☐ 1 : 1

2 ☐ 1 : 2

3 ☐ 2 : 1

4 ☐ 3 : 2



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

The Ratio of marbles with A : B : C initially is 5 : 4 : 3  
and after B and C received some marbles from their uncle turns out to be 3 : 4 : 5.  
As there is no change in number of marbles with A, we can make them equal  
i.e. 5 : 4 : 3  $\times 3 \Rightarrow 15 : 12 : 9$   
3 : 4 : 5  $\times 5 \Rightarrow 15 : 20 : 25$   
So, extra marbles received by B and C are 8 and 16.  
Hence required ratio = 1 : 2.

**FeedBack**

 **Bookmark**

 **Answer key/Solution**

**Q.78**

Shreya and Aarti can do a piece of work in 8 and 10 days respectively. They work on alternate days starting from Shreya. What fraction of work is completed in first seven days?

1 ☐ 27/40

2 ☐ 31/40

3 ☐ 4/5

4 ☐ 7/8



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

Let the amount of work to be done be LCM (8, 10) = 40 units  
Shreya and Aarti will do 5 units/day and 4 units/day respectively.  
They will do 9 units in 2 days.  
So, in first six days, amount of work done is 27 units.  
On seventh day, Shreya will work and do 5 units.

Therefore, fraction of work completed in first seven days =  $\frac{32}{40} = \frac{4}{5}$ .

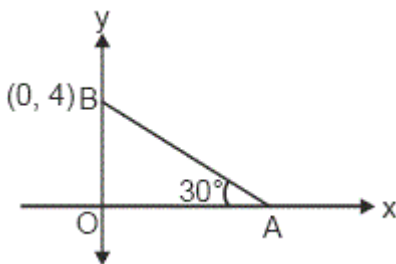
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🔍 Answer key/Solution

**Q.79**

**What is the equation of the line AB, in the figure shown below?**



1 ☐  $x + \sqrt{3}y = 4$

2 ☐  $5x - 3y + 15 = 0$

3 ☐  $5x - 3y - 15 = 0$

4 ☐  $x + \sqrt{3}y - 4\sqrt{3} = 0$



**Solution:**

**Correct Answer : 4**

Inclination of line =  $180^\circ - 30^\circ = 150^\circ$

$$\therefore \text{Slope} = \tan 150^\circ = -\frac{1}{\sqrt{3}}$$

$$\therefore \text{Equation is } y = mx + c = -\frac{1}{\sqrt{3}}x + 4$$

$$\therefore x + \sqrt{3}y = 4\sqrt{3}$$

**Alternative method:**

In triangle AOB,

$$\frac{OB}{AO} = \tan 30^\circ \Rightarrow \frac{4}{OA} = \frac{1}{\sqrt{3}} \Rightarrow OA = 4\sqrt{3}$$

Equation is,

$$\frac{x}{4\sqrt{3}} + \frac{y}{4} = 1 \Rightarrow x + \sqrt{3}y = 4\sqrt{3}$$

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**Q.80**

A cuboid with its length and breadth as 11 units and 10 units respectively, has its body diagonal of 15 units. Find the volume of cuboid.

**Solution:**

**Correct Answer : 220**

$$(L^2 + B^2 + H^2)^{1/2} = D.$$

$$(11)^2 + (10)^2 + H^2 = 15^2$$

So,  $H = 2$  unit and hence volume =  $11 \times 10 \times 2 = 220$ .

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🔍 Answer key/Solution

**Q.81**

A sum of money becomes 5200 after 6 months and becomes 8788 after one and half year at  $r\%$  rate of interest compounded half yearly. Find the value of  $r$ .



**Solution:**

**Correct Answer : 60**

**Your Answer : 60**

$$A = p \left[ 1 + \frac{\frac{r}{2}}{100} \right]^{2n}$$

$$8788 = p \left[ 1 + \frac{r}{200} \right]^3 \quad \dots (i)$$

$$\text{also } 5200 = p \left[ 1 + \frac{r}{200} \right]^1 \quad \dots (ii)$$

Dividing (i) with (ii),

$$\left( 1 + \frac{r}{200} \right)^2 = \frac{2197}{1300} = \frac{169}{100}$$

Solving it, we get  $r = 60\%$ .

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🔍 Answer key/Solution

**Q.82**

If the difference between the two roots of quadratic equation,  $x^2 - ax + 2a = 0$ , is less than  $2\sqrt{5}$ , then find the range of  $a$ .

1 ☐  $-3 < a < 5$

2 ☐  $2 < a < 10$

3 ☐  $-2 < a < 10$

4 ☐ None of these

**Solution:**

**Correct Answer : 3**

Let  $\alpha$  &  $\beta$  be roots of the equation

$$\text{then, } \alpha - \beta = \sqrt{a^2 - 8a} \quad (\because \alpha \geq \beta)$$

$$\text{Given } \alpha - \beta < 2\sqrt{5} \Rightarrow \sqrt{a^2 - 8a} < 2\sqrt{5}$$

$$a^2 - 8a < 20$$

$$a^2 - 8a - 20 < 0$$

$$(a - 10)(a + 2) < 0$$

$$\text{i.e., } -2 < a < 10$$

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**Q.83**

How many natural numbers less than 1000 have exactly 5 factors?

1 ☐ 5

2 ☐ 4

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3 ☐ 3

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4 ☐ Cannot be determined

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**Solution:**

**Correct Answer : 3**

Numbers must be of type  $(\text{prime})^4$ . So only  $2^4$ ,  $3^4$  and  $5^4$  are less than 1000.

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 **Answer key/Solution**

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**Q.84**

Due to a man leaving the group of 6 people, the average weight of the group drops from 63 to 60. Find the weight of the man who left the group?

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**Solution:**

**Correct Answer : 78**

**Your Answer : 78**

Let every person has Rs. 1 coins equivalent to their weight. While leaving, this person took away 63 coins of his own plus 3 coins from each of the remaining 5 individuals.

So, weight = number of coins he had =  $63 + 5 \times 3 = 78$ .

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 **Answer key/Solution**

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**Q.85**

Rajat and Mann completed a job in 14 days, in which Mann was not available for the last five days. If  $\frac{2}{3}$  of the job was completed in the first 8 days, then how long would Mann have taken to do the whole job?

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**Solution:**

**Correct Answer : 30**

 **Bookmark**

 **Answer key/Solution**

As in first 8 days,  $\frac{2}{3}$ rd of the job was completed by Rajat and Mann, so complete job could have been done by them in 12 days if both worked together till work completed.

In the first 9 days,  $\frac{3}{4}$  of the job was done and now Mann was not available for remaining five days.

Rajat did the remaining  $\frac{1}{4}$ th of the job in 5 days, which means complete job could have been done by him alone in 20 days.

Let the total work to be done be LCM (12, 20) = 60 units.

Rajat and Mann together can do 5 units per day and Rajat alone can do 3 units/day.

Therefore, Mann can do 2 units/day.

Therefore, Mann alone will finish the work in  $\frac{60}{2} = 30$  days.

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**Q.86**

What is the value of the expression  $\left[ \frac{1}{6^2-1} + \frac{1}{8^2-1} + \frac{1}{10^2-1} + \dots + \frac{1}{16^2-1} \right]$

1 ☐ 27/64

2 ☐ 21/32

3 ☐ 6/85

4 ☐ 8/85

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

$$\text{In general } \frac{1}{a^2-b^2} = \frac{1}{2b} \left[ \frac{1}{a-b} - \frac{1}{a+b} \right]$$

$$\therefore \frac{1}{6^2-1} = \frac{1}{2} \left[ \frac{1}{5} - \frac{1}{7} \right]$$

$$\frac{1}{8^2-1} = \frac{1}{2} \left[ \frac{1}{7} - \frac{1}{9} \right] \dots \frac{1}{16^2-1} = \frac{1}{2} \left[ \frac{1}{15} - \frac{1}{17} \right]$$

$$\text{Therefore, sum} = \frac{1}{2} \left[ \frac{1}{5} - \frac{1}{17} \right] = \frac{6}{85}.$$

Feedback

**Q.87**

If  $F(n + 1) - F(n) = 2n$  and  $F(1) = 3$ , then find the value for  $F(6)$ .

**Solution:**

**Correct Answer : 33**

$F(1) = 3$   
and  $F(n + 1) = F(n) + 2n$   
So,  $F(2) = 3 + 2 = 5$   
 $F(3) = 5 + 2 = 7$   
 $F(4) = 7 + 2 = 9$   
 $F(5) = 9 + 2 = 11$   
 $F(6) = 11 + 2 = 13$

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Answer key/Solution

**Q.88**

If  $N^2$  ends with 76, where  $N$  is a natural number less than or equals to 350, then how many such  $N$  are possible?

1 ☐ 20

2 ☐ 15

3 ☐ 14

4 ☐ Cannot be determined

**Solution:**

**Correct Answer : 3**

Last two digits of perfect squares keeps on repeating after 25 in group of every 25 numbers.

Now, in first 25 natural numbers, there is only one number whose square ends with 76.

So, there are 14 such numbers till 350, as we get 14 groups of 25 numbers.

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Answer key/Solution

**Q.89**

Soda and water are in ratio 3 : 7 and 5 : 2 in two different solutions. In what ratio should these two solutions be mixed so that the ratio of water and soda in the final solution turns out to be 2 : 3?

1 ☐ 21 : 8

2 ☐ 8 : 21

3 ☐ 2 : 3

4 ☐ 1 : 1

**Solution:**

**Correct Answer : 2**

Let the total quantity of soda and water in both the solution be  $10x$  and  $7y$ .  
So,

	Soda	:	water
Solution 1	$3x$	:	$7x$
Solution 2	$5y$	:	$2y$

On adding both we get,

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

$$6x + 10y = 21x + 6y$$

$$4y = 15x$$

$$\frac{4}{15} = \frac{x}{y}$$

So quantity of 1st solution is 40 units and 2nd solution is 105 units  
Hence, their ratio is 8 : 21.

Feedback

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Answer key/Solution

**Q.90**

Let  $p$  and  $q$  be the roots of the quadratic equation  $x^2 - (\alpha - 2)x - \alpha - 1 = 0$ . What is the minimum possible value of  $(p^2 + q^2)$ ?

1 ☐ 0

2 ☐ 6

3 ☐ 4

4 ☐ 5

**Solution:**

**Correct Answer : 4**

We have equation  $x^2 - (\alpha - 2)x - \alpha - 1 = 0$  with roots  $p$  and  $q$ .

So, sum of roots =  $p + q = \alpha - 2$

and product of roots =  $pq = -\alpha - 1$

As  $p^2 + q^2 = (p + q)^2 - 2pq = (\alpha - 2)^2 + 2(\alpha + 1) = \alpha^2 + 4 - 4\alpha + 2\alpha + 2 = (\alpha - 1)^2 + 5$

Since  $(\alpha - 1)^2$  is a perfect square, so its minimum value will be 0 when  $\alpha = 1$ .

In that case, the minimum value of  $p^2 + q^2$  will be 5.

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Answer key/Solution

**Q.91**

Working of two bulbs is as follows: Bulb A remains ON for first 4 seconds and then OFF for next 3 seconds, again ON for next 4 seconds and then OFF for next 3 seconds and so on. Bulb B remains ON for first 8 seconds and then OFF for next 5 seconds, again ON for next 8 seconds and then OFF for next 5 seconds and so on.

If both the bulbs were switched ON at the same time, then at what time (in seconds) will they be OFF simultaneously for the first time?

1 ☐ 50

2 ☐ 75

3 ☐ 43

4 ☐ 61

**Solution:**

**Correct Answer : 4**

1st bulb will be off at 5th, 12th, 19th, ... seconds  
2nd bulb will be off at 9th, 22nd, 35th, ... seconds  
The second in which they will switch off simultaneously for the first time:  
 $5 + (n - 1)7 = 9 + (m - 1)13$   
 $7n - 2 = 13m - 4$

$$m = \frac{7n + 2}{13}$$

$\Rightarrow n = 9, m = 5$  is the possible solution.

So, at  $5 + (9 - 1) \times 7 = 61^{\text{th}}$  second both will be off simultaneously.

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 Answer key/Solution

**Q.92**

$$P = |x - 25| + |x - 50| + |x - 75| + \dots + |x - 200|$$

If value of P is minimum possible, then what is the difference between the maximum and the minimum possible integral value of x?

**Solution:**

**Correct Answer : 25**

 Bookmark

 Answer key/Solution

Since P is a summation of ten terms so P would be minimum when x lies between the middle most 2 terms  
i.e.  $100 \leq x \leq 125$   
 $\therefore$  Minimum value of x = 100  
and Maximum value of x = 125  
 $\therefore$  The required difference = 25.

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**Q.93**

Deepti told Bhawya, "When 10 times my birth month number is added to the 12 times the date of my birth, the result comes out is 388". In which of the following months could Deepti be born?

1 ☐ February

2 ☐ September

3 ☐ October

4 ☐ August



**Solution:**

**Correct Answer : 3**

**Your Answer : 3**

**Bookmark**

**Answer key/Solution**

Let Deepti's birth date be D and birth month be x.

$$\therefore 10m + 12D = 388 \quad \Rightarrow 5m + 6D = 194$$

as  $\text{Remember}\left(\frac{194}{5}\right) = 4$  &  $\text{Remember}\left(\frac{6}{5}\right) = 1$ , the value of D that gives integral value of M are 4, 9, 14, .....

M	D
34	4
28	9
22	14
16	19
10	24
4	29

$\therefore$  Deepti could have been born on 29th April or 24th October.

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**Q.94**

Two cars  $x_1$  and  $x_2$  move towards each other from point  $C_1$  and  $C_2$  respectively with their respective speeds of 20 m/s and 15 m/s. If it takes 10 seconds for car  $x_1$  to reach  $C_2$  after the point they met for the first time, then time taken by car  $x_2$  to reach from  $C_2$  to  $C_1$  is

1 ☐ 15.5 sec

2 ☐ 31.1 sec

3 ☐ 8.4 sec

4 ☐ 16.8 sec

**Solution:**

**Correct Answer : 2**

Let say cars meet at point 'O'

$x_1$  travels distance  $OC_2$  in 10 sec.

$$\therefore \text{distance } OC_2 = 10 \times 20 = 200 \text{ m}$$

$$\therefore \text{Time required by } x_2 \text{ to reach O} = \frac{200}{15} \text{ sec}$$

$$\therefore \text{distance } OC_1 = 20 \times \frac{200}{15} = \frac{800}{3},$$

$$\therefore \text{Time required by } x_2 = \frac{\frac{800}{3} + 200}{15} = \frac{280}{9} = 31.11 \text{ seconds.}$$

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**Answer key/Solution**



Q.95

The terms -  $a_1, a_2 \dots, a_{17}$  - are in an Arithmetic Progression. If  $a_3 + a_8 + a_{11} + a_{14} = 100$ , then sum of the 17 terms of the A.P. is

1 ☐ 780

2 ☐ 425

3 ☐ 850

4 ☐ 390

**Solution:**

**Correct Answer : 2**

$$t_n = a + (n - 1)d$$

$$a_3 + a_8 + a_{11} + a_{14} = 100$$

$$\Rightarrow a_1 + 2d + a_1 + 7d + a_1 + 10d + a_1 + 13d = 100$$

$$\Rightarrow 2a_1 + 16d = 50 \quad \dots(1)$$

$$\text{Sum of 17 terms} = \frac{17}{2}[a_1 + a_{17}] = \frac{17}{2}[a_1 + a_1 + 16d] = \frac{17}{2}[2a + 16d] = \frac{17(50)}{2} = 425.$$

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 **Answer key/Solution**

Q.96

Find the area of region confined by  $|x| = |y|$  and  $|x| = a$ .

1 ☐  $2a^2$

2 ☐  $4a^2$

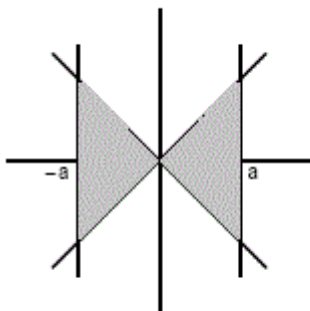
3 ☐  $6a^2$

4 ☐  $8a^2$

**Solution:**

**Correct Answer : 1**

Graph for the two equations can be drawn as



$$\text{Area of the shaded region} = 2 \times \frac{1}{2} \times a \times 2a = 2a^2.$$

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 **Answer key/Solution**

Q.97

A circle with radius  $R$  is inscribed in a square and another circle with radius  $r$  is placed between the circle and the corner of square, touching sides of the square and the bigger circle. Find  $R : r$ .

1 ☐  $(2\sqrt{2}-1) : 2$

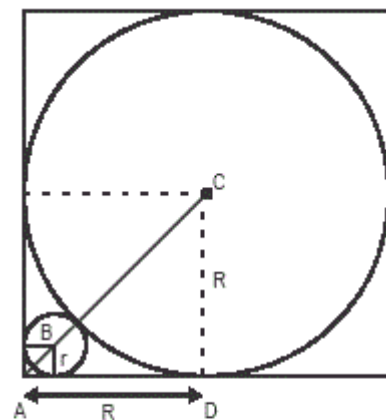
2 ☐  $(\sqrt{2}-1) : (\sqrt{2}+1)$

3 ☐  $2 : 1$

4 ☐  $(\sqrt{2}+1) : (\sqrt{2}-1)$

**Solution:**

**Correct Answer : 4**



$$AB = \sqrt{2}r$$

$$AC = \sqrt{2}r + r + R$$

$$AC^2 = AD^2 + DC^2$$

$$\frac{R}{r} = \frac{\sqrt{2}+1}{\sqrt{2}-1}$$

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Answer key/Solution

Q.98

Which of the following statements are necessarily true?

A. If mid points of the side of a triangle are joined to form a new triangle, then area of this new triangle is  $1/4$ th the area of the original triangle.

B. Quadrilateral formed by joining the midpoints of the sides of rectangle is a square.

C. Quadrilateral formed by joining the midpoints of the sides of quadrilateral has half the area of the given quadrilateral.

1 ☐ A, B and C

2 ☐ A and B

3 ☐ only A

4 ☐ A and C

**Solution:**

**Correct Answer : 4**

A → True for all  $\Delta$ 's

B → Quadrilateral formed by joining the mid-points of the sides of rectangle is a Rhombus.

C → Basic property of quadrilateral.

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 **Answer key/Solution**

**Q.99**

**What is the probability of choosing a number from the first 25 natural numbers such that the chosen number has its digital sum as 5?**

1 ☐ 4/25

2 ☐ 3/25

3 ☐ 7/25

4 ☐ 1/25

**Solution:**

**Correct Answer : 2**

**Numbers less than 25 having digital sum 5 are 5, 14, 23**

**So, required probability = 3/25.**

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 **Answer key/Solution**

**Q.100**

**If measure of each interior angle of a regular polygon is 135, then find the number of diagonals of the polygon.**

1 ☐ 28

2 ☐ 20

3 ☐ 24

4 ☐ 32



**Solution:**

**Correct Answer : 2**

**Your Answer : 2**

🔖 Bookmark

🔍 Answer key/Solution

Interior angle of a regular polygon =  $\frac{(n-2)}{n} \times 180$  , where n is the number of sides of polygon

$$\text{As } \frac{(n-2)}{n} \times 180 = 135 \Rightarrow n = 8$$

$$\text{Number of diagonals in a polygon} = \frac{n(n-3)}{2} = \frac{8(8-3)}{2} = 20 .$$

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