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Mock CAT – 10 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.

Thermostats are the ubiquitous overlord of humanity's day-to-day comfort. Think about it - there is hardly an American citizen who does not own and operate a thermostat in their own home. And yet, few people think about this little piece of technology past the annoyance of the Office Manager stubbornly locking the A/C at a crisp 64 degrees.

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Once upon a time, people had a much harder time regulating their home temperature. In the early 20th century the majority of homes had manually operated furnaces. These furnaces, usually located in the basement, required frequent coal-stoking and physical adjustments of valves, draft, or dampers. As someone who dreads even placing bare feet on cold wooden floors, basement coal-stoking every brisk winter morning sounds like a first world nightmare.

It is safe to say the market was ripe for a simpler means of regulating temperature, and in this spirit several men invented different types of thermostats in a short amount of time. Let's meet them, shall we? Andrew Ure was a Scottish chemist who patented the bi-metallic thermostat in 1830. Ure had worked with textile mills throughout his career and identified the product's need for a consistent temperature. Ure's bi-metallic thermostat would bend as a result of increased room temperature, cutting off the energy supply. While this was one of the first recorded thermostat inventions, it saw little use. It took more than forty years for inventors in American to re-imagine and popularize the thermostat. We still give Ure props anyway.

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Q.1

Which of the following is most likely to be the source of the passage?

1 **A historical account of science and technology**

2 **The writings of a representative of a corporation**

3 **The writings of a researcher in the field of electronics**

4 **A comparative market analysis of a particular product**

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Q.2

Which of the following best articulates the author's opinion of Andrew Ure and his contribution?

1 **One of regard - for inventing an appliance that was not-so-popular but had great potential.**

2 **One of grudging acceptance - despite being against the method employed by Ure.**

3 **One of mild appreciation- for Johnson was one of the pioneers in that field notwithstanding that the appliance had a drawback.**

4 **One of criticism – for creating an appliance that had little use.**

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Q.3

Which of the following impelled Johnson to invent the first electric thermostat?

1 ○ **The building that he taught in would sometimes become a bit cold and his work would be disturbed.**

2 ○ **The heating furnace was located in the basement and required the physical presence of a person to operate; thereby causing a lot of inconvenience.**

3 ○ **To adjust the temperature, the heating apparatus, which was in the basement, required to be manually adjusted; thereby causing encumbrance.**

4 ○ **It was uncomfortable to teach in a basement that became too chilly at times.**

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Q.4

What is intention of the author when he says, "Oh, and Warren Johnson was also an inventor."?

1 **To indicate his derision for Johnson and his so-called invention, which was nothing but a bell to summon the janitor**

2 **To enhance the humorous effect of his piece of writing**

3 **To ensure that we do not forget Johnson's profession**

4 **To point out how Johnson juggled two equally demanding professions**

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Q.5

Which of the following statement is/are can be inferred from the passage?

I. Ure's thermostat was earlier than that of Johnson's.
II. Johnson's thermostat was the first one of its kind.

1 **Only I**

2 **Only II**

3 **Both I and II**

4 Neither I nor II

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Q.6

Which of the following best sums up the kind of relation that Johnson would have had with the Janitor of the building that he worked in?

1 **One of mutual admiration for the kind of work that the other did.**

2 **One of mutual annoyance as Johnson always required the janitor to be stationed in the basement.**

3 **One of aloofness as they never saw eye-to-eye with each other.**

4 **None of the above.**

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Answer key/Solution

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In the brackish waters lapping the shores of the Red Sea lies an unsung hero: the mangrove.

Mangroves are trees and shrubs that have evolved to thrive in harsh saltwater environments. The ecosystems in which they are found are among the most important and productive in the world. But despite their significance, mangroves are one of the world's most threatened ecosystems. A 2010 study by the UN's Food and Agricultural Organization found 20 percent of all mangroves have been lost since 1980.

The importance of these unique trees cannot be overstated. They are a vital component and link in marine ecosystems, supporting an impressive web of life and numerous other ecological services. They also hold significant economic and cultural value to humans, providing us with a host of direct and indirect benefits. Mangroves are found along the tropical and subtropical coasts of Africa, Asia, Australia and the Americas.

Amgad al-Shaffai, a marine environment specialist, says of the 95 mangrove species found globally, two are found in Egypt — the grey mangrove and the red mangrove. The red mangrove is considerably less common, only found in areas south of Shalateen.

In Egypt, mangroves often grow in sheltered locations at the mouths of wadi systems. Although the wadis run dry most of the year, the mangroves benefit from the sporadic outflows of freshwater. "While mangroves tolerate very salty environments, they need freshwater sources to function and receive a boost from wadi flash floods," says Sara al-Sayed, a biomimicry specialist.

Various adaptations allow mangroves to flourish where other plants cannot survive. A filtration system in their roots prevents most salt from being taken up by the trees, and that which is absorbed is later excreted through the leaves and branches. The dense, tangled root system provides stability to the trees in a shallow environment constantly changing with the coming and going of the tide.

Shaffai notes the important role mangroves play in shoreline protection, acting as a natural shield by breaking up incoming wave energy, minimizing the damage caused by extreme weather conditions such as storm surges, rising sea levels, cyclones and tsunamis, in addition to preventing erosion of the coastline.

Mahmoud Hanafy, chief scientist at the Hurghada Environmental Protection and Conservation Association, describes the important role of mangrove ecosystems in providing habitat for spawning, nursery and feeding grounds to a diverse array of species including fish, shrimp, crabs, and crustaceans. In the Red Sea, Hanafy notes, mangroves are relied on for food or as a nursery ground by 35 species of fish and also provide a wildlife sanctuary out of the water to numerous insects and birds.

Sayed says 75 percent of the world's tropical commercial fish spend a portion of their lives in mangroves. "Mangroves are incredibly important and contribute to a holistic ecosystem, creating a condition conducive to life in an area that normally wouldn't support as much life," she adds.

Shaffai notes, "Another very important function of mangroves is their capacity to store carbon, reducing the amount of carbon dioxide in the air and increasing oxygen levels." Mangroves act as carbon "sinks," sequestering harmful carbon dioxide from the air, storing the carbon in the wood and further mitigating the impacts of climate change. When the trees die, the carbon becomes confined to the waterlogged soil of their surroundings.

Q.7

Which of the following statements can be inferred about the Mangroves?

1 **Their efficient root filtration system does not absorb any salt from the water.**

2 **Mangroves can survive only in salty water.**

3 **Mangroves are slowly becoming extinct.**

4 **Branches of the Mangrove help in removal of excess salt.**

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Q.8

Which one of the following is not an adaptation that allows Mangroves to survive in salty water?

1 **An efficient salt filter in the roots**

2 **Excretion through leaves as well as branches**

3 **Thick and intricate root system**

4 **Capacity to store carbon and act as “carbon sinks”**

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Q.9

The author introduces the Mangrove as an 'unsung hero' as:

1 **they have evolved to thrive in harsh saltwater environment.**

2 **they are a part of the most productive yet threatened ecosystem in the world.**

3 **we have already lost 20% of all Mangroves since 1980.**

4 **they are a vital link in marine ecosystems and hold significant economic and cultural values to humans.**

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Q.10

Which of the following is not a role played by Mangroves?

1 **Promoting oxygen in the environment**

2 **Providing habitat to various fish and other aquatic creatures**

3 **Keeping the freshwater supply of Wadi in tact**

4 **Combating the impacts of climate change**

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Mangroves are trees and shrubs that have evolved to thrive in harsh saltwater environments. The ecosystems in which they are found are among the most important and productive in the world. But despite their significance, mangroves are one of the world's most threatened ecosystems. A 2010 study by the UN's Food and Agricultural Organization found 20 percent of all mangroves have been lost since 1980.

The importance of these unique trees cannot be overstated. They are a vital component and link in marine ecosystems, supporting an impressive web of life and numerous other ecological services. They also hold significant economic and cultural value to humans, providing us with a host of direct and indirect benefits. Mangroves are found along the tropical and subtropical coasts of Africa, Asia, Australia and the Americas.

Amgad al-Shaffai, a marine environment specialist, says of the 95 mangrove species found globally, two are found in Egypt — the grey mangrove and the red mangrove. The red mangrove is considerably less common, only found in areas south of Shalateen.

In Egypt, mangroves often grow in sheltered locations at the mouths of wadi systems. Although the wadis run dry most of the year, the mangroves benefit from the sporadic outflows of freshwater. "While mangroves tolerate very salty environments, they need freshwater sources to function and receive a boost from wadi flash floods," says Sara al-Sayed, a biomimicry specialist.

Various adaptations allow mangroves to flourish where other plants cannot survive. A filtration system in their roots prevents most salt from being taken up by the trees, and that which is absorbed is later excreted through the leaves and branches. The dense, tangled root system provides stability to the trees in a shallow environment constantly changing with the coming and going of the tide.

Shaffai notes the important role mangroves play in shoreline protection, acting as a natural shield by breaking up incoming wave energy, minimizing the damage caused by extreme weather conditions such as storm surges, rising sea levels, cyclones and tsunamis, in addition to preventing erosion of the coastline.

Mahmoud Hanafy, chief scientist at the Hurghada Environmental Protection and Conservation Association, describes the important role of mangrove ecosystems in providing habitat for spawning, nursery and feeding grounds to a diverse array of species including fish, shrimp, crabs, and crustaceans. In the Red Sea, Hanafy notes, mangroves are relied on for food or as a nursery ground by 35 species of fish and also provide a wildlife sanctuary out of the water to numerous insects and birds.

Sayed says 75 percent of the world's tropical commercial fish spend a portion of their lives in mangroves. "Mangroves are incredibly important and contribute to a holistic ecosystem, creating a condition conducive to life in an area that normally wouldn't support as much life," she adds.

Shaffai notes, "Another very important function of mangroves is their capacity to store carbon, reducing the amount of carbon dioxide in the air and increasing oxygen levels." Mangroves act as carbon "sinks," sequestering harmful carbon dioxide from the air, storing the carbon in the wood and further mitigating the impacts of climate change. When the trees die, the carbon becomes confined to the waterlogged soil of their surroundings.

Q.11

How do the Mangroves help in shoreline protection?

1 **They help to reduce the effect of sea-storms and rising sea levels.**

2 **They generate counter waves to tackle incoming wave energy.**

3 **They prevent damage caused to the shoreline by Tsunami and cyclones.**

4 **They act as feeding ground and habitat for 35 varieties of fish.**

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Answer key/Solution

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Q.12

Which of the following is true about the Mangroves?

1 **75% of world's fish benefit from Mangroves.**

2 **Mangroves help to control the impacts of climate change.**

3 **There are 35 species of fish in the Red Sea.**

4 **Mangroves only grow in sheltered locations at the mouth of the Wadi systems.**

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Answer key/Solution

Directions for questions (13 to 18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

Popper's early work attempts to solve the problem of demarcation and offer a clear criterion that distinguishes scientific theories from metaphysical or mythological claims. Popper's methodology holds that scientific theories are characterized by entailing predictions that future observations might reveal to be false. When theories are falsified by such observations, scientists can respond by revising the theory, or by rejecting the theory in favor of a rival or by maintaining the theory as is and changing an auxiliary hypothesis. In either case, however, this process must aim at the production of new, falsifiable predictions. While Popper recognizes that scientists can and do hold onto theories in the face of failed predictions when there are no predictively superior rivals to turn to, he holds that scientific practice is characterized by its continual effort to test theories against experience and make revisions based on the outcomes of these tests. By contrast, theories that are permanently immunized from falsification by the introduction of untestable ad hoc hypotheses can no longer be classified as scientific. Among other things, Popper argues that his falsificationist proposal allows for a solution of the problem of induction, since inductive reasoning plays no role in his account of theory choice.

While Popper shares the belief that there is a qualitative difference between science and philosophical metaphysics, he rejects the verifiability criterion for several reasons. First, it counts existential statements (like "unicorns exist") as scientific, even though there is no way of definitively showing that they are false. After all, the mere fact that one has failed to see a unicorn in a particular place does not establish that unicorns could not be observed in some other place. Second, it inappropriately counts universal statements (like "all swans are white") as meaningless simply because they can never be conclusively verified. These sorts of universal claims, though, are common within science, and certain observations (like the observation of a black swan) can clearly show them to be false. Finally, the verifiability criterion is by its own light not meaningful, since it cannot be verified.

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Q.13

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

1 ○ **A theory ceases to be non-scientific when the ad hoc hypothesis becomes testable.**

2 ○ **A truly scientific theory would not try to immunize itself from counter attacks.**

3 **Popper rejects the verifiability criterion for its inability to reconcile the problems of universal statements with existential statements.**

4 **The kind of maverick attitude shown by scientists like Darwin and Copernicus helps in clarifying the problem of demarcation.**

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Q.14

Popper calls religious theories unscientific because:

1 ○ **they make bold and counterintuitive claims.**

2 ○ **they simply copy Darwin and Copernicus without any scientific basis.**

3 ○ **they defy the demarcation criterion as they can neither be verified nor be confirmed by theorists.**

4 **they may not necessarily be verified or open to examination of falsibility.**

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Answer key/Solution

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Q.15

As per the author, science progresses by:

1 ○ **revising or adhering to a better rival theory.**

2 ○ **falsification, induction, and hypothesis testing.**

3 ○ **untestable ad hoc hypotheses and empirical verification.**

4 **deductive logic and verification of falsification.**

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Q.16

Which of the following can be inferred from the passage?

1 **The demarcation criterion between scientific and non-scientific theories is problematic.**

2 **Popper rejects the differences between science and metaphysics because of the verifiability demarcation.**

3 **If scientists can show a prediction to be false, it must have been unscientific to begin with.**

4 **A scientific theory, which future scientists can't challenge, is not bold.**

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Q.17

Which of the following statements would not be deemed scientific by Popper?

1 ○ **All the crows in the world are black**

2 ○ **God is undoubtedly the creator of the Universe.**

3 ○ **Dragons don't exist.**

4 **Inductive reasoning has flaws.**

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Q.18

Popper, according to the author, seems to be a proponent of:

1 ○ **the theory of logical deduction.**

2 ○ **the theory of deductive reasoning.**

3 ○ **the theory of falsibility and its demarcation.**

4 the theory of scientific verifiability.

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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.

As a steamboat commander in Congo, Joseph Conrad experienced the extent of the European—Belgian in this particular case—imperialism over the region and its consequences over the colonized peoples. The Belgian influence over Congo started with Leopold II in 1870 as a way "to ensure (Belgium's) prosperity" by means of the establishment and exploitation of colonies in the region, which had a "considerable economic potential" ("Congo"). Similarly, other European Empires, that found in Africa a source of wealth and workforce, embarked on a colonizing enterprise into the "Dark Continent." The military and economic power of the European Empires gave them the power to invade, colonize, and appropriate other territories they found profitable arguing a responsibility for the protection, enlightenment and civilization of the so-called primitive people in the world.

Colonialism is defined as "a political-economic phenomenon whereby various European nations explored, conquered, settled, and exploited large areas of the world" ("Colonialism" emphasis added). The word "exploited" is emphasized since the Empires' true agenda lies in the exploitation of the human and natural resources of the colonized territory. However, the colonized peoples are not the only ones who suffer from the Empire's mistreatment. Echoing Caryl Churchill, "An Outpost of Progress" presents the Empire as a discordant group of people with totally different cultures, ideals, backgrounds, and realities, in which not only the colonized but also some colonizers are alienated from the ideal of the European subject and considered secondclass citizens with no value for the kingdom rather than as work force. It criticizes the ideals of civilization and progress that the European empires imposed upon their colonies. Although the story presents two white, European men that are in charge of the outpost, it reverses the positions of power by giving Makola, a civilized African, the tools to manipulate Kayerts and Carlier, two foolish colonizers, from a subordinated position denouncing the Empire's unequal use of its subjects as mere objects of civilization replaceable at any moment.

Q.19

In this passage, the author attempts:

1 to showcase the role of power politics.

2 to show the futility of colonizers in an empire.

3 to showcase the concept of colonization as being problematic

4 to showcase the overall effect of colonization.

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Q.20

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

1 **The underlying aim of colonization was exploiting the territory for personal gain.**

2 **Civilized Africans had to the tools to counter the forces of colonization.**

3 **Europeans colonizers treated their subjects as secondclass citizens.**

4 **In a colonized society, the colonized people suffer as much as the subjects of the colonizers.**

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

As a steamboat commander in Congo, Joseph Conrad experienced the extent of the European—Belgian in this particular case—imperialism over the region and its consequences over the colonized peoples. The Belgian influence over Congo started with Leopold II in 1870 as a way "to ensure (Belgium's) prosperity" by means of the establishment and exploitation of colonies in the region, which had a "considerable economic potential" ("Congo"). Similarly, other European Empires, that found in Africa a source of wealth and workforce, embarked on a colonizing enterprise into the "Dark Continent." The military and economic power of the European Empires gave them the power to invade, colonize, and appropriate other territories they found profitable arguing a responsibility for the protection, enlightenment and civilization of the so-called primitive people in the world.

Colonialism is defined as "a political-economic phenomenon whereby various European nations explored, conquered, settled, and exploited large areas of the world" ("Colonialism" emphasis added). The word "exploited" is emphasized since the Empires' true agenda lies in the exploitation of the human and natural resources of the colonized territory. However, the colonized peoples are not the only ones who suffer from the Empire's mistreatment. Echoing Caryl Churchill, "An Outpost of Progress" presents the Empire as a discordant group of people with totally different cultures, ideals, backgrounds, and realities, in which not only the colonized but also some colonizers are alienated from the ideal of the European subject and considered secondclass citizens with no value for the kingdom rather than as work force. It criticizes the ideals of civilization and progress that the European empires imposed upon their colonies. Although the story presents two white, European men that are in charge of the outpost, it reverses the positions of power by giving Makola, a civilized African, the tools to manipulate Kayerts and Carlier, two foolish colonizers, from a subordinated position denouncing the Empire's unequal use of its subjects as mere objects of civilization replaceable at any moment.

Q.21

Imperialists colonized the "Dark Continent" because of:

1 **the affluence of the colonized country.**

2 **maximizing wealth.**

3 **their aim of liberating the native people.**

4 **their aim of protecting the poor locals from the exploitation by the wealthy locals.**

✖

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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.

Trump's habit of echoing the racist far right is now well-known, but back then, everyone was unsure of what was even happening, let alone what to call it. Two years later — after Richard Spencer, after Charlottesville — the public has heard a lot about white supremacist culture. But I'd argue that we haven't quite heard enough. To understand their ideologies and why they support this president so strongly, we need to examine their literature.

The books act as a kind of binding agent, a Bible-like codification of basic principles that underpin the various denominations. And yet, for understandable reasons, they remain largely unknown. Journalists are inclined to avoid name-checking the books publicly, for fear of inadvertently promoting them. This is no longer a winning strategy. Heidi Beirich, who tracks far-right hate groups for the Southern Poverty Law Center, agrees. "We needed to have been talking about these books for decades," she asserts. "They're very influential, they're reaching the highest levels of power, they're having an impact on terrorism, on policy, and so on. Not talking about them is just wrong." So, let's talk.

Most of the books are self-published. Others are distributed by small, activist imprints or the publishing arms of white nationalist organizations. They are sold online, at gun shows or person to person. This scattershot distribution system makes it hard to track sales, but the more popular titles are estimated to have sold hundreds of thousands of copies. I acquired some out-of-print titles from rare book dealers. They are dog-eared, annotated and often inscribed.

The genre ranges broadly in tone and topic, from dark, foreboding dramas to broad, slapstick comedies; from neo-Confederate romances to futuristic dystopian nightmares. They're dangerous and disgusting, for sure, but they're also absurdly stupid and, on the whole, very badly written. As a playwright who specializes in edgy humor, I find them endlessly fascinating. Their vocabulary of broad stereotypes, paranoid fantasies and preposterous global-takeover schemes is the stuff comedy is made of.

I have a particular affinity for the sci-fi books. One of the most popular is Ward Kendall's 2001 "Hold Back This Day," which imagines a future in which the evil all-powerful "World Gov" has forcibly united the population of Earth under one religion and, by way of enforced race-mixing, one uniformly brown-skinned population. Jeff Huxton is a "skoolplex" administrator and one of the world's few remaining white people. He slowly learns to cherish his white skin, becomes radicalized and joins a terrorist group called "Nayra" ("Aryan" spelled backwards!). They hijack a spaceship and travel to Avalon, a secret all-white colony on Mars, which has been transformed into a paradisiacal homeland.

Q.22

Which of the following is the primary purpose of the passage?

1 **To find answers to why white-supremacists support Trump**

2 **To examine the rising popularity of far-right ideology and its impact on the political scenario in the country**

3 **To study the role of a genre of literature in enhancing the popularity of far-right ideology and Trump**

4 **To trace the origin of racism in history**

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Bookmark

Answer key/Solution

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Q.23

Which of the following statements about the kind of books mentioned in the passage is the least likely to be true?

1 **The author of the passage finds them interesting and fascinating.**

2 **They reach their target-audience in a random, haphazard manner.**

3 **They cover a wide range of tones and topics.**

4 **They have far-reaching effects in the field of politics.**

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Answer key/Solution

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Q.24

Which of the following can be inferred to be the reason behind Beirich's opinion that not talking about these books is wrong?

1 **Journalists were afraid that mentioning these books would lead to their being promoted, though inadvertently.**

2 **It would make for interesting discussions as these books are hilarious.**

3 **These books are already influential and should not be neglected anymore.**

4 **Playwrights would learn a lot from the literary devices and techniques they employ.**

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Answer key/Solution

Q.25

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

The Human waste is full of disease-causing bacteria contaminating the air, food and water. When open defecation is done, it remains untreated, and interacts with the food chain through soil, water and crops. The open defecation is linked with the spread of polio and is considered to be one of the important challenges that the sanitation and health sector is facing. The lack of government attention when coupled with poor education and awareness level makes the situation more complicated; the communities sometimes do recognize the importance of toilets but the absence of proper forum where they could find some support is halting their progress.

1. The sanitation sector faces a threat in the form of open defecation which must be urgently recognized.
2. Open defecation, a source of multiple diseases, is not handled properly due to multiple factors.
3. The lack of public awareness and government support has exacerbated the problem of open defecation.
4. Communities that strive to tackle the problem of open defecation often are discouraged due to lack of support.

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Answer key/Solution

Q.26

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

Hundreds of thousands of bowel cancer patients stand to benefit from new research which found the recommended duration of chemotherapy treatment could be halved, sparing them possible nerve damage without harming their long-term survival. A global clinical trial involving nearly 13,000 patients in hospitals across the US, Europe and Asia has, in part, overturned existing standards which have recommended patients have six months of chemotherapy. In patients with stage three colon cancer, where the disease had spread from the initial tumour to the lymph nodes, a three month regimen appeared to be just as effective for many patients.

1. According to a research, a change in the duration of cancer chemotherapy could save hundreds of thousands from nerve damage.
2. According to a research, changes in the standard cancer chemotherapy would save many, without a harm.
3. According to a research, shortening the duration of the colon cancer chemotherapy could save several people from nerve damage.
4. According to a research, the duration of cancer chemotherapy could be reduced and prevent nerve damage in several patients.

✖

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Answer key/Solution

Q.27

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

Carrying to term a pregnancy against one's will is punishment enough- in fact, it can amount to torture, according to the United Nations Human Rights Council. But the Ohio bill would not only cut off access to the procedure, it would also open the door to criminal charges against both abortion providers and women seeking the procedure. One of the Republican co-sponsors of the legislation, State Representative Ron Hood, said it would be up to prosecutors to decide whether to charge a woman or a doctor, and what those charges would be. But they could be severe. Under the bill, an "unborn human" would be considered a person under state criminal homicide statutes. Thus, a prosecutor could decide to charge a woman who ended a pregnancy with murder. In Ohio, murder is punishable by life in prison or the death penalty.

1. Considering the death of an unborn child as a murder, a law in Ohio bans the procedure of abortion by criminalizing it.
2. Considering the death of an unborn child as homicide, a law in Ohio has banned the procedure of abortion, advocating severe punishment for the doctor and the woman.
3. Considering the death of an unborn child as murder, the Ohio bill will ban the procedure of abortion, with a severe punishment for the doctor and the woman.
4. Considering the death of an unborn child as murder, the bill in Ohio will criminalize the act of abortion.

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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. Matter sucked into them would emit blasts of radiation, a mechanism that would explain quasars' energetic emissions.
2. Therefore, it was realised that only objects of incredible energy could be responsible for their output - and that suggested the involvement of black holes.
3. Quasars were discovered in the Sixties, when they were assumed to be nearby stars because their radiation was so bright and intense.
4. Black holes are super-heavy, collapsed giant stars whose gravity is so powerful not even light can escape their surfaces.
5. Subsequent observations revealed, however, that they were the most distant objects known to mankind, and lay at the other end of the universe.

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Answer key/Solution

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. But this phrase is obsolete in medical circles.
2. Experts say the procedure laid down by the court for withdrawing life support is unduly complicated.
3. The judgment restricts itself to the withdrawal or withholding of life-support, which it refers to as "passive euthanasia".
4. A 2018 document from the Indian Council of Medical Research says 'passive euthanasia' is an inappropriate term because it suggests that the doctor is actively shortening the patient's life with lethal drugs.
5. In a judgment on March 9, the Supreme Court said people suffering from a terminal illness had a right to a dignified death, as part of the right to life enshrined in Article 21 of the Constitution.

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Answer key/Solution

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. The Thorntons try to fix him up with right-on sugar-boycotting babe Barbara Spooner, but he's trapped under the weight of his cares and doesn't have the energy to flirt.
2. The screenplay is overwhelmed by exposition.
3. In real life, however, Wilberforce disapproved of the popular campaign to refuse sugar.
4. After a series of failed abolition bills, Wilberforce is hooked on laudanum and hallucinates context-less images of African children in chains.
5. "Your last bill was defeated because four of your loyal supporters took free tickets to a comic opera rather than stay to vote," Henry Thornton tells Wilberforce, who, one would imagine, had already noticed that.

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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. Why my wife and I never bought a video camera, I don't know (laziness? expense?).

2. The results have been pasted in albums and dated, and every so often I get them out to see what we got up to. These, too, make me tearful.

3. But she at least has been diligent down the years, with box cameras, Polaroids, disposables and (most recently) a digital Canon.

4. My father's childhood was heavily documented by comparison, and he was scrupulous about documenting his children's, first in tiny black-and-white prints, then with colour transparencies, which were looked at through a viewfinder or on a white screen.

5. He also had a cine camera, and I sometimes feel guilty that my own children, unlike me, have no moving images of themselves to look back on.

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Answer key/Solution

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. In the capital of the world's largest Muslim-majority nation, the incumbent Jakarta governor Basuki Purnama Tjahaja, better known as Ahok, is battling to retain his seat.

2. Millions of Jakarta residents will go to the polls on Wednesday in a vote that is being seen as a "litmus test" of Indonesian Islam.

3. Mass protests by religious hardliners and the legal proceedings that followed have led some observers to view Wednesday's election as a test of Indonesia's much-touted commitment to pluralism.

4. Ahok was the favourite to win the vote until he became embroiled in a blasphemy scandal.

5. One reason the Jakarta governorship is so hotly contested is the potential bearing it is perceived to have on the presidency.

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Answer key/Solution

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. However it all went pear-shaped in sleepy old Christchurch, on the field.
2. Being in Christchurch now reminds me of another time when cricket found its way to the front pages, at least those of the Mail On Sunday and the Daily Express.
3. The first Test in Wellington had been a high-scoring draw in which Martin Crowe and Jeremy Coney batted for hour after hour to save the match.
4. In fact I have a few clear memories of the tour, which include the warm relationships between the two sides.
5. Cricket seldom makes the front pages with a good news story.

✔

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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. Writing in the journal Nature Communications, Zhan describes how the cockroach has an expanded set of genes that helps it sense the smells that waft off food, in particular the fermented foods it favours most.
2. Together they make the cockroaches more resilient in the face of the filth they live in.
3. Another group of genes comprise the insect's internal detoxification system, which protects the cockroach should it eat anything toxic.
4. The American cockroach spread around the world after it was introduced to the US from Africa in the early 16th century.
5. The cockroach has more than 20,000 genes, making its genetic code as large as a human's.

✔

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Answer key/Solution

Sec 2

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

Grand slam tournaments are the most prestigious individual competitions in tennis. Each grand slam is a knock-out tournament, where the losing team in each match is eliminated from the tournament and the winning team is advanced to the next round.

The following table provides the information about the performances of 5 Tennis Players in the 5 different grand slams, held in 2018. The table mentions the last match won by these five respective players in respective grand slams, in which QF means Quarter Finals, SF means Semifinals and F means Finale.

Players / Grand Slams	Federer	Nadal	Djokovic	Wamrinka	Murray
Australian Open	F	SF	-	-	-
French Open	-	F	2nd round	3rd round	-
Wimbledon	F	-	-	QF	QF
US Open	-	QF	F	-	-
Canadian Open	QF	3rd Round	SF	F	-

There were exactly 128 players in the first round of each grand slam tournament. Hence, there were 64 matches played in 1st round of each tournament. Then 32 matches played in 2nd round of each tournament, then 16 matches in 3rd round and so on. So, 7th round is the finale for each tournament. Also there were no ties in any round of any tournament.

Further, it is also known that,
1. Finale of each of the above mentioned 5 grand slams were played between the 2 players from the set of these 5 mentioned players only.
2. No two finale were played between the same set of 2 players.
3. In any grand slam, in each round, each match is of at most 5 sets, where each set is of at most 11 games. So, to win a match, a player needs to win 3 sets i.e more than 50% of the sets played and to win a set, he needs to win 6 games i.e more than 50% of total games played. No game ends in a tie/draw.
4. The moment any player win 6 games of a set, no further games will be played in that set. Similarly, the moment a player wins 3 sets in a match, no further sets will be played in that match.

Q.35
Considering the best possible performances for all the 5 players, which player could have made the most number of semi-finals appearances?

1 **Federer**

2 **Djokovic**

3 Federer and Djokovic

4 Murray and Federer

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Answer key/Solution

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US Open	-	QF	F	-	-
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4. The moment any player win 6 games of a set, no further games will be played in that set. Similarly, the moment a player wins 3 sets in a match, no further sets will be played in that match.

Q.36
What can be the maximum number of games won by Federer in the 5 grand slams taken together?

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Answer key/Solution

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4. The moment any player win 6 games of a set, no further games will be played in that set. Similarly, the moment a player wins 3 sets in a match, no further sets will be played in that match.

Q.37
Who is the other finalist against Djokovic in US Open?

1 **Federer**

2 **Murray**

3 **Wamrinka**

4 **Cannot be determined**

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Answer key/Solution

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4. The moment any player win 6 games of a set, no further games will be played in that set. Similarly, the moment a player wins 3 sets in a match, no further sets will be played in that match.

Q.38
What can be the last possible round played by Nadal in Wimbledon?(Considering the best possible performances for all the 5 players)

1 **4th round**

2 **3rd round**

3 **6th round**

4 5th round

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Answer key/Solution

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

Six companies - EY, KPMG, Deloitte, PwC, Gartner and BCG - went to 8 different colleges - A1, A2, ..., A8 - to hire the students. The number of students hired from a college is different for every company. The table shown below comprised the number of students hired from the colleges by the 6 companies. However, some cells in the table are left blank intentionally. But it is known that these values were either 0,1 or 3.

	EY	KPMG	Deloitte	PwC	Gartner	BCG
A1	35		12			15
A2		20	9		23	
A3	24		22	35	9	7
A4	21	24		15		26
A5		25		17		27
A6	38		13		37	
A7	10	18	17			
A8		10	25			16

1. Only EY and KPMG hired different number of students from each college.
2. The total number of students hired by all these companies from college A3 was 13 more than that from college A4.
3. Deloitte hired at least one student from each of these eight colleges.
4. Deloitte hired more students than what BCG hired but less students than what KPMG hired.
5. Sum of the number of students hired by PwC from A1, A4 and A8 is equal to the number of students hired by Deloitte from A7 alone.
6. Total number of students hired from the college A5 by all the six companies was 1 more than the total number of students hired by PwC from all the eight colleges. Similarly, the total number of students hired from the college A3 was 3 more than the total number of students hired by BCG from all the 8 colleges.

Q.39

If PwC hired same number of students from colleges A6 and A7, then how many students did BCG hire from college A2?

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Answer key/Solution

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

Six companies - EY, KPMG, Deloitte, PwC, Gartner and BCG - went to 8 different colleges - A1, A2, ..., A8 - to hire the students. The number of students hired from a college is different for every company. The table shown below comprised the number of students hired from the colleges by the 6 companies. However, some cells in the table are left blank intentionally. But it is known that these values were either 0,1 or 3.

	EY	KPMG	Deloitte	PwC	Gartner	BCG
A1	35		12			15
A2		20	9		23	
A3	24		22	35	9	7
A4	21	24		15		26
A5		25		17		27
A6	38		13		37	
A7	10	18	17			
A8		10	25			16

1. Only EY and KPMG hired different number of students from each college.
2. The total number of students hired by all these companies from college A3 was 13 more than that from college A4.
3. Deloitte hired at least one student from each of these eight colleges.
4. Deloitte hired more students than what BCG hired but less students than what KPMG hired.
5. Sum of the number of students hired by PwC from A1, A4 and A8 is equal to the number of students hired by Deloitte from A7 alone.
6. Total number of students hired from the college A5 by all the six companies was 1 more than the total number of students hired by PwC from all the eight colleges. Similarly, the total number of students hired from the college A3 was 3 more than the total number of students hired by BCG from all the 8 colleges.

Q.40

What is the total number of students hired by all the companies taken together?

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Answer key/Solution

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

Six companies - EY, KPMG, Deloitte, PwC, Gartner and BCG - went to 8 different colleges - A1, A2, ..., A8 - to hire the students. The number of students hired from a college is different for every company. The table shown below comprised the number of students hired from the colleges by the 6 companies. However, some cells in the table are left blank intentionally. But it is known that these values were either 0,1 or 3.

	EY	KPMG	Deloitte	PwC	Gartner	BCG
A1	35		12			15
A2		20	9		23	
A3	24		22	35	9	7
A4	21	24		15		26
A5		25		17		27
A6	38		13		37	
A7	10	18	17			
A8		10	25			16

1. Only EY and KPMG hired different number of students from each college.
2. The total number of students hired by all these companies from college A3 was 13 more than that from college A4.
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6. Total number of students hired from the college A5 by all the six companies was 1 more than the total number of students hired by PwC from all the eight colleges. Similarly, the total number of students hired from the college A3 was 3 more than the total number of students hired by BCG from all the 8 colleges.

Q.41

If 17 students, out of those hired by BCG, switch to EY and KPMG next year in such a way that the new ratio of total number of students in EY and KPMG becomes 27 : 23, then the number of students switched to EY is how much less than those who switched to KPMG?

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Answer key/Solution

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

Six companies - EY, KPMG, Deloitte, PwC, Gartner and BCG - went to 8 different colleges - A1, A2, ..., A8 - to hire the students. The number of students hired from a college is different for every company. The table shown below comprised the number of students hired from the colleges by the 6 companies. However, some cells in the table are left blank intentionally. But it is known that these values were either 0,1 or 3.

	EY	KPMG	Deloitte	PwC	Gartner	BCG
A1	35		12			15
A2		20	9		23	
A3	24		22	35	9	7
A4	21	24		15		26
A5		25		17		27
A6	38		13		37	
A7	10	18	17			
A8		10	25			16

1. Only EY and KPMG hired different number of students from each college.
2. The total number of students hired by all these companies from college A3 was 13 more than that from college A4.
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6. Total number of students hired from the college A5 by all the six companies was 1 more than the total number of students hired by PwC from all the eight colleges. Similarly, the total number of students hired from the college A3 was 3 more than the total number of students hired by BCG from all the 8 colleges.

Q.42

After a year, when progress reports of all these companies came, it was observed that Deloitte earned the maximum profit. Inspired by which PwC observed Deloitte's recruitment pattern to increase its own profit.

Now PwC also wants its employees numbers in such a way that there will be different number of students recruited from each college and also wants at least one student from each college. What is the minimum number of students PwC needs to hire more to fulfill this criteria?

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Answer key/Solution

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

Three friends – Leonardo, Pablo and Michael decide to draw a large painting in the following manner:

They divide the large painting into 5 parts named as A, B, C, D and E. They decide that they will finish the parts one by one in the following order – A, B, C, D and E. They also decide that on each part they will work in the following order – first Leonardo will finish his work on that part, then Pablo will finish his work on that part and then Michael will finish his work on that part, considering one cannot start working on the next part without finishing his part of work on the previous part. They also decide that one person can work on exactly any one part at a time and exactly one person can work on any part at a time. They also decide that they will minimize the idle time as much as possible i.e. a person will sit idle only when another person is working on the part on which he has to work next. They draw the following table which indicates the time (in number of days) that each one of them will take to finish his work on each of the five parts.

	Leonardo	Pablo	Michael
Part A	5	7	8
Part B	9	3	2
Part C	3	6	7
Part D	4	8	2
Part E	4	5	9

Q.43

If Leonardo starts working on Part A on 1st January 2018 then they will finish working on the painting, at the earliest, on which of the following days? (Assume they all start working on the same day)

1 **12th February 2018**

2 **13th February 2018**

3 **14th February 2018**

4 **15th February 2018**

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Answer key/Solution

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

Three friends – Leonardo, Pablo and Michael decide to draw a large painting in the following manner:

They divide the large painting into 5 parts named as A, B, C, D and E. They decide that they will finish the parts one by one in the following order – A, B, C, D and E. They also decide that on each part they will work in the following order – first Leonardo will finish his work on that part, then Pablo will finish his work on that part and then Michael will finish his work on that part, considering one cannot start working on the next part without finishing his part of work on the previous part. They also decide that one person can work on exactly any one part at a time and exactly one person can work on any part at a time. They also decide that they will minimize the idle time as much as possible i.e. a person will sit idle only when another person is working on the part on which he has to work next. They draw the following table which indicates the time (in number of days) that each one of them will take to finish his work on each of the five parts.

	Leonardo	Pablo	Michael
Part A	5	7	8
Part B	9	3	2
Part C	3	6	7
Part D	4	8	2
Part E	4	5	9

Q.44

If they finish working on the painting in the minimum possible number of days, then for how many days (from the first day till the last day) Michael will have to sit idle? (Assume they all start working on the same day)

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Answer key/Solution

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

Three friends – Leonardo, Pablo and Michael decide to draw a large painting in the following manner:

They divide the large painting into 5 parts named as A, B, C, D and E. They decide that they will finish the parts one by one in the following order – A, B, C, D and E. They also decide that on each part they will work in the following order – first Leonardo will finish his work on that part, then Pablo will finish his work on that part and then Michael will finish his work on that part, considering one cannot start working on the next part without finishing his part of work on the previous part. They also decide that one person can work on exactly any one part at a time and exactly one person can work on any part at a time. They also decide that they will minimize the idle time as much as possible i.e. a person will sit idle only when another person is working on the part on which he has to work next. They draw the following table which indicates the time (in number of days) that each one of them will take to finish his work on each of the five parts.

	Leonardo	Pablo	Michael
Part A	5	7	8
Part B	9	3	2
Part C	3	6	7
Part D	4	8	2
Part E	4	5	9

Q.45

If they finish working on the painting in the minimum possible number of days and Michael started working on Part C on 3rd March 2018, then on which day Pablo started working on Part E?(Assume they all start working on the same day)

1 **11th March 2018**

2 **12th March 2018**

3 **13th March 2018**

4 **None of these**

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Answer key/Solution

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

Three friends – Leonardo, Pablo and Michael decide to draw a large painting in the following manner:

They divide the large painting into 5 parts named as A, B, C, D and E. They decide that they will finish the parts one by one in the following order – A, B, C, D and E. They also decide that on each part they will work in the following order – first Leonardo will finish his work on that part, then Pablo will finish his work on that part and then Michael will finish his work on that part, considering one cannot start working on the next part without finishing his part of work on the previous part. They also decide that one person can work on exactly any one part at a time and exactly one person can work on any part at a time. They also decide that they will minimize the idle time as much as possible i.e. a person will sit idle only when another person is working on the part on which he has to work next. They draw the following table which indicates the time (in number of days) that each one of them will take to finish his work on each of the five parts.

	Leonardo	Pablo	Michael
Part A	5	7	8
Part B	9	3	2
Part C	3	6	7
Part D	4	8	2
Part E	4	5	9

Q.46

If they finish working on the painting in the minimum possible number of days, then on how many days (from the first day till the last day) no one of them was sitting idle? (Assume they all start working on the same day)

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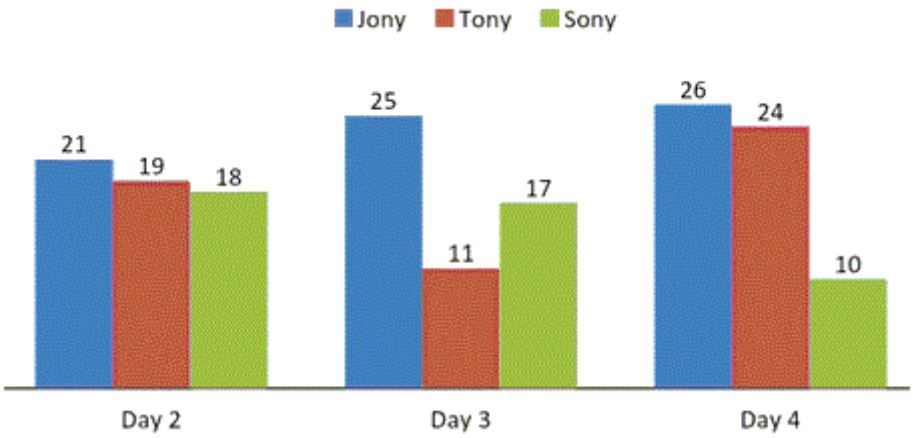
Answer key/Solution

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

Four friends - Jony, Mony, Tony and Sony - have 12 vocabulary cards with them. Each vocabulary card has a number printed on it, from 1 to 12, which is known as the 'value' of that card. No two cards has same number printed on it.
On Day 1, the four friends distribute these 12 cards equally among themselves i.e, each friend has 3 cards with himself.
In the beginning of Day 2 each of them gives exactly one card to each of the other three friends and they repeat the same process in the beginning of Day 3 as well.
In the beginning of Day 4, they re-shuffle the cards among themselves in such a way that each one of them gets a set of three different cards from the ones they had in past three days.
No friend gets any of the cards having same value for two or more times in the span of these four days.
The diagram shown below gives the sum of the values of the cards with each of Jony, Tony and Sony at the end of Day 2, Day 3 and Day 4.



Q.47
What is the sum of the values of all the cards with Mony on Day 1?

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Answer key/Solution

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

Four friends - Jony, Mony, Tony and Sony - have 12 vocabulary cards with them. Each vocabulary card has a number printed on it, from 1 to 12, which is known as the 'value' of that card. No two cards has same number printed on it.
On Day 1, the four friends distribute these 12 cards equally among themselves i.e, each friend has 3 cards with himself.
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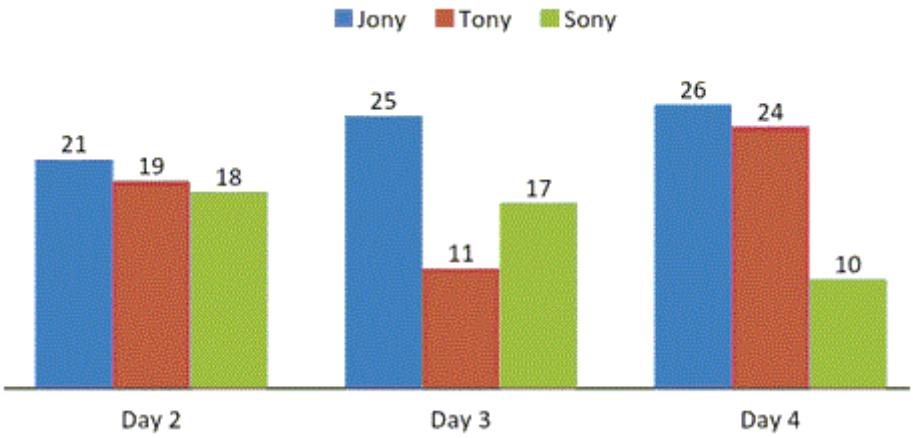
In the beginning of Day 4, they re-shuffle the cards among themselves in such a way that each one of them gets a set of three different cards from the ones they had in past three days.
No friend gets any of the cards having same value for two or more times in the span of these four days.
The diagram shown below gives the sum of the values of the cards with each of Jony, Tony and Sony at the end of Day 2, Day 3 and Day 4.



Q.48
If, out of all the cards that were there with Tony at the end of Day 3, exactly 'n' cards were obtained by Mony at the end of Day 4, then what is the value of 'n'?

1 **0**

2 **1**

3 **2**

4 **3**

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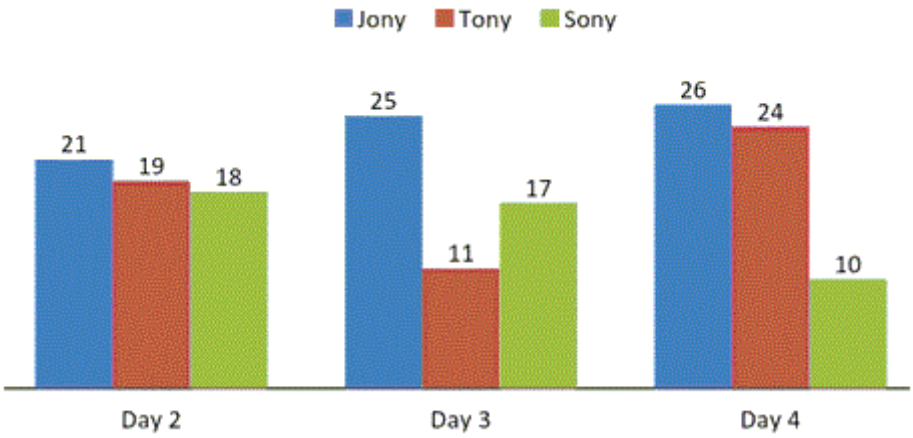
Answer key/Solution

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

Four friends - Jony, Mony, Tony and Sony - have 12 vocabulary cards with them. Each vocabulary card has a number printed on it, from 1 to 12, which is known as the 'value' of that card. No two cards has same number printed on it.
On Day 1, the four friends distribute these 12 cards equally among themselves i.e, each friend has 3 cards with himself.
In the beginning of Day 2 each of them gives exactly one card to each of the other three friends and they repeat the same process in the beginning of Day 3 as well.
In the beginning of Day 4, they re-shuffle the cards among themselves in such a way that each one of them gets a set of three different cards from the ones they had in past three days.
No friend gets any of the cards having same value for two or more times in the span of these four days.
The diagram shown below gives the sum of the values of the cards with each of Jony, Tony and Sony at the end of Day 2, Day 3 and Day 4.



Q.49
Who among the following obtained the card valued as 12 on Day 4?

1 **Jony**

2 **Mony**

3 **Tony**

4 **Sony**

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Answer key/Solution

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

Four friends - Jony, Mony, Tony and Sony - have 12 vocabulary cards with them. Each vocabulary card has a number printed on it, from 1 to 12, which is known as the 'value' of that card. No two cards has same number printed on it.
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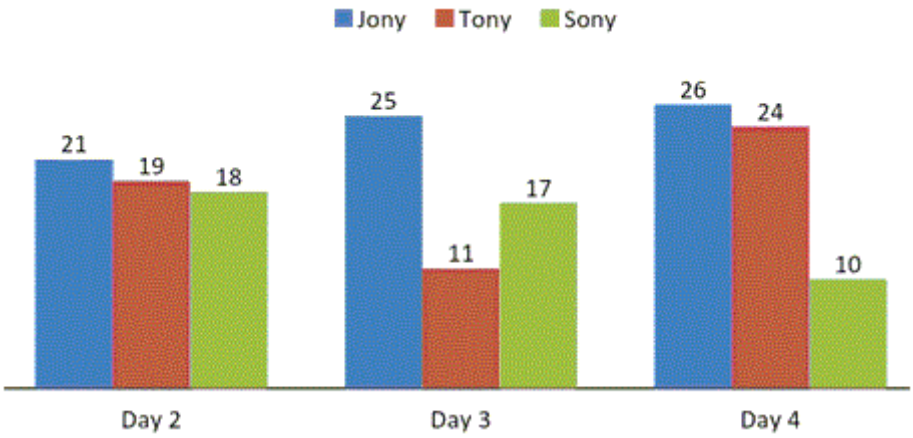

Q.50
What was the maximum difference between the values of any two cards, out of all the cards that were there with Jony, on Day 2?

1 **3**

2 **6**

3 **1**

4 **10**

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Answer key/Solution

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

A group of 250 students appeared for tests conducted in 4 different areas – QA, VA, LR and DI. For every 2 students who passed in all the 4 tests, there is 1 student in each combination of exactly 3 passed tests by students, and for every 2 students who passed in (QA, VA and LR) only, there is 1 student in each of the possibilities of exactly 1 passed test by students. The number of students who passed in (VA and DI) is twice the number of students who passed in (QA and LR), and the number of students who passed in (QA and DI) is twice the number of students who passed in (VA and LR). The number of students who passed in only (QA and VA) is equal to the number of students who passed in only (LR and DI), which is 50.

The total number of students who passed in QA is 100 and the number of students who passed in only QA is an even number. The number of students who passed in QA is more than the number of students who passed in VA.

Q.51

Find the minimum number of students who passed in none of the four mentioned tests.

1 **50**

2 **65**

3 **0**

4 **60**

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Answer key/Solution

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

A group of 250 students appeared for tests conducted in 4 different areas – QA, VA, LR and DI. For every 2 students who passed in all the 4 tests, there is 1 student in each combination of exactly 3 passed tests by students, and for every 2 students who passed in (QA, VA and LR) only, there is 1 student in each of the possibilities of exactly 1 passed test by students. The number of students who passed in (VA and DI) is twice the number of students who passed in (QA and LR), and the number of students who passed in (QA and DI) is twice the number of students who passed in (VA and LR). The number of students who passed in only (QA and VA) is equal to the number of students who passed in only (LR and DI), which is 50.

The total number of students who passed in QA is 100 and the number of students who passed in only QA is an even number. The number of students who passed in QA is more than the number of students who passed in VA.

Q.52

How many students failed in at most 1 test?

1 **65**

2 **24**

3 **12**

4 **Cannot be determined**

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Answer key/Solution

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

A group of 250 students appeared for tests conducted in 4 different areas – QA, VA, LR and DI. For every 2 students who passed in all the 4 tests, there is 1 student in each combination of exactly 3 passed tests by students, and for every 2 students who passed in (QA, VA and LR) only, there is 1 student in each of the possibilities of exactly 1 passed test by students. The number of students who passed in (VA and DI) is twice the number of students who passed in (QA and LR), and the number of students who passed in (QA and DI) is twice the number of students who passed in (VA and LR). The number of students who passed in only (QA and VA) is equal to the number of students who passed in only (LR and DI), which is 50.

The total number of students who passed in QA is 100 and the number of students who passed in only QA is an even number. The number of students who passed in QA is more than the number of students who passed in VA.

Q.53
How many students passed in (LR and DI)?

1 **66**

2 **58**

3 **50**

4 **Cannot be determined**

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Answer key/Solution

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

A group of 250 students appeared for tests conducted in 4 different areas – QA, VA, LR and DI. For every 2 students who passed in all the 4 tests, there is 1 student in each combination of exactly 3 passed tests by students, and for every 2 students who passed in (QA, VA and LR) only, there is 1 student in each of the possibilities of exactly 1 passed test by students. The number of students who passed in (VA and DI) is twice the number of students who passed in (QA and LR), and the number of students who passed in (QA and DI) is twice the number of students who passed in (VA and LR). The number of students who passed in only (QA and VA) is equal to the number of students who passed in only (LR and DI), which is 50.

The total number of students who passed in QA is 100 and the number of students who passed in only QA is an even number. The number of students who passed in QA is more than the number of students who passed in VA.

Q.54

In which test did the maximum number of students pass?

1 **QA**

2 **LR**

3 **DI**

4 **VA**

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Answer key/Solution

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

A builder wanted to divide a rectangular ground in smaller areas, which are in shape of rectangles, for one of his clients. For this, he has drawn some parallel vertical lines so that the rectangle gets divided into 5 columns. And also draws some parallel horizontal lines which divide the rectange into 4 rows and this whole procedure divides the ground in 4 × 5 smaller rectangular areas. These vertical and horizontal parallel lines need not be equidistant from each other and hence the areas of the smaller rectangular regions need not be same for every region.

Based on this division and the distances between parallel lines, he calculated the areas of the so formed rectangular regions and prepared a blueprint for the same in the form of a rectangular grid. While presenting this blueprint to his client, he found out that he forgot to write some of the data and had the following grid with him:

Column / Row	1	2	3	4	5
1	2	4	D	12	J
2	A	6	12	G	K
3	9	C	E	H	27
4	B	10	F	I	L

The rectangle represents the ground with smaller rectangles being the one made by those parallel lines. Quantity written inside any rectangle represents the area (in sq. unit) of that rectangle. Also, this quantity is denoted by C_{ij}, where i represents the row number and j represents the column number of that cell.

Q.55

Values for how many alphabets, written in the blueprint, cannot be found?

1 **0**

2 **1**

3 **2**

4 **12**

✔

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Answer key/Solution

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

A builder wanted to divide a rectangular ground in smaller areas, which are in shape of rectangles, for one of his clients. For this, he has drawn some parallel vertical lines so that the rectangle gets divided into 5 columns. And also draws some parallel horizontal lines which divide the rectange into 4 rows and this whole procedure divides the ground in 4 × 5 smaller rectangular areas. These vertical and horizontal parallel lines need not be equidistant from each other and hence the areas of the smaller rectangular regions need not be same for every region.

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1	2	4	D	12	J
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3	9	C	E	H	27
4	B	10	F	I	L

The rectangle represents the ground with smaller rectangles being the one made by those parallel lines. Quantity written inside any rectangle represents the area (in sq. unit) of that rectangle. Also, this quantity is denoted by C_{ij}, where i represents the row number and j represents the column number of that cell.

Q.56

Find the value of $(C_{23} + C_{41} - C_{43})$.

1 **–3**

2 **5**

3 **0**

4 **Cannot be determined**

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Answer key/Solution

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

A builder wanted to divide a rectangular ground in smaller areas, which are in shape of rectangles, for one of his clients. For this, he has drawn some parallel vertical lines so that the rectangle gets divided into 5 columns. And also draws some parallel horizontal lines which divide the rectange into 4 rows and this whole procedure divides the ground in 4 × 5 smaller rectangular areas. These vertical and horizontal parallel lines need not be equidistant from each other and hence the areas of the smaller rectangular regions need not be same for every region.

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Column / Row	1	2	3	4	5
1	2	4	D	12	J
2	A	6	12	G	K
3	9	C	E	H	27
4	B	10	F	I	L

The rectangle represents the ground with smaller rectangles being the one made by those parallel lines. Quantity written inside any rectangle represents the area (in sq. unit) of that rectangle. Also, this quantity is denoted by C_{ij}, where i represents the row number and j represents the column number of that cell.

Q.57

If 24 is written instead of 12 in C_{14} and C_{23}, then value of how many alphabets will be impacted?

1 **0**

2 **6**

3 **9**

4 **Cannot be determined**

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Answer key/Solution

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

A builder wanted to divide a rectangular ground in smaller areas, which are in shape of rectangles, for one of his clients. For this, he has drawn some parallel vertical lines so that the rectangle gets divided into 5 columns. And also draws some parallel horizontal lines which divide the rectange into 4 rows and this whole procedure divides the ground in 4 × 5 smaller rectangular areas. These vertical and horizontal parallel lines need not be equidistant from each other and hence the areas of the smaller rectangular regions need not be same for every region.

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Column / Row	1	2	3	4	5
1	2	4	D	12	J
2	A	6	12	G	K
3	9	C	E	H	27
4	B	10	F	I	L

The rectangle represents the ground with smaller rectangles being the one made by those parallel lines. Quantity written inside any rectangle represents the area (in sq. unit) of that rectangle. Also, this quantity is denoted by C_{ij}, where i represents the row number and j represents the column number of that cell.

Q.58

What is the number of factors of the total area (in sq. unit) of the rectangular ground?

1 **12**

2 **4**

3 **10**

4 **8**

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Answer key/Solution

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

There are five temples situated on the five islands in a sea in East - West direction in a row. Each temple can be visited by boats only, as there is no other means available to connect the islands on which these temples are situated. A lane connects two consecutive temples, situated in the row. Boats have to follow a certain water lane to reach from one temple to the other and same for return journey also. Deepak, after having a hectic schedule at work on a Friday, decided to visit these five temples on his religious trip. He started his journey from Eastern most islands, as it is the nearest one to his office , and moves towards the West, visiting the other four temples in turn from 1st to 5th. And thereafter decided to stay near the Western most temple on weekend.

Further, some additional information about his visit to these temples is known.
• After visiting the temple on Agni island, Deepak immediately used the Bhakti lane to reach the island on which Shiv temple is situated.
• Deepak used Kripa lane to reach the next island from Divya island.
• While going directly from the temple on Naag island to the Laxman temple, he used the Satya lane.
• Daya lane took Deepak directly from Hari temple to the temple on Prithvi island.
• Ram temple is neither on Prithvi island nor on Naag island.
• One of the temples visited by Deepak is Sita temple and one of the five islands is Tejas island.

Q.59
On which island Shiv temple is situated?

1 **Tejas**

2 **Naag**

3 **Divya**

4 **Prithvi**

✔

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Answer key/Solution

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

There are five temples situated on the five islands in a sea in East - West direction in a row. Each temple can be visited by boats only, as there is no other means available to connect the islands on which these temples are situated. A lane connects two consecutive temples, situated in the row. Boats have to follow a certain water lane to reach from one temple to the other and same for return journey also. Deepak, after having a hectic schedule at work on a Friday, decided to visit these five temples on his religious trip. He started his journey from Eastern most islands, as it is the nearest one to his office , and moves towards the West, visiting the other four temples in turn from 1st to 5th. And thereafter decided to stay near the Western most temple on weekend.

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• Ram temple is neither on Prithvi island nor on Naag island.
• One of the temples visited by Deepak is Sita temple and one of the five islands is Tejas island.

Q.60
Which of the following two islands are connected by Satya lane?

1 **Naag-Agni**

2 **Naag-Tejas**

3 **Naag-Prithvi**

4 **Naag-Divya**

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Answer key/Solution

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

There are five temples situated on the five islands in a sea in East - West direction in a row. Each temple can be visited by boats only, as there is no other means available to connect the islands on which these temples are situated. A lane connects two consecutive temples, situated in the row. Boats have to follow a certain water lane to reach from one temple to the other and same for return journey also. Deepak, after having a hectic schedule at work on a Friday, decided to visit these five temples on his religious trip. He started his journey from Eastern most islands, as it is the nearest one to his office , and moves towards the West, visiting the other four temples in turn from 1st to 5th. And thereafter decided to stay near the Western most temple on weekend.

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• Ram temple is neither on Prithvi island nor on Naag island.
• One of the temples visited by Deepak is Sita temple and one of the five islands is Tejas island.

Q.61
Which temple is situated on Tejas island?

1 **Ram**

2 **Laxman**

3 **Hari**

4 **Sita**

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Answer key/Solution

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

There are five temples situated on the five islands in a sea in East - West direction in a row. Each temple can be visited by boats only, as there is no other means available to connect the islands on which these temples are situated. A lane connects two consecutive temples, situated in the row. Boats have to follow a certain water lane to reach from one temple to the other and same for return journey also. Deepak, after having a hectic schedule at work on a Friday, decided to visit these five temples on his religious trip. He started his journey from Eastern most islands, as it is the nearest one to his office , and moves towards the West, visiting the other four temples in turn from 1st to 5th. And thereafter decided to stay near the Western most temple on weekend.

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• Ram temple is neither on Prithvi island nor on Naag island.
• One of the temples visited by Deepak is Sita temple and one of the five islands is Tejas island.

Q.62
If moving towards Naag island from Ram temple, then which of the following lane must be used?

1 **Bhakti**

2 **Satya**

3 **Kripa**

4 **Daya**

✔

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Answer key/Solution

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

In IPL 2017, there were eight teams namely, Daredevils, Kings XI, Super Kings, Challengers, Royals, Indians, Knights and Chargers. Each of these 8 teams was allotted a state venue which remains same till the end of the tournament. No two teams had same state as their venue. Each team was supposed to play two matches with each of the other teams, one at their own venue and second at the other team's venue.

For every win a team was awarded two points whereas for every lose no points were awarded. Both the teams were awarded one point each, if the match played between them ended in a draw.

After all the matches were played, a rank was assigned to each team based on their scores i.e team with highest total score was given rank 1, then team with second highest score was given rank 2 and so on till the team with the lowest score was assigned with rank 8. No two teams got the same rank. In case two teams had equal total points, the team having better NRR (Net Run Rate) was given a higher rank, where NRR was calculated for each team. Rank 1 being the highest rank and rank 8 being the lowest. Teams with top 4 ranks were qualified to play semi-finals. After all these matches, Mr. Mody, the incharge of IPL, wanted to announce the top four teams qualified for the semi-finals at a press conference but his secretary lost some important data of the final score board due to computer mal-functioning. With no choice left and being a Math savvy himself, Mr. Mody decided to interpret the qualifiers based on the remaining data he had with himself. Following is the data available to Mr. Mody:

Team	Win	Lose	Draw	Points	NRR
Challengers	8				–0.191
Kings XI		7			–0.483
Super Kings	7				+0.951
Knights	4				–0.389
Indians		6			+0.297
Royals		7			–0.352
Chargers	7				+0.311
Daredevils		5			+0.203

Apart from the above table, some more results Mr. Mody remembered about the matches played till then were as follows:
1. Knights and Indians were the only teams which got odd number of total points.
2. Each of Kings XI, Super Kings and Royals had at least one match ended in a draw.
3. Out of all these played matches, only 4 matches ended in a draw.

Q.63
Which team failed to qualify for the semi-finals just by one position?

1 **Royals**

2 **Chargers**

3 **Indians**

4 **Kings XI**

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Answer key/Solution

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

In IPL 2017, there were eight teams namely, Daredevils, Kings XI, Super Kings, Challengers, Royals, Indians, Knights and Chargers. Each of these 8 teams was allotted a state venue which remains same till the end of the tournament. No two teams had same state as their venue. Each team was supposed to play two matches with each of the other teams, one at their own venue and second at the other team's venue.

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2. Each of Kings XI, Super Kings and Royals had at least one match ended in a draw.
3. Out of all these played matches, only 4 matches ended in a draw.

Q.64
What is the average of the total points scored by the team having lowest NRR and the team having highest NRR?

1 **13.5**

2 **14**

3 **12**

4 **10.5**

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Answer key/Solution

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

In IPL 2017, there were eight teams namely, Daredevils, Kings XI, Super Kings, Challengers, Royals, Indians, Knights and Chargers. Each of these 8 teams was allotted a state venue which remains same till the end of the tournament. No two teams had same state as their venue. Each team was supposed to play two matches with each of the other teams, one at their own venue and second at the other team's venue.

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3. Out of all these played matches, only 4 matches ended in a draw.

Q.65
In the tournament, how many teams were there such that even with a lower NRR it scored more points than a team with a higher NRR than its?

1 **2**

2 **3**

3 **4**

4 **0**

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Answer key/Solution

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

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3. Out of all these played matches, only 4 matches ended in a draw.

Q.66

If in the semi-finals, one match was played between teams with rank 1 and rank 4 and the other match was played between teams with rank 2 and rank 3, and also in semi finals and finals each match was won by the team having lower NRR amongst the two teams, then which team would have won the tournament?(Finale was played between the two winners of semi-finals)

1 **Royals**

2 **Indians**

3 **Super Kings**

4 **Challengers**

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Answer key/Solution

Sec 3

Q.67

A shopkeeper marks up the price of an article by 100% and then offers three successive discounts of a%, b% and c%, where a, b and c are positive integers. If a + b + c = 30, then find the maximum profit that he can earn.

1 **40%**

2 **45.8%**

3 **70%**

4 **56.4%**

✔

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Answer key/Solution

Q.68

If $|\log_{(2x-1)}(x-1)| = 1$, then how many values can x take?

1 **0**

2 **1**

3 **2**

4 **3**

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Answer key/Solution

Q.69

The L.C.M of two numbers is 252 . If these numbers are in the ratio 4 : 7, then find the larger number.

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Answer key/Solution

Q.70

Laksh sold two horses, one at a profit of 20% and the other at a loss of 10%, and earned an overall profit of Rs. 5600. Had he sold the first one at a profit of 40% and the other at a loss of 30%, he would not have earned anything. Find the difference between the cost price (in Rs.) of the two horses.

1 **20000**

2 **15000**

3 **8000**

4 **28000**

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Answer key/Solution

Q.71

The sum of a fraction and four times of its reciprocal is 533/77. What is the sum of the reciprocal of the fraction and four times of the fraction, if that fraction is greater than 1?

1 **317/77**

2 **7793/308**

3 **7693/308**

4 **Either (1) or (2)**

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Answer key/Solution

Q.72

If the sum of the square of medians of a triangle ABC is 42 cm^2, then what is the sum (in cm^2) of the square of its sides?

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Answer key/Solution

Q.73

There are 'm' ways of going directly from A to B, 'm + 3' ways of going directly from B to C and 'm + 8' ways of going directly from C to D. If number of ways of going from A to D via B and C is 336, then find the number of ways of going from A to C via B.

1 **56**

2 **48**

3 **28**

4 **84**

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Answer key/Solution

Q.74

Find the number of integral solutions of 4x + 8y = 33.

1 **12**

2 **0**

3 **2**

4 **4**

✔

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Answer key/Solution

Q.75

A sum of money gets double in 5 years when kept under simple interest. In how many years will it become 6 times of itself?

1 **25**

2 **15**

3 **12**

4 **20**

✔

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Answer key/Solution

Q.76

Find the LCM of $(45)_8$ and $(17)_8$, where $(N)_a$ represents 'N' is a number written in base a.

1 **$(122)_{16}$**

2 $(22B)_{16}$

3 $(B22)_{16}$

4 $(22D)_{16}$

✔

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Answer key/Solution

Q.77

If x, y and z be three real numbers such that $x^3 + y^3 + z^3 = 13$, $xy + yz + zx = -3$ and $xyz = 1$, then which of the following is the value of $x + y + z$?

1 **-2**

2 **-1**

3 **2**

4 **1**

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Answer key/Solution

Q.78

In a small town, males comprised 64% of the total population. After a year the population of males and females were increased by 30% and 40% respectively. Find the ratio of males to females in the town after increment.

1 **104 : 63**

2 **64 : 30**

3 **14 : 13**

4 **15 : 12**

✔

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Answer key/Solution

Q.79

ABCD is a parallelogram, in which bisector of angle ABC meets AD at E. If BE = EC = 8 units and ED = 7.8 units, then find the length of BC.

1 **14 units**

2 **12.8 units**

3 **4 units**

4 **15 units**

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Answer key/Solution

Q.80

A man sells a mixture of milk and water at the price of pure milk and earns 25% profit. If he used 60 litres of milk in the mixture, then find the quantity (in litres) of water he added to it.

✔

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Answer key/Solution

Q.81

A person goes to a stationary shop to buy pens and pencils. A pen costs Rs.3 and a pencil costs Rs. 2. If he has an amount of Rs. 32 to spend completely on pens and pencils, then how many different combinations of number of pens and pencils he can buy?

1 **5**

2 **8**

3 **6**

4 **7**

✔

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Answer key/Solution

Q.82

What is the least possible natural number such that when $2^9 \times 3^8 \times 5^7$ is divided by that number the quotient obtained is a perfect cube and remainder 0?

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Answer key/Solution

Q.83

An unbiased die is thrown. Let A be the event that the number obtained is greater than 3 and B be the event that the number obtained is less than 5. Then Probability of (AUB) is

1 **2/5**

2 **1**

3 **0**

4 **3/5**

✔

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Answer key/Solution

Q.84

The average weight of students in a class is 60 kg. When two new students having weight 90 kg and 98 kg join the class and one student of weight 42 kg leaves the class, the new average of the class becomes 62 kg. How many students were there in the class initially?

✔

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Answer key/Solution

Q.85

Air Bus 380 flight left for London from Delhi. When it was 18 miles away from the airport, it realized that it requires refueling. A fighter plane, having its speed 10 times the speed of the Air Bus 380, was sent for refueling. How far from the airport did the fighter plane catch up with the Air Bus 380?

1 **24 miles**

2 **25 miles**

3 **22 miles**

4 **20 miles**

✔

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Answer key/Solution

Q.86

There is an Arithmetic Progression series of 430 terms. The 98^{th} and the 347^{th} terms of the progression are $123\frac{3}{37}$ and $277\frac{33}{37}$ respectively. Pradeep added 14 terms after the series in such a way that the entire series is still in an AP with total 444 terms. Find the sum of the entire series of 444 terms.

1 **89016**

2 **178032**

3 **44508**

4 **133524**

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Answer key/Solution

Q.87

In a list of seven positive integers, one integer is unknown and denoted by x . The other six known integers are 20, 4, 10, 4, 8 and 4. If the mean, median and mode of these 7 integers are arranged in increasing order, they form an Arithmetic Progression. Find the minimum integral value of x?

✖

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Answer key/Solution

Q.88

There is a point lying outside a circle 30 km away from a point on the circular boundary, in such a way that the line joining these two points is tangent to the circle. If the circumference of the circle is 32π km, then what can be the minimum possible time taken (in minutes) from the center of the circle to reach that point outside the circle at the speed of 17 km/hr?

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Answer key/Solution

Q.89

Mr. X sells 12 oranges for a rupee and suffers a loss of 30%. How many oranges should he sell for a rupee to make a profit of 5%?

1 **10**

2 **9**

3 **8**

4 **6**

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Answer key/Solution

Q.90

If a series S defined as, $S = \frac{1}{2.5.8} + \frac{1}{5.8.11} + \frac{1}{8.11.14} + \frac{1}{11.14.17} + \ldots$, then find the sum of its first 20 terms.

1 **87/2840**

2 **67/4030**

3 **59/720**

4 **None of these**

✔

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Answer key/Solution

Q.91

Find the number of digits in the product of 621734512 and 612.

1 **12**

2 **10**

3 **13**

4 **11**

✔

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Answer key/Solution

Q.92

A man can row 8 km downstream in 4/5th of an hour and 7 km upstream in 7/6th of an hour. How many hours will the man take to row 16 km in still water?

✔

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Answer key/Solution

Q.93

P, Q and R takes 12, 15 and 20 days respectively to do a work. All 3 started working on it together, and P and Q left after working for somedays and hence the remaining work was done by R alone. If P and Q left the work 4 days and 1 day before its completion respectively, then what is the total number of days taken by them to do the work?

✖

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Answer key/Solution

Q.94

Let $f(x) = a_{12}x^{12} + a_{10}x^{10} + a_8x^8 + ... + a_2x^2 + a_0$, where $a_0, a_2, ..., a_{12}$ are all real. If there are 3 sign changes in f(x) and f(x) has exactly 4 non-real roots, then which of the following is definitely true?

1 $a_0 = 0$

2 $a_{10} > 0$

3 $a_{10} < 0$

4 $a_{10} = 0$

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Answer key/Solution

Q.95

When a natural number is divided by 143, it leaves 45 as remainder. If the same number is divided by 113, it leaves 211 as the quotient and some remainder 'x'. Find the value of 'x'.

1 **83**

2 **57**

3 **79**

4 **49**

✔

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Answer key/Solution

Q.96

Find the shortest distance of the point (6, –9) from the curve $y = x^2 - 12x + 32$.

1 **6**

2 **4**

3 **3**

4 **5**

✔

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Answer key/Solution

Q.97

Find maximum value of $6x - x^2 + 7$ if $|x - 4| \geq 2$

1 **15**

2 **14**

3 **16**

4 **17**

✔

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Answer key/Solution

Q.98

There are 6 cake making glass moulds, 3 are of cylindrical shapes and another three are of cuboidal shapes. The cost of all cylindrical shaped moulds taken together is Rs.700 and their radii are in ratio 2 : 3 : 4 and height of each of the three is equal to the radius of the smallest mould. Also the cost of all cuboidal shaped moulds taken together is Rs.800 and their volumes are in ratio 4 : 8 : 16. If the volumes of the medium size boxes, in both the cases, are same, then which of the following deal is a better deal per unit price (i.e more volume per unit price)?

1 **Both are same**

2 **Cylindrical one is better**

3 **Cuboidal one is better**

4 **Data insufficient**

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Answer key/Solution

Q.99

Four inlet pipes, with circular cross-section of radius r, together take 9 hours to fill a cistern. If the speed of water is thrice that of the earlier speed, then how many pipes of half the radius 'r' are required to fill it in 6 hours?

1 **4**

2 **8**

3 **16**

4 **32**

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Answer key/Solution

Q.100

A square ABCD is inscribed inside a circle of radius 4 cm. Two semicircles are drawn inside the square taking AB and BC as their diameters respectively. Find the area (in sq cm) of the region common to both the semicircles.

1 **2π - 4**

2 **4π - 8**

3 **2π**

4 **5π**

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Answer key/Solution