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VARC

DILR

QA

Sec 1

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

Which would you prefer to be: a medieval monarch or a modern office-worker? […] The question is more than just a parlour game. It shows how tricky it is to compare living standards over time. Yet such comparisons are not just routinely made, but rely heavily on a single metric: gross domestic product (GDP). This one number has become shorthand for material well-being, even though it is a deeply flawed gauge of prosperity, and getting worse all the time. That may in turn be distorting levels of anxiety in the rich world about everything from stagnant incomes to disappointing productivity growth.

Defenders of GDP say that the statistic is not designed to do what is now asked of it. A creature of the 1930s slump and the exigencies of war in the 1940s, its original purpose was to measure the economy's capacity to produce. Since then, GDP has become a lodestar for policies to set taxes, fix unemployment and manage inflation.

Yet it is often wildly inaccurate: Nigeria's GDP was bumped up by 89% in 2014, after number-crunchers adjusted their methods. Guesswork prevails: the size of the paid-sex market in Britain is assumed to expand in line with the male population; charges at lap-dancing clubs are a proxy for prices. Revisions are common, and in big, rich countries, bar America, tend to be upwards. Since less attention is paid to revised figures, this adds to an often exaggerated impression that America is doing far better than Europe. It also means that policymakers take decisions based on faulty data.

If GDP is failing on its own terms, as a measurement of the value-added in an economy, its use as a welfare benchmark is even more dubious. That has always been so: the benefits of sanitation, better health care and the comforts of heating or air-conditioning meant that GDP growth almost certainly understated the true advance in living standards in the decades after the second world war. But at least the direction of travel was the same. GDP grew rapidly; so did quality of life. Now GDP is still growing (albeit more slowly), but living standards are thought to be stuck. Part of the problem is widening inequality: median household income in America, adjusted for inflation, has barely budged for 25 years. But increasingly, too, the things that people hold dear are not being captured by the main yardstick of value.

With a few exceptions, such as computers, what is produced and consumed is assumed to be of constant quality. That assumption worked well enough in an era of mass-produced, standardised goods. It is less reliable when a growing share of the economy consists of services. Firms compete for custom on the quality of output and how tailored it is to individual tastes. If restaurants serve fewer but more expensive meals, it pushes up inflation and lowers GDP, even if this reflects changes, such as fresher ingredients or fewer tables, that customers want. The services to consumers provided by Google and Facebook are free, so are excluded from GDP. When paid-for goods, such as maps and music recordings, become free digital services they too drop out of GDP. The convenience of online shopping and banking is a boon to consumers. But if it means less investment in buildings, it detracts from GDP. Measuring prosperity better requires three changes. […] Building these benchmarks will demand a revolution in national statistical agencies as bold as the one that created GDP in the first place. Even then, since so much of what people value is a matter of judgment, no reckoning can be perfect. But the current measurement of prosperity is riddled with errors and omissions. Better to embrace a new approach than to ignore the progress that pervades modern life.

Q.1

What is the main point that the author is trying to highlight in the passage?

1 **How faulty GDP calculation has impacted its core goal in measuring standard of living across the globe**

2 **How GDP has failed and continues to fail to provide adequate economic data to take informed decisions**

3 **Why GDP has not been adaptable to the changing consumer needs as its benchmarking style is inherently unsuitable to the economic needs of a nation**

4 **Why GDP fails to give an accurate picture of the economic welfare of a nation**

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Answer key/Solution

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Q.2

As per the passage, the author would most likely answer the question raised in the opening sentence by:

1 **highlighting the futility of trying to compare two abstract life choices.**

2 **exposing the flaws of using GDP to compare lifestyles.**

3 analysing the two lifestyles in order to show how complicated the matter actually is.

4 discussing the respective merits and demerits of the two lifestyles so as to prove that GDP is not helpful in making a life related decision.

FeedBack

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Q.3

Which of the following has not been mentioned as a shortcoming of GDP in this passage?

1 **Its upward revision by all the countries in the world**

2 **Its inability to consider qualitative service changes**

3 **Its imperfect indication of prosperity**

4 **Its inability to account for free services in an economy**

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Answer key/Solution

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Q.4

What's the main point the author tries to highlight by the example of Google and Facebook?

1 **Google and Facebook prove that GDP downplays free services.**

2 **GDP doesn't count services as being of economic value.**

3 **The assumption of the constant quality of mass-produced, standardised goods has been disproved by Google and Facebook.**

4 **GDP doesn't consider Google and Facebook as they are services tailored to the needs of firms.**

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Q.5

What can be inferred about the author's intention behind writing the last sentence of the passage?

1 **S/he is a pessimist when it comes to the concept of improving the living standard of people.**

2 **S/he is happy yet cautious about the high standard of living in rich countries.**

3 **S/he doesn't believe that the judgements of people can be quantified.**

4 **S/he believes economic prosperity to be a subjective matter.**

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Answer key/Solution

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

[…] It's easy to understand how massive humpbacks can swim from Arctic to Antarctic waters, but most of the miniature worms, snails and crustaceans on the researchers list are no bigger than grains of rice. How could tiny creatures adapted for the frigid waters travel 9,500 kilometres through warmer climes to reach the opposite pole?

Under the microscope, these invertebrates sometimes look like shredded plastic bags or shrimp with bullhorns. It's unclear how they could cross a swimming pool, let alone the globe. So, their "bipolarity" poses a 160-year mystery of the ocean—one that has only grown with time. […]

The discovery of bipolar species dates back to the 1840s expeditions of Victorian explorer James Clark Ross and his two heavy-duty battle cruisers, the HMS *Erebus* and *Terror*. During missions to map the North and South poles, he collected samples of marine flora and fauna that looked remarkably similar. He theorized that somehow these tiny species had been able to survive not only the icy waters that would eventually sink his ships, but also a journey halfway around the planet.

Since then, sceptics have bickered about the evidence. Some complained that the underwater life specimens were misidentified or appeared too different. But in 2000 Kate Darling, an oceanographer at University of Edinburgh in Scotland, settled any debate. In the northern and southern subpolar waters off Iceland and the Falkland Islands, respectively, Darling collected foraminifera, single-celled ocean drifters that look like prickly gobs of bubblegum. When she sequenced the ribosomal DNA from three species—*Globigerina bulloides*, *Turborotalia quinqueloba* and *Neogloboquadrina pachyderma*—she found the genes to be so similar that, she says "they must be mixing, maybe even now." […]

Some scientists and naturalists, including Charles Darwin, have hypothesized that species migrated over thousands of years when average ocean temperatures were much colder, probably at some point in geologic time between the Tertiary period and the last ice age 18,000 years ago. Darling's data, however, puts a dent in that theory. The minuscule genetic differences in her "bugs," as she calls them, suggest that the species mingled far more recently.

Today, most scientists think the species travel a deep-water conveyor belt called the thermohaline circulation, the ocean-wide phenomenon responsible for currents such as the Atlantic's Gulf Stream. Because cold water at both poles changes salinity and sinks as it spreads, it forms discrete submarine rivers that descend at the equator and resurface at opposite ends of the planet. Along the way, temperatures only waver between 2 to 4 degrees Celsius, consistent enough for most polar dwellers to survive. The creatures themselves make the journey from one pole to its antipode suspended as larvae or eggs, or as live adults, reproducing over generations on their 9,500-kilometer trek before arriving 400 to 600 years later. To return to their pole of origin it could take another 1,600 years because of prevailing currents.

Besides the enormous travel time, the theory partially refutes bipolarity: It suggests that species may live outside of polar regions but we just haven't found them yet. "It's the awkwardness of how you define something. Is the definition functional or based on lack of data? We know so little about the deep layers of the ocean compared to the surface," Hopcroft says.

The list of bipolars is tentative for another reason: biologists identified most of the species based on morphology, or form and structure. Species that live in similar environments often look identical but can be genetic strangers. "Until you do the genetics you can't know that they're bipolar for sure," Darling says…

Q.6

The author of the passage presents his/her ideas by:

1 **posing questions that are later explained by competing theories.**

2 **debating the many possible contradictions in answering a biological puzzle.**

3 **analysing some theories speculated to account for an evolutionary puzzle.**

4 **raising an issue of scientific interest and then testing the various hypotheses suggested to resolve the issue.**

FeedBack

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Answer key/Solution

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Q.7

Which of the following is definitely true about bipolar species, as per the passage?

1 **They are at least 18000 year old.**

2 **They have been of interest to oceanographers for 400 to 600 years.**

3 **Some of them have a lifespan of 1600 years.**

4 **Some of them have been misidentified by scientists.**

FeedBack

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Q.8

All of the following evidence supports the passage's explanation of bipolarity being a tentative concept EXCEPT:

1 **The length of the trek between the two poles**

2 **The speculation that many bipolar species travel as larvae or eggs**

3 **The lack of information about the deep layers of ocean**

4 **The duration of time required to travel from one pole to the other**

FeedBack

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Since then, sceptics have bickered about the evidence. Some complained that the underwater life specimens were misidentified or appeared too different. But in 2000 Kate Darling, an oceanographer at University of Edinburgh in Scotland, settled any debate. In the northern and southern subpolar waters off Iceland and the Falkland Islands, respectively, Darling collected foraminifera, single-celled ocean drifters that look like prickly gobs of bubblegum. When she sequenced the ribosomal DNA from three species—*Globigerina bulloides*, *Turborotalia quinqueloba* and *Neogloboquadrina pachyderma*—she found the genes to be so similar that, she says "they must be mixing, maybe even now." […]

Some scientists and naturalists, including Charles Darwin, have hypothesized that species migrated over thousands of years when average ocean temperatures were much colder, probably at some point in geologic time between the Tertiary period and the last ice age 18,000 years ago. Darling's data, however, puts a dent in that theory. The minuscule genetic differences in her "bugs," as she calls them, suggest that the species mingled far more recently.

Today, most scientists think the species travel a deep-water conveyor belt called the thermohaline circulation, the ocean-wide phenomenon responsible for currents such as the Atlantic's Gulf Stream. Because cold water at both poles changes salinity and sinks as it spreads, it forms discrete submarine rivers that descend at the equator and resurface at opposite ends of the planet. Along the way, temperatures only waver between 2 to 4 degrees Celsius, consistent enough for most polar dwellers to survive. The creatures themselves make the journey from one pole to its antipode suspended as larvae or eggs, or as live adults, reproducing over generations on their 9,500-kilometer trek before arriving 400 to 600 years later. To return to their pole of origin it could take another 1,600 years because of prevailing currents.

Besides the enormous travel time, the theory partially refutes bipolarity: It suggests that species may live outside of polar regions but we just haven't found them yet. "It's the awkwardness of how you define something. Is the definition functional or based on lack of data? We know so little about the deep layers of the ocean compared to the surface," Hopcroft says.

The list of bipolars is tentative for another reason: biologists identified most of the species based on morphology, or form and structure. Species that live in similar environments often look identical but can be genetic strangers. "Until you do the genetics you can't know that they're bipolar for sure," Darling says…

Q.9

The author quotes Kate Darling's research to prove that:

1 **bipolar species are an evolutionary myth.**

2 **genetic analysis is the best way to resolve the issue of bipolarity of some species.**

3 **the debate between scientists and naturalists regarding evolutionary puzzles is now settled.**

4 **unless genes are involved, the issue of migratory patterns of bipolar species will remain a matter of contention.**

FeedBack

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Answer key/Solution

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

[…] It's easy to understand how massive humpbacks can swim from Arctic to Antarctic waters, but most of the miniature worms, snails and crustaceans on the researchers list are no bigger than grains of rice. How could tiny creatures adapted for the frigid waters travel 9,500 kilometres through warmer climes to reach the opposite pole?

Under the microscope, these invertebrates sometimes look like shredded plastic bags or shrimp with bullhorns. It's unclear how they could cross a swimming pool, let alone the globe. So, their "bipolarity" poses a 160-year mystery of the ocean—one that has only grown with time. […]

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Q.10

In the first paragraph, the author emphasises on the tiny size of the creatures in order to:

1 **introduce a comparison between large and tiny creatures who migrate to separate poles.**

2 **bring forth the issue of the impossibility of miniscule creatures to be able to cross the warmer climates.**

3 **introduce the deliberation regarding a maritime mystery which continues to fascinate scientists.**

4 bring forth the voyage of James Clark Ross who started the debate about the existence of bipolar species.

FeedBack

Bookmark

Answer key/Solution

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

[…] Instability is our natural state. For centuries, Isaac Newton and his followers envisioned a solar system that runs like divine clockwork. Only in the past decade have high-precision mathematical simulations shown just how wrong he was. Carl Sagan famously declared that "we're made of star stuff." Morbidelli has an equally profound message: We are made of cosmic chaos.

Getting planets to move is extremely easy in mathematical models of a newborn solar system. The challenge—as those pen-and-paper theorists of the 1970s had discovered—was finding ways for planets 'not' to move. Data from the Hubble Space Telescope and other great observatories show that, in the big picture, infant planets emerge from a swirling disk of gas and dust around a just-formed star, known as a protoplanetary nebula. For the first few million years, planets are little more than debris bobbing on the waves in the disk.

"That nebula outweighs the planets about a thousand to one, so the gas can push the planets around really dramatically," Walsh says. As a result, he realized, the early solar system must have been more like bumper cars than clockwork. He also saw that if he fully embraced the idea of instability and took it to its logical conclusions, he could account for many aspects of the solar system that had previously defied easy explanation: Why is Mars so small? How did the asteroid belt form? And above all, why is Earth's chemical makeup so different than was predicted by the original formation models?

Walsh knit his ideas into a theory he calls the Grand Tack, which creates a startlingly new narrative of how the Earth and other planets formed. At present, Jupiter's orbit is 5.2 times wider than Earth's. It is also sticking to its 11.8-year orbit like a metronome. But according to Walsh, Jupiter actually formed quite a bit farther out and then, during the solar system's initial 5 million years, executed a series of dramatic swoops. First it spiraled inward to the place where Mars is now (about 1.5 times the Earth-sun distance), as the dense gas in the nebula dragged it toward the sun. Then it migrated out past its current location, yanked by the gravitational influence of the newly formed planet Saturn. The whole process took about 500,000 years—an eternity in human terms, but blazingly fast for the solar system, which is 4.6 billion years old.

So what happens when a planet that size goes on the prowl? "Oh, it raises hell!" Walsh replies. "That's a really big planet and it's moving all over the place. It acts like a giant snowplow and essentially wipes out everything in its way."

Fortunately for us, Earth had not yet formed when Jupiter was on the move; if it had, our planet might have plunged into the sun or spun off into dark oblivion. The giant planet's influence on the inner solar system, where we live, was more indirect. Most of the action happened on the outbound track, when Jupiter rammed through thick swarms of icy comets and asteroids. That snowplow effect sent those water-rich objects raining down on Earth just as it was beginning to grow. "The bulk of the water that we see on Earth is a result of the scattering from Jupiter's outward migration," Walsh says. Whenever you take a swim, or just take a drink, you are benefitting from the solar system's foundational instability. […]

Q.11

The main objective of the passage is to:

1 highlight the contribution of Jupiter in making our planet habitable.

2 establish that the inherent cosmic chaos of the solar system is a boon to the planetary bodies.

3 provide evidence that refutes the theory that our universe will always remain stable.

4 discuss the possibility of an alternate theory to our accepted evolutionary model.

FeedBack

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Answer key/Solution

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Q.12

Based on the information in the passage, we can infer that, Jupiter as a planet:

1 **was important for the formation of Saturn.**

2 **is the reason why Mars is so small.**

3 **affected the formation of the belt between Mars and Earth.**

4 **travelled a very long distance to acquire a gravitational field.**

FeedBack

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Answer key/Solution

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Q.13

Based on the information provided in the passage, we can conclude that:

1. **infant planets behave more like bumper cars, and not like clocks.**
2. **many cosmic creations are the results of unpredictable chaos.**
3. **Carl Sagan believed that our Earth is more like a star such as a nebula.**
4. **big planets like Jupiter are responsible for the formation of the asteroid belt.**

FeedBack

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Answer key/Solution

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Q.14

Why does the author state that "instability is our natural state"?

1 **Because s/he wants to show that Newton was wrong about his evolutionary model.**

2 **Because s/he wants to show that Sagan and Morbidelli helped correct an evolutionary mistake.**

3 Because s/he wants to show that evolutionary theories don't account for the cosmic chaos in describing the original movement of the solar system.

4 Because s/he wants to show that mathematical models are inadequate in explaining the origin of the solar system.

FeedBack

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Answer key/Solution

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Q.15

The phrase "executed a series of dramatic swoops" is used to explain:

1 **Walsh's Grand Tack theory.**

2 **the process by which Jupiter came to stick to its 11.8-year orbit.**

3 **that Jupiter's inward spiral was less eventful than its outward journey.**

4 **the significance of the time taken for Jupiter to stabilise.**

FeedBack

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Answer key/Solution

Direction for questions (16-20): Read the given passage and answer the questions that follow.

Hirsch's theory focuses on what he calls "cultural literacy". He argues that all students need a "core knowledge" so they can develop into better citizens. In one of his books, he lists various facts, phrases and historical events that he believes all young Americans should be aware of, including the Founding Fathers and Adirondack Mountains.

But Hirsch's "cultural literacy" is a hegemonic vision produced for and by the white middle class to help maintain the social and economic status quo. It deliberately fails to consider the values and beliefs of any other particular race, class or gender. Young people who enter the educational system and don't conform to this vision are immediately disadvantaged by virtue of their race, income or chromosomes.

Moreover, teaching a prescribed "core knowledge" instils a culture of conformity and an insipid, passive absorption of carefully selected knowledge among young people. It doesn't encourage students to think critically about society – nor does it fire a desire to challenge the views they are taught. Schools that adopt this method become nothing more than pipelines producing robotic citizens, perpetuating the vision of a capitalist society and consequently preventing social mobility.

Social stagnation through education is epitomised by the recent influx of Teach First practitioners. The narcissistic notion that we can help underprivileged students by providing them with teachers who are privileged young graduates from elite institutions is a mistake. This outlook pays no attention to – and fails to value – the backgrounds and identities of the students it intends to save. Rather it continues the problem by trying to inflict the values and beliefs of the dominant social class on others.

Teachers can't ignore the contexts, culture, histories and meanings that students bring to their school. Working class students and other minority groups need an education that prepares them with the knowledge of identifying the problems and conflicts in their life and the skills to act on that knowledge so they can improve their current situations. Now is the time for our schools to incite a desire in students to challenge the accepted social truths purveyed by media and education.

Schools must develop a commitment to civic courage and social responsibility that ignites bravery in young people to realise they have the power and opportunity to challenge the status quo. School leaders have a duty to promote learning that encourage students to question rather than forcing teachers to lead drill-oriented, stimulus-and-response methodologies. Teachers must awaken the passions of their students and teach the knowledge and skills needed to direct and sustain it.

Students need the freedom and encouragement to determine and discover who they are and to understand that the system shouldn't define them – but rather give them the skills, knowledge and beliefs to understand that they can set the agenda. Educators must be prepared to embrace a radical pedagogy and believe that each school should be one of freedom that provokes students to fight against the corridors of power and enforce equality for themselves and others.

Critical pedagogy is the only way to achieve this. Critical pedagogy isn't a prescriptive set of practices – it's a continuous moral project that enables young people to develop a social awareness of freedom. This pedagogy connects classroom learning with the experiences, histories and resources that every student brings to their school. It allows students to understand that with knowledge comes power; the power that can enable young people to do something differently in their moment in time and take positive and constructive action.

Q.16

Which of the following would most strongly challenge the author's view on the Teach First practitioners?

1 **Many of the Teach First practitioners come from ethnically minor groups.**

2 **Teach First mostly hires graduates who have got a background in dealing with underprivileged people.**

3 **Teach First has a strong orientation program that helps the elite young graduates understand the background of the class they would be teaching.**

4 Many of the teachers volunteering for Teach First have advanced degree in minority studies.

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Answer key/Solution

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Q.17

On the basis of the passage, which of the following teacher is least likely to be successful in imparting critical pedagogy?

1 **Someone who believes that youngsters should be allowed the process of self-discovery**

2 **Someone who advocates that education should help a student understand the importance of his/her background**

3 **Someone who espouses the cause of challenging the capitalist status quo**

4 **Someone who challenges the notion that social truths can be understood by students**

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Social stagnation through education is epitomised by the recent influx of Teach First practitioners. The narcissistic notion that we can help underprivileged students by providing them with teachers who are privileged young graduates from elite institutions is a mistake. This outlook pays no attention to – and fails to value – the backgrounds and identities of the students it intends to save. Rather it continues the problem by trying to inflict the values and beliefs of the dominant social class on others.

Teachers can't ignore the contexts, culture, histories and meanings that students bring to their school. Working class students and other minority groups need an education that prepares them with the knowledge of identifying the problems and conflicts in their life and the skills to act on that knowledge so they can improve their current situations. Now is the time for our schools to incite a desire in students to challenge the accepted social truths purveyed by media and education.

Schools must develop a commitment to civic courage and social responsibility that ignites bravery in young people to realise they have the power and opportunity to challenge the status quo. School leaders have a duty to promote learning that encourage students to question rather than forcing teachers to lead drill-oriented, stimulus-and-response methodologies. Teachers must awaken the passions of their students and teach the knowledge and skills needed to direct and sustain it.

Students need the freedom and encouragement to determine and discover who they are and to understand that the system shouldn't define them – but rather give them the skills, knowledge and beliefs to understand that they can set the agenda. Educators must be prepared to embrace a radical pedagogy and believe that each school should be one of freedom that provokes students to fight against the corridors of power and enforce equality for themselves and others.

Critical pedagogy is the only way to achieve this. Critical pedagogy isn't a prescriptive set of practices – it's a continuous moral project that enables young people to develop a social awareness of freedom. This pedagogy connects classroom learning with the experiences, histories and resources that every student brings to their school. It allows students to understand that with knowledge comes power; the power that can enable young people to do something differently in their moment in time and take positive and constructive action.

Q.18

The author criticises Hirsh for all of the following reasons EXCEPT that:

1 **he wanted to teach all young Americans about the Founding Fathers and Adirondack Mountains.**

2 **his ideology caters to the vision of the white middle class.**

3 **the core knowledge that he advocated for students to become better citizens propagates racial or cultural discrimination.**

4 his vision didn't discourage racial and gender based bias.

FeedBack

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Answer key/Solution

Direction for questions (16-20): Read the given passage and answer the questions that follow.

Hirsch's theory focuses on what he calls "cultural literacy". He argues that all students need a "core knowledge" so they can develop into better citizens. In one of his books, he lists various facts, phrases and historical events that he believes all young Americans should be aware of, including the Founding Fathers and Adirondack Mountains.

But Hirsch's "cultural literacy" is a hegemonic vision produced for and by the white middle class to help maintain the social and economic status quo. It deliberately fails to consider the values and beliefs of any other particular race, class or gender. Young people who enter the educational system and don't conform to this vision are immediately disadvantaged by virtue of their race, income or chromosomes.

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Q.19

Which of the following most comprehensively describes the effect of “social stagnation through education”?

1 **The perpetuation of the self-serving notion that the elites can help the underprivileged students in acquiring a dynamic identity**

2 **The instilling of a culture of orthodoxy and a bland absorption of knowledge**

3 **The spreading of a culture of creating students who lack the ability to question the existing hegemony**

4 **The creation of unimaginative students who blindly conform to capitalist views and social mobility**

FeedBack

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Answer key/Solution

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Q.20

As per the author, the main purpose of education should be:

1 ○ **to help young kids assert their individuality.**

2 ○ **to propel a student to critically think for himself/herself.**

3 ○ **to raise citizens who challenge any kind of established knowledge.**

4 to assist young students to become more socially responsible students.

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Answer key/Solution

Direction for questions (21-24): Read the given passage and answer the questions that follow.

[...] Nor is India rising very fast on the report's Human Development index, where it ranks 127, just two rungs above Myanmar and more than 70 below Cuba and Mexico. Despite a recent reduction in poverty levels, nearly 380 million Indians still live on less than a dollar a day.

Malnutrition affects half of all children in India, and there is little sign that they are being helped by the country's market reforms, which have focused on creating private wealth rather than expanding access to health care and education. Despite the country's growing economy, 2.5 million Indian children die annually, accounting for one out of every five child deaths worldwide; and facilities for primary education have collapsed in large parts of the country. In the countryside, where 70 percent of India's population lives, the government has reported that about 100,000 farmers committed suicide in the last decade.

Feeding on the resentment of those left behind by the urban-oriented economic growth, communist insurgencies have erupted in some of the most populous and poorest parts of north and central India. The Indian government no longer effectively controls many of the districts where communists battle landlords and police, imposing a harsh form of justice on a largely hapless rural population.

The potential for conflict — among castes as well as classes — also grows in urban areas, where India's cruel social and economic disparities are as evident as its new prosperity. The main reason for this is that India's economic growth has been largely jobless. Only 1.3 million out of a working population of 400 million are employed in the information technology and business processing industries that make up the so-called new economy.

No labour-intensive manufacturing boom of the kind that powered the economic growth of almost every developed and developing country in the world has yet occurred in India. Unlike China, India still imports more than it exports. This means that as 70 million more people enter the work force in the next five years, most of them without the skills required for the new economy, unemployment and inequality could provoke even more social instability than they have already.

The insurgency in Kashmir, which has claimed some 80,000 lives in the last decade and a half, and the strength of violent communist militants across India, hint that regular elections may not be enough to contain the frustration and rage of millions of have-nots, or to shield them from the temptations of religious and ideological extremism.

Many serious problems confront India. They are unlikely to be solved as long as the wealthy, both inside and outside the country, choose to believe their own complacent myths.

Q.21

In the context of the passage, we can infer that 'complacent myths' (last paragraph) refer to:

1 the one-sided realisation that India is developing.

2 the lack of understanding about the non-inclusive growth in India.

3 the realisation that many of India's serious problems are yet to be solved.

4 the notion that everyone in India faces disparity on the basis of economic status.

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Answer key/Solution

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Q.22

As per the passage, all of the following would help India improve its Human Development Index EXCEPT:

1 **Providing better healthcare to the rural poor**

2 **Revamping the primary education sector**

3 **Introducing a ground level programme to curb malnutrition in rural areas**

4 Initiating steps to convert India into an export based economy

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Answer key/Solution

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Q.23

Why, according to the author, have communist insurgencies flared up in India?

1 Because a large number of skilled Indian workforce is without a proper job.

2 Because the Indian government has failed to provide justice to a large number of rural poor.

3 Because many are angered by the skewed economic growth in the country

4 Because there is a conflict of class and caste in urban areas in India.

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Q.24

Which of the following, if true, would undermine the passage's main argument?

1 With every passing day, a greater number of Indians are participating in the democratic electoral process of the country.

2 The new government in India has taken a number of steps to promote social and financial inclusion in the country.

3 The government has been able to curb communist emergencies and other social conflicts with increasing efficiency.

4 The Indian diaspora is expected to continue to thrive which will only add more jobs to the Indian economy.

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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.

An ethical overview is meant to be more than just another bureaucratic hurdle in doing research; it is a guarantee that all research is held to certain minimum standards and, particularly for human patient research, it is an assurance that the participants' welfare is being looked after and that the risk to them is minimized. However, there is very little oversight of how well this overview meets its stated aims, especially for human research. Moreover, what little data exists points to some worrying inconsistencies. Given the increasingly knotty ethical challenges that neuroscience advances present, it is critical that we try to improve this situation by encouraging review boards to make their decision-making process more open and by encouraging greater cross-talk between different ethical review boards.

1 By encouraging review boards to share their process more openly, we can ensure that the humans participating in researches are saved from risk and the benefit is maximized for the entire community.

2 The main aim of ethical research is not being met properly; hence, there is a need to encourage greater transparency to safeguard the welfare of the patients in research.

3 There is a need for us to share our findings, especially in the field of human research, so that the benefit is extended to all without any discrimination.

4 The modern day approach to ethical research has failed at multiple levels, thereby jeopardizing the patients and making the process less open.

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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.

City officials should not look to relocate people, but rather they should improve and secure existing areas of informal housing – and, critically, they need to involve communities in the process. The conventional approach in too many places is to displace poor residents and destroy their homes to make way for new development. But this has an adverse effect on these populations. Many informal settlements and slums have strong social fabrics, home to people with economic and cultural ties to one another. These elements contribute to the kind of well-functioning neighbourhoods that define great cities and could be harnessed by to accommodate people where they already are.

1 **The need of the hour is not to relocate people in a city, but to make sure that their existing social fabrics, and economic and cultural ties are strengthened.**

2 **City officials must critically examine their method of displacing poor residents without involving the communities in the process.**

3 **Instead of relocating people or displace the poor residents in cities, the city officials can bolster the existing informal housing areas to build stronger neighbourhoods.**

4 **While tackling the problem of urban housing, city officials can do better by not following the conventional approach of displacing the poor to accommodate the rich, and, thus, build safer neighbourhoods.**

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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.

Perhaps it is permissible to dream of a future when men will know no other use of their freedom than this free unfurling of itself; constructive activity would be possible for all; each one would be able to aim positively through his projects at his own future. But today the fact is that there are men who can justify their life only by a negative action. As we have already seen, every man transcends himself. But it happens that this transcendence is condemned to fall uselessly back upon itself because it is cut off from its goals. That is what defines a situation of oppression.

1 **Every man is condemned to fail unless he scales the boundary of constructive activity.**

2 **In future, it will be possible for men to focus on constructive activity, but right now it looks like a utopian dream.**

3 **A situation of oppression arises when a man transcends himself in justifying his life by a negative action, and this tendency needs to change.**

4 **It is desirable for a man to justify his life through constructive activity, not by negative action that ultimately hurts him.**

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Answer key/Solution

Q.28

Directions for question (28): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. This session, led by the partner in charge of the audit, is designed to provide a time for the audit team to consider how the company could commit fraud.
2. Often, a fraud specialist attends the meeting to provide insight into other frauds committed by similar companies or industries and help identify the client's risk factors.
3. Under generally accepted auditing standards, audit engagement teams must hold a fraud brainstorming session at the beginning of the audit.
4. Further, the brainstorming meeting is used to set a tone of professional scepticism in the audit.

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Answer key/Solution

Q.29

Directions for question (29): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. In home health care, annual expenditure growth rates went from more than 10 percent in the 1980s and early 1990s to minus 3 percent between 1998 and 1999.
2. The current “long-term care system” is built around private providers of services—some non-profit and some for-profit.
3. When resources expand, new services develop quickly, and when resources contract, capacity can also shrink quickly.
4. Of course, expansion and contraction of nursing home beds respond more slowly to market forces because of the durable capital aspect of nursing home care.

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Answer key/Solution

Q.30

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

1. The CEOs of America's largest companies make something like 300 times as much as the typical worker.
2. These are the people, remember, who sweat and toil to make our food; the people who care for our family members or ourselves when we can no longer walk or exercise or shower or take our medicine or use the bathroom on our own.
3. Is anyone willing to defend the idea that any human being is really able to provide society with labour that is '300 times' more useful than another's?
4. If we made a world where opportunity is abundant and prosperity is shared, would the rejiggering of resources and money flows still leave room for billionaires to become billionaires?

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Answer key/Solution

Q.31

Directions for question (31): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. But that was precisely what most Americans, at least in the North, came to believe.
2. Southerners and would-be aristocrats in the North vainly tried to argue that Jefferson could never have meant that all men were literally equal and that they all had equal rights.
3. Within decades following the Declaration of Independence the United States became one of the most egalitarian nations the world has ever seen, and it remains so today, regardless of its great disparities of wealth.
4. Some came to say not just white men but black men had these equal rights; and some eventually went so far as to say that not just men but women as well had these equal rights.

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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. For short-term projections, the biggest impact comes from an existing population, particularly women in childbearing ages.
2. Last month, the United Nations released the 26th revision of World Population Prospects and forecast that India will overtake China as the most populous country by 2027.
3. Population projections are developed using existing population and by adjusting for expected births, deaths and migration.
4. Thus, even if India could institute a policy that reduces its fertility rate to the Chinese level, India will overtake China as the most populous country.
5. Not a news really! We have known for a long time that India is destined to be the most populous country in the world.

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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. As the liquid metal in the outer core moves, it generates electric currents, which lead to a magnetic field.
2. This positive feedback loop is called the geomagnetic dynamo.
3. The ability to see Earth's magnetic field, known as magnetoreception, relies on the presence of specifically the blue wavelength of light.
4. The continual movement of liquid metal through this magnetic field creates stronger electrical currents and thus a stronger magnetic field.
5. The Earth's magnetic field is a result of the movement or convection of liquid iron in the outer core.

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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. Anxiety disorders are the most prevalent mental health conditions.
2. Anxiety disorders can be effectively treated with psychopharmacological and cognitive–behavioural interventions.
3. Both dimensional and structural diagnoses have been used in clinical treatment and research.
4. The diagnoses of anxiety disorders are being continuously revised.
5. Although they are less visible than schizophrenia, depression, and bipolar disorder, they can be just as disabling.

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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.

Six friends – Anita, Babita, Cyra, Deenu, Eshita and Farmin decided to go for shopping to purchase items viz. T-shirt, bag, ring, shoes and wristband having cost as Rs.1100 / piece , Rs.1800 / piece, Rs.400 / piece, Rs.4500 / pair and Rs.300 / piece respectively. Together, they purchased total 22 items and spent Rs.2900, Rs.3200, Rs.4700, Rs.5500, Rs.5600 and Rs.7100 in any order. These friends belong to six different places of Delhi-NCR – Saket, Vikaspuri, Lajpat Nagar, Ghaziabad, Noida and Preet Vihar – not necessarily in that order. The following information is also known:
I. The number of items purchased by each friend was neither less than 2 nor more than 4. At least 3 items of each type were purchased by six of them put together.
II. The amount spent by Babita who had not purchased wrist band was less than that by the friend who was from Lajpat Nagar but more than that by the friend from Saket.
III. Eshita from Vikaspuri purchased single piece (or pair) of any type of items.
IV. The friend, who had spent the most, had not purchased T-shirt. Friend from Noida had purchased shoes.
V. Farmin was from Ghaziabad. The absolute difference between the amount spent by Cyra and Deenu was more than Rs.1500.
VI. Amount spent by Cyra was more than that by Babita but less than that by the friend who belongs to Noida.

Q.35
How many T-shirts was/were purchased by the friend who belonged to Saket?

1 **0**

2 **1**

3 **2**

4 **Either (2) or (3)**

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Answer key/Solution

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I. The number of items purchased by each friend was neither less than 2 nor more than 4. At least 3 items of each type were purchased by six of them put together.
II. The amount spent by Babita who had not purchased wrist band was less than that by the friend who was from Lajpat Nagar but more than that by the friend from Saket.
III. Eshita from Vikaspuri purchased single piece (or pair) of any type of items.
IV. The friend, who had spent the most, had not purchased T-shirt. Friend from Noida had purchased shoes.
V. Farmin was from Ghaziabad. The absolute difference between the amount spent by Cyra and Deenu was more than Rs.1500.
VI. Amount spent by Cyra was more than that by Babita but less than that by the friend who belongs to Noida.

Q.36
How many of the following combination(s) is/are definitely correct?
I. Anita – Saket – 2 T-shirts, 1 ring and 1 wrist band.
II. Eshita – Vikaspuri – Rs.3200
III. Cyra – Lajpat Nagar – 1 shoe, 2 rings and 1 wristband
IV. Babita – Noida – Rs.4700

1 **1**

2 **2**

3 **3**

4 **4**

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Answer key/Solution

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

Six friends – Anita, Babita, Cyra, Deenu, Eshita and Farmin decided to go for shopping to purchase items viz. T-shirt, bag, ring, shoes and wristband having cost as Rs.1100 / piece , Rs.1800 / piece, Rs.400 / piece, Rs.4500 / pair and Rs.300 / piece respectively. Together, they purchased total 22 items and spent Rs.2900, Rs.3200, Rs.4700, Rs.5500, Rs.5600 and Rs.7100 in any order. These friends belong to six different places of Delhi-NCR – Saket, Vikaspuri, Lajpat Nagar, Ghaziabad, Noida and Preet Vihar – not necessarily in that order. The following information is also known:
I. The number of items purchased by each friend was neither less than 2 nor more than 4. At least 3 items of each type were purchased by six of them put together.
II. The amount spent by Babita who had not purchased wrist band was less than that by the friend who was from Lajpat Nagar but more than that by the friend from Saket.
III. Eshita from Vikaspuri purchased single piece (or pair) of any type of items.
IV. The friend, who had spent the most, had not purchased T-shirt. Friend from Noida had purchased shoes.
V. Farmin was from Ghaziabad. The absolute difference between the amount spent by Cyra and Deenu was more than Rs.1500.
VI. Amount spent by Cyra was more than that by Babita but less than that by the friend who belongs to Noida.

Q.37
The number of items purchased was maximum for

1 **Ring**

2 **Wristband**

3 **T-shirt**

4 **Bag**

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Answer key/Solution

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

Six friends – Anita, Babita, Cyra, Deenu, Eshita and Farmin decided to go for shopping to purchase items viz. T-shirt, bag, ring, shoes and wristband having cost as Rs.1100 / piece , Rs.1800 / piece, Rs.400 / piece, Rs.4500 / pair and Rs.300 / piece respectively. Together, they purchased total 22 items and spent Rs.2900, Rs.3200, Rs.4700, Rs.5500, Rs.5600 and Rs.7100 in any order. These friends belong to six different places of Delhi-NCR – Saket, Vikaspuri, Lajpat Nagar, Ghaziabad, Noida and Preet Vihar – not necessarily in that order. The following information is also known:
I. The number of items purchased by each friend was neither less than 2 nor more than 4. At least 3 items of each type were purchased by six of them put together.
II. The amount spent by Babita who had not purchased wrist band was less than that by the friend who was from Lajpat Nagar but more than that by the friend from Saket.
III. Eshita from Vikaspuri purchased single piece (or pair) of any type of items.
IV. The friend, who had spent the most, had not purchased T-shirt. Friend from Noida had purchased shoes.
V. Farmin was from Ghaziabad. The absolute difference between the amount spent by Cyra and Deenu was more than Rs.1500.
VI. Amount spent by Cyra was more than that by Babita but less than that by the friend who belongs to Noida.

Q.38
Which of the following pairs could have spent the least and the maximum amount respectively?

1 Anita and Eshita

2 Farmin and Deenu

3 Anita and Deenu

4 Eshita and Farmin

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Answer key/Solution

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

Every year, a list of most powerful athletes, is published in 'The Forbes'. Only those athletes who won 5 or more medals in the tournaments in a calendar year are included in the ranking list for that year. There were only 60 athletes who have won 5 or more medals in the tournaments happened in the year 2018. The table given below shows the rankings of the 10 athletes, who got ranks among 51 to 60 in the year 2018 and also compares these rankings with their previous year's ranking. Positive change means that the rank has been improved as compared to the previous year. Rank 1 is considered to be the highest rank while rank 60 to be the least, among those top 60 athletes. Nine out of the 10 athletes in the given list were among the rankers from 51 to 60 in the previous year as well.

Rank achieved in 2018	Athletes	Change in rank as compared to previous year's
51	Michael Bloomberg	3
52	Wian Jianling	4
53	Marry Barra	6
54	Moon Jae-In	-2
55	Barnard Arnualt	2
56	Justin Tredeau	-1
57	Robin Li	A
58	Michael Dell	B
59	Mike Pence	C
60	John Roberts	NA

'NA' in the table indicates that the player was not able to make his place in the last year's rankings. A, B, C are the variables assigned to the values not known.

Q.39

What is the maximum possible value of |A| + |B| + |C| ?

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Answer key/Solution

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

Every year, a list of most powerful athletes, is published in 'The Forbes'. Only those athletes who won 5 or more medals in the tournaments in a calendar year are included in the ranking list for that year. There were only 60 athletes who have won 5 or more medals in the tournaments happened in the year 2018. The table given below shows the rankings of the 10 athletes, who got ranks among 51 to 60 in the year 2018 and also compares these rankings with their previous year's ranking. Positive change means that the rank has been improved as compared to the previous year. Rank 1 is considered to be the highest rank while rank 60 to be the least, among those top 60 athletes. Nine out of the 10 athletes in the given list were among the rankers from 51 to 60 in the previous year as well.

Rank achieved in 2018	Athletes	Change in rank as compared to previous year's
51	Michael Bloomberg	3
52	Wian Jianling	4
53	Marry Barra	6
54	Moon Jae-In	-2
55	Barnard Arnualt	2
56	Justin Tredeau	-1
57	Robin Li	A
58	Michael Dell	B
59	Mike Pence	C
60	John Roberts	NA

'NA' in the table indicates that the player was not able to make his place in the last year's rankings. A, B, C are the variables assigned to the values not known.

Q.40

The number of athletes who have definitely improved their rankings as compared to their last year's ranking, out of the given ten athletes except John Roberts, is

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Answer key/Solution

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

Every year, a list of most powerful athletes, is published in 'The Forbes'. Only those athletes who won 5 or more medals in the tournaments in a calendar year are included in the ranking list for that year. There were only 60 athletes who have won 5 or more medals in the tournaments happened in the year 2018. The table given below shows the rankings of the 10 athletes, who got ranks among 51 to 60 in the year 2018 and also compares these rankings with their previous year's ranking. Positive change means that the rank has been improved as compared to the previous year. Rank 1 is considered to be the highest rank while rank 60 to be the least, among those top 60 athletes. Nine out of the 10 athletes in the given list were among the rankers from 51 to 60 in the previous year as well.

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54	Moon Jae-In	-2
55	Barnard Arnualt	2
56	Justin Tredeau	-1
57	Robin Li	A
58	Michael Dell	B
59	Mike Pence	C
60	John Roberts	NA

'NA' in the table indicates that the player was not able to make his place in the last year's rankings. A, B, C are the variables assigned to the values not known.

Q.41

If none of the three athletes - Robin Li, Michael Dell and Mike Pence - has improved his ranking in year 2018 as compared to 2017, then which of the following can be the values of B and C respectively?

1 **–5, –7**

2 **–7, – 6**

3 **–5, – 1**

4 **0, – 4**

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Answer key/Solution

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

Every year, a list of most powerful athletes, is published in 'The Forbes'. Only those athletes who won 5 or more medals in the tournaments in a calendar year are included in the ranking list for that year. There were only 60 athletes who have won 5 or more medals in the tournaments happened in the year 2018. The table given below shows the rankings of the 10 athletes, who got ranks among 51 to 60 in the year 2018 and also compares these rankings with their previous year's ranking. Positive change means that the rank has been improved as compared to the previous year. Rank 1 is considered to be the highest rank while rank 60 to be the least, among those top 60 athletes. Nine out of the 10 athletes in the given list were among the rankers from 51 to 60 in the previous year as well.

Rank achieved in 2018	Athletes	Change in rank as compared to previous year's
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54	Moon Jae-In	-2
55	Barnard Arnualt	2
56	Justin Tredeau	-1
57	Robin Li	A
58	Michael Dell	B
59	Mike Pence	C
60	John Roberts	NA

'NA' in the table indicates that the player was not able to make his place in the last year's rankings. A, B, C are the variables assigned to the values not known.

Q.42

Among the given athletes except John Roberts, what could have been the maximum possible absolute difference between the rank in 2018 and the rank in the previous year of any athlete?

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Answer key/Solution

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

Ten government officers – Pankaj, Qureshi, Raman, Sara, Tipu, Utsav, Vanita, Wahab, Xeon and Yavi – are posted in five different regions – E, W, N, S and NE – of India, with at least one officer in each region. These officers pay income tax in the region they are posted. All of them are ranked from 1 to 10 on the basis of the amount of income tax paid by each of them i.e. the officer paying the highest income tax is ranked at 1st position, and the one paying the lowest is ranked at 10th position. Any two officers ranked on consecutive positions are not posted in same region. It is also known that,

I. Two officers among Xeon, Yavi and Utsav, are posted in same region and are ranked at alternate positions. Sara and Qureshi are posted in same region.
II. Raman, Vanita, Xeon and Tipu are ranked on 3rd, 5th, 7th and 10th position respectively.
III. The difference between the number of officers paying income tax more than that by Pankaj and less than that by Wahab is an even number.
IV. Income tax paid by Yavi is more than that by Pankaj, which in turn, is more than that by Utsav.

Q.43

In how many different ways can they be ranked?

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Answer key/Solution

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

Ten government officers – Pankaj, Qureshi, Raman, Sara, Tipu, Utsav, Vanita, Wahab, Xeon and Yavi – are posted in five different regions – E, W, N, S and NE – of India, with at least one officer in each region. These officers pay income tax in the region they are posted. All of them are ranked from 1 to 10 on the basis of the amount of income tax paid by each of them i.e. the officer paying the highest income tax is ranked at 1st position, and the one paying the lowest is ranked at 10th position. Any two officers ranked on consecutive positions are not posted in same region. It is also known that,

I. Two officers among Xeon, Yavi and Utsav, are posted in same region and are ranked at alternate positions. Sara and Qureshi are posted in same region.
II. Raman, Vanita, Xeon and Tipu are ranked on 3rd, 5th, 7th and 10th position respectively.
III. The difference between the number of officers paying income tax more than that by Pankaj and less than that by Wahab is an even number.
IV. Income tax paid by Yavi is more than that by Pankaj, which in turn, is more than that by Utsav.

Q.44

How many of the following statement(s) is/are definitely true?
I. Rank of Wahab is 1.
II. Sum of the ranks of Sara and Qureshi is an even number.
III. Raman and Pankaj are not necessarily posted in same region.
IV. Tipu and Utsav are posted in the same region.

1 **1**

2 **2**

3 **3**

4 **4**

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Answer key/Solution

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

Ten government officers – Pankaj, Qureshi, Raman, Sara, Tipu, Utsav, Vanita, Wahab, Xeon and Yavi – are posted in five different regions – E, W, N, S and NE – of India, with at least one officer in each region. These officers pay income tax in the region they are posted. All of them are ranked from 1 to 10 on the basis of the amount of income tax paid by each of them i.e. the officer paying the highest income tax is ranked at 1st position, and the one paying the lowest is ranked at 10th position. Any two officers ranked on consecutive positions are not posted in same region. It is also known that,

I. Two officers among Xeon, Yavi and Utsav, are posted in same region and are ranked at alternate positions. Sara and Qureshi are posted in same region.
II. Raman, Vanita, Xeon and Tipu are ranked on 3rd, 5th, 7th and 10th position respectively.
III. The difference between the number of officers paying income tax more than that by Pankaj and less than that by Wahab is an even number.
IV. Income tax paid by Yavi is more than that by Pankaj, which in turn, is more than that by Utsav.

Q.45
Additional information for questions 45 and 46:

I. Tax collected from officers in region E is represented by T_E; in region W is represented by T_W and so on for all the five regions. Also, it is known that $T_E > T_W > T_N > T_S > T_{NE}$
II. In each region, equal number of officers are posted.
III. The difference between the income tax paid by any two consecutively ranked officers is Rs. 1 lakh.
IV. Yavi and Raman are posted in same region.

In how many way(s) can they be posted in their respective regions?

1 **2**

2 **3**

3 **4**

4 **1**

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Answer key/Solution

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

Ten government officers – Pankaj, Qureshi, Raman, Sara, Tipu, Utsav, Vanita, Wahab, Xeon and Yavi – are posted in five different regions – E, W, N, S and NE – of India, with at least one officer in each region. These officers pay income tax in the region they are posted. All of them are ranked from 1 to 10 on the basis of the amount of income tax paid by each of them i.e. the officer paying the highest income tax is ranked at 1st position, and the one paying the lowest is ranked at 10th position. Any two officers ranked on consecutive positions are not posted in same region. It is also known that,

I. Two officers among Xeon, Yavi and Utsav, are posted in same region and are ranked at alternate positions. Sara and Qureshi are posted in same region.
II. Raman, Vanita, Xeon and Tipu are ranked on 3rd, 5th, 7th and 10th position respectively.
III. The difference between the number of officers paying income tax more than that by Pankaj and less than that by Wahab is an even number.
IV. Income tax paid by Yavi is more than that by Pankaj, which in turn, is more than that by Utsav.

Q.46
Additional information for questions 45 and 46:

I. Tax collected from officers in region E is represented by T_E; in region W is represented by T_W and so on for all the five regions. Also, it is known that $T_E > T_W > T_N > T_S > T_{NE}$
II. In each region, equal number of officers are posted.
III. The difference between the income tax paid by any two consecutively ranked officers is Rs. 1 lakh.
IV. Yavi and Raman are posted in same region.

Yavi and Raman belong to which region?

1 **E**

2 **W**

3 **N**

4 **S**

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Answer key/Solution

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

Four contractors - A, B, C and D - are building four structures such that each one is building a distinct structure. They are using four different materials - P, Q, R and S - to build their complete individual structures. When asked about the quantity which they are using while building those structures, the following observations were made from their answers:

I. The ratio of the materials P, Q, R and S used by A to build the structure is 1 : 2 : 3 : 4. Also, the total quantity of P, used by A, B, C and D, was in the ratio of 1 : 3 : 5 : 7.
II. The total quantity of P, Q, R and S taken together, used by A, B and C were in the ratio of 10 : 12 : 17. Also, the total quantity of P, Q and R that was used, by all four, were in the ratio of 16 : 9 : 14.
III. The quantity of material R used by any of the four contractors is the average of the quantity of Q and S used by that contractor.
IV. The quantity of material S used by contractor D is twice of the quantity of material R used by contractor B which in turn is equal to the quantity of material Q used by contractor C.

Q.47
If contractor A uses 1800 kg of Q, then the total quantity (in kg) of S used by all 4 contractors is

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Answer key/Solution

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

Four contractors - A, B, C and D - are building four structures such that each one is building a distinct structure. They are using four different materials - P, Q, R and S - to build their complete individual structures. When asked about the quantity which they are using while building those structures, the following observations were made from their answers:

I. The ratio of the materials P, Q, R and S used by A to build the structure is 1 : 2 : 3 : 4. Also, the total quantity of P, used by A, B, C and D, was in the ratio of 1 : 3 : 5 : 7.
II. The total quantity of P, Q, R and S taken together, used by A, B and C were in the ratio of 10 : 12 : 17. Also, the total quantity of P, Q and R that was used, by all four, were in the ratio of 16 : 9 : 14.
III. The quantity of material R used by any of the four contractors is the average of the quantity of Q and S used by that contractor.
IV. The quantity of material S used by contractor D is twice of the quantity of material R used by contractor B which in turn is equal to the quantity of material Q used by contractor C.

Q.48
Which contractor used the maximum quantity of S?

1 **A**

2 **B**

3 **C**

4 **D**

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Answer key/Solution

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

Four contractors - A, B, C and D - are building four structures such that each one is building a distinct structure. They are using four different materials - P, Q, R and S - to build their complete individual structures. When asked about the quantity which they are using while building those structures, the following observations were made from their answers:

I. The ratio of the materials P, Q, R and S used by A to build the structure is 1 : 2 : 3 : 4. Also, the total quantity of P, used by A, B, C and D, was in the ratio of 1 : 3 : 5 : 7.
II. The total quantity of P, Q, R and S taken together, used by A, B and C were in the ratio of 10 : 12 : 17. Also, the total quantity of P, Q and R that was used, by all four, were in the ratio of 16 : 9 : 14.
III. The quantity of material R used by any of the four contractors is the average of the quantity of Q and S used by that contractor.
IV. The quantity of material S used by contractor D is twice of the quantity of material R used by contractor B which in turn is equal to the quantity of material Q used by contractor C.

Q.49
What is the ratio of the quantity of P used by A to the quantity of Q used by C?

1 **1 : 2**

2 **1 : 3**

3 **2 : 3**

4 **3 : 5**

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Answer key/Solution

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

Four contractors - A, B, C and D - are building four structures such that each one is building a distinct structure. They are using four different materials - P, Q, R and S - to build their complete individual structures. When asked about the quantity which they are using while building those structures, the following observations were made from their answers:

I. The ratio of the materials P, Q, R and S used by A to build the structure is 1 : 2 : 3 : 4. Also, the total quantity of P, used by A, B, C and D, was in the ratio of 1 : 3 : 5 : 7.
II. The total quantity of P, Q, R and S taken together, used by A, B and C were in the ratio of 10 : 12 : 17. Also, the total quantity of P, Q and R that was used, by all four, were in the ratio of 16 : 9 : 14.
III. The quantity of material R used by any of the four contractors is the average of the quantity of Q and S used by that contractor.
IV. The quantity of material S used by contractor D is twice of the quantity of material R used by contractor B which in turn is equal to the quantity of material Q used by contractor C.

Q.50
The ratio of the quantity of Q used by contractors A, B, C and D is

1 **1 : 3 : 5 : 7**

2 **2 : 2 : 3 : 2**

3 **3 : 3 : 4 : 4**

4 **4 : 4 : 5 : 6**

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Answer key/Solution

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

Ms. Reena went to a supermarket with her two kids - Vishal and Montu. In that supermarket, five baskets - basket I, basket II, basket III, basket IV and basket V - of fruits were there. In each basket, there were twenty fruits consisting of only five types - apple, orange, mango, guava and watermelon - with at least one fruit of each of the five types. Vishal and Montu were always proud of identifying fruits of special kind. If a fruit was either an apple or an orange, Vishal would always identify it correctly. Also, he could confuse mango, guava and watermelon with any of the five types of fruits. Similarly, if a fruit was a mango or a guava or a watermelon, then Montu would always identify it correctly else for apple and orange, he could confuse it with any of the five types.

Vishal tried to identify the fruits in each of the five baskets and came up with the following table to show the number of fruits of each type in each basket:

Fruit	Basket I	Basket II	Basket III	Basket IV	Basket V
Apple	5	2	1	2	7
Orange	3	3	3	2	7
Mango	7	5	8	2	4
Guava	4	4	2	3	2
Watermelon	1	6	6	11	0
Total	20	20	20	20	20

Montu, then, tried to identify the fruits in each of those same five baskets and came up with the following table to show the number of fruits of each type in each basket:

Fruit	Basket I	Basket II	Basket III	Basket IV	Basket V
Apple	5	1	2	2	9
Orange	1	1	2	1	2
Mango	1	2	2	4	3
Guava	2	5	6	7	4
Watermelon	11	11	8	6	2
Total	20	20	20	20	20

Q.51

Find the least possible number of watermelons in all the five baskets taken together.

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Answer key/Solution

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

Ms. Reena went to a supermarket with her two kids - Vishal and Montu. In that supermarket, five baskets - basket I, basket II, basket III, basket IV and basket V - of fruits were there. In each basket, there were twenty fruits consisting of only five types - apple, orange, mango, guava and watermelon - with at least one fruit of each of the five types. Vishal and Montu were always proud of identifying fruits of special kind. If a fruit was either an apple or an orange, Vishal would always identify it correctly. Also, he could confuse mango, guava and watermelon with any of the five types of fruits. Similarly, if a fruit was a mango or a guava or a watermelon, then Montu would always identify it correctly else for apple and orange, he could confuse it with any of the five types.

Vishal tried to identify the fruits in each of the five baskets and came up with the following table to show the number of fruits of each type in each basket:

Fruit	Basket I	Basket II	Basket III	Basket IV	Basket V
Apple	5	2	1	2	7
Orange	3	3	3	2	7
Mango	7	5	8	2	4
Guava	4	4	2	3	2
Watermelon	1	6	6	11	0
Total	20	20	20	20	20

Montu, then, tried to identify the fruits in each of those same five baskets and came up with the following table to show the number of fruits of each type in each basket:

Fruit	Basket I	Basket II	Basket III	Basket IV	Basket V
Apple	5	1	2	2	9
Orange	1	1	2	1	2
Mango	1	2	2	4	3
Guava	2	5	6	7	4
Watermelon	11	11	8	6	2
Total	20	20	20	20	20

Q.52

Which of the following statements is definitely false?

1 **The number of mangoes in basket IV is 1.**

2 **The number of apples in basket I is 3.**

3 **The number of watermelons in basket II is 9.**

4 **None of the above**

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Answer key/Solution

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

Ms. Reena went to a supermarket with her two kids - Vishal and Montu. In that supermarket, five baskets - basket I, basket II, basket III, basket IV and basket V - of fruits were there. In each basket, there were twenty fruits consisting of only five types - apple, orange, mango, guava and watermelon - with at least one fruit of each of the five types. Vishal and Montu were always proud of identifying fruits of special kind. If a fruit was either an apple or an orange, Vishal would always identify it correctly. Also, he could confuse mango, guava and watermelon with any of the five types of fruits. Similarly, if a fruit was a mango or a guava or a watermelon, then Montu would always identify it correctly else for apple and orange, he could confuse it with any of the five types.

Vishal tried to identify the fruits in each of the five baskets and came up with the following table to show the number of fruits of each type in each basket:

Fruit	Basket I	Basket II	Basket III	Basket IV	Basket V
Apple	5	2	1	2	7
Orange	3	3	3	2	7
Mango	7	5	8	2	4
Guava	4	4	2	3	2
Watermelon	1	6	6	11	0
Total	20	20	20	20	20

Montu, then, tried to identify the fruits in each of those same five baskets and came up with the following table to show the number of fruits of each type in each basket:

Fruit	Basket I	Basket II	Basket III	Basket IV	Basket V
Apple	5	1	2	2	9
Orange	1	1	2	1	2
Mango	1	2	2	4	3
Guava	2	5	6	7	4
Watermelon	11	11	8	6	2
Total	20	20	20	20	20

Q.53

If the number of guavas in basket IV is 6, then find the number of oranges in basket IV.

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Answer key/Solution

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

Ms. Reena went to a supermarket with her two kids - Vishal and Montu. In that supermarket, five baskets - basket I, basket II, basket III, basket IV and basket V - of fruits were there. In each basket, there were twenty fruits consisting of only five types - apple, orange, mango, guava and watermelon - with at least one fruit of each of the five types. Vishal and Montu were always proud of identifying fruits of special kind. If a fruit was either an apple or an orange, Vishal would always identify it correctly. Also, he could confuse mango, guava and watermelon with any of the five types of fruits. Similarly, if a fruit was a mango or a guava or a watermelon, then Montu would always identify it correctly else for apple and orange, he could confuse it with any of the five types.

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Orange	3	3	3	2	7
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Watermelon	1	6	6	11	0
Total	20	20	20	20	20

Montu, then, tried to identify the fruits in each of those same five baskets and came up with the following table to show the number of fruits of each type in each basket:

Fruit	Basket I	Basket II	Basket III	Basket IV	Basket V
Apple	5	1	2	2	9
Orange	1	1	2	1	2
Mango	1	2	2	4	3
Guava	2	5	6	7	4
Watermelon	11	11	8	6	2
Total	20	20	20	20	20

Q.54

For how many of the five baskets can the exact number of mangoes be determined?

1 **2**

2 **1**

3 **0**

4 **More than 2**

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Answer key/Solution

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

Eight children – Raja, Praja, Rohan, Mohan, Sohan, Rani, Deewani and Shivani – were discussing monthly income of their fathers – Arun, Varun, Tarun, Sanjay, Ram, Lalit, Dheeraj and Hardik – not necessarily in the same order, who were sitting around a circular table facing towards the center. Monthly income (in rupees) of their fathers were 30k, 33k, 35k, 39k, 41k, 44k, 46k and 50k, in any order.

Some additional information known to us is as follows:
I. Neither Lalit nor Dheeraj had his monthly income as 41k.
II. Raja's father Ram and Deewani's father were sitting opposite to each other and their monthly incomes were 39k and 44k, not necessarily in that order.
III. The person, whose monthly income was the least among all of them, was not sitting adjacent to the persons whose income were 33k and 46k.
IV Rani's father and Deewani's father were not immediate neighbours of each other. The person having his monthly income as 41k was sitting on the immediate right of Sanjay.
V. Lalit and Dheeraj were facing each other and the monthly incomes of both of them were more than that of Raja's father.
VI. Sohan's father, whose monthly income was 33k, was sitting third to the right of Tarun, whose income was higher than that of his neighbours.
VII. Varun was sitting third to the left of Arun. The number of people sitting between Rohan's father and Rani's father was equal to the number of people sitting between Rohan's father and Shivani's father.
VIII. The two, who had highest and second highest monthly income, were sitting opposite to each other.
IX. Praja's father was sitting exactly between Mohan's father and Deewani's father.

Q.55
Who was Sohan's father?

1 **Arun**

2 **Sanjay**

3 **Hardik**

4 **Either (2) or (3)**

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Answer key/Solution

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

Eight children – Raja, Praja, Rohan, Mohan, Sohan, Rani, Deewani and Shivani – were discussing monthly income of their fathers – Arun, Varun, Tarun, Sanjay, Ram, Lalit, Dheeraj and Hardik – not necessarily in the same order, who were sitting around a circular table facing towards the center. Monthly income (in rupees) of their fathers were 30k, 33k, 35k, 39k, 41k, 44k, 46k and 50k, in any order.

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VII. Varun was sitting third to the left of Arun. The number of people sitting between Rohan's father and Rani's father was equal to the number of people sitting between Rohan's father and Shivani's father.
VIII. The two, who had highest and second highest monthly income, were sitting opposite to each other.
IX. Praja's father was sitting exactly between Mohan's father and Deewani's father.

Q.56
How many of the following three statement(s) must be true?
I. The persons with least and next to least monthly incomes were facing each other.
II. Two or four persons were sitting between Sanjay and Rohan's father.
III. Rani's father and Shivani were sitting opposite to each other.

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Answer key/Solution

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

Eight children – Raja, Praja, Rohan, Mohan, Sohan, Rani, Deewani and Shivani – were discussing monthly income of their fathers – Arun, Varun, Tarun, Sanjay, Ram, Lalit, Dheeraj and Hardik – not necessarily in the same order, who were sitting around a circular table facing towards the center. Monthly income (in rupees) of their fathers were 30k, 33k, 35k, 39k, 41k, 44k, 46k and 50k, in any order.

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VIII. The two, who had highest and second highest monthly income, were sitting opposite to each other.
IX. Praja's father was sitting exactly between Mohan's father and Deewani's father.

Q.57
Who was sitting opposite to Ram?

1 **Tarun**

2 **Sanjay**

3 **Hardik**

4 **Varun**

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Answer key/Solution

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

Eight children – Raja, Praja, Rohan, Mohan, Sohan, Rani, Deewani and Shivani – were discussing monthly income of their fathers – Arun, Varun, Tarun, Sanjay, Ram, Lalit, Dheeraj and Hardik – not necessarily in the same order, who were sitting around a circular table facing towards the center. Monthly income (in rupees) of their fathers were 30k, 33k, 35k, 39k, 41k, 44k, 46k and 50k, in any order.

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VIII. The two, who had highest and second highest monthly income, were sitting opposite to each other.
IX. Praja's father was sitting exactly between Mohan's father and Deewani's father.

Q.58
For which of the following pair of fathers, the sum of their monthly salary is definitely 76k?

1 **Sanjay and Lalit**

2 **Arun and Tarun**

3 **Varun and Hardik**

4 **None of these**

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Answer key/Solution

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

In a class of 100 students, 60 students like Physics, 50 students like Chemistry and 40 students like Maths. It is known that at least one student likes only Physics, only Chemistry and only Maths. Similarly, at least one student likes both Physics and Chemistry (but not Maths), both Physics and Maths (but not Chemistry) and both Chemistry and Maths (but not Physics). Further, at least one student likes all the three subjects. Each student likes at least one subject.

Q.59
What can be the maximum number of students who like all the three subjects?

1 **23**

2 **40**

3 **37**

4 **24**

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Answer key/Solution

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

In a class of 100 students, 60 students like Physics, 50 students like Chemistry and 40 students like Maths. It is known that at least one student likes only Physics, only Chemistry and only Maths. Similarly, at least one student likes both Physics and Chemistry (but not Maths), both Physics and Maths (but not Chemistry) and both Chemistry and Maths (but not Physics). Further, at least one student likes all the three subjects. Each student likes at least one subject.

Q.60

What can be the maximum number of students who like exactly two subjects?

1 **24**

2 **48**

3 **46**

4 **49**

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Answer key/Solution

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

In a class of 100 students, 60 students like Physics, 50 students like Chemistry and 40 students like Maths. It is known that at least one student likes only Physics, only Chemistry and only Maths. Similarly, at least one student likes both Physics and Chemistry (but not Maths), both Physics and Maths (but not Chemistry) and both Chemistry and Maths (but not Physics). Further, at least one student likes all the three subjects. Each student likes at least one subject.

Q.61

If exactly 15 students like all the three subjects, then what can be the maximum value of the sum of the number of students who like both Physics and Maths but not Chemistry, and the number of students who like both Chemistry and Maths but not Physics?

1 **24**

2 **25**

3 **19**

4 **None of these**

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Answer key/Solution

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

In a class of 100 students, 60 students like Physics, 50 students like Chemistry and 40 students like Maths. It is known that at least one student likes only Physics, only Chemistry and only Maths. Similarly, at least one student likes both Physics and Chemistry (but not Maths), both Physics and Maths (but not Chemistry) and both Chemistry and Maths (but not Physics). Further, at least one student likes all the three subjects. Each student likes at least one subject.

Q.62

If exactly 15 students like all the three subjects, then what can be the maximum number of students who like both Physics and Chemistry but not Maths?

1 **24**

2 **31**

3 **18**

4 **Cannot be determined**

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Answer key/Solution

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

Four families decided to attend the Thanks-Giving dinner arranged by one of their colleagues. One family has no kids, while the others have at least one kid each. Each family with kids has at least one kid attending the dinner. Given below is some information about the families, and who reached when to attend the dinner.
I. The family with 2 kids came just before the family with no kids.
II. Shawn who does not have any kids reached just before Sharon's family.
III. Mason and his wife reached last with their only kid.
IV. Anderson is not the husband of Julie.
V. Both Anderson and Ross are males.
VI. Sharon's and Phoebe's daughters go to the same school.
VII. Julie came before Shawn and when she reached, she met Phoebe.
VIII. Rajesh stays the farthest from the venue and so he was not able to reach first.
IX. Ross said his son could not come because of his exams.

Q.63
Which woman arrived third?

1 **Shawn**

2 **Sharon**

3 **Phoebe**

4 **Julie**

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Answer key/Solution

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

Four families decided to attend the Thanks-Giving dinner arranged by one of their colleagues. One family has no kids, while the others have at least one kid each. Each family with kids has at least one kid attending the dinner. Given below is some information about the families, and who reached when to attend the dinner.
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IV. Anderson is not the husband of Julie.
V. Both Anderson and Ross are males.
VI. Sharon's and Phoebe's daughters go to the same school.
VII. Julie came before Shawn and when she reached, she met Phoebe.
VIII. Rajesh stays the farthest from the venue and so he was not able to reach first.
IX. Ross said his son could not come because of his exams.

Q.64
Which of them could be the correct pair of husband and wife?

1 **Ross and Shawn**

2 **Mason and Sharon**

3 **Ross and Phoebe**

4 **Both (2) and (3)**

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Answer key/Solution

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

Four families decided to attend the Thanks-Giving dinner arranged by one of their colleagues. One family has no kids, while the others have at least one kid each. Each family with kids has at least one kid attending the dinner. Given below is some information about the families, and who reached when to attend the dinner.
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IV. Anderson is not the husband of Julie.
V. Both Anderson and Ross are males.
VI. Sharon's and Phoebe's daughters go to the same school.
VII. Julie came before Shawn and when she reached, she met Phoebe.
VIII. Rajesh stays the farthest from the venue and so he was not able to reach first.
IX. Ross said his son could not come because of his exams.

Q.65
Of the following pairs, whose daughters could go to the same school?

1 **Anderson and Rajesh**

2 **Mason and Rajesh**

3 **Mason and Anderson**

4 **Ross and Anderson**

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Answer key/Solution

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

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VI. Sharon's and Phoebe's daughters go to the same school.
VII. Julie came before Shawn and when she reached, she met Phoebe.
VIII. Rajesh stays the farthest from the venue and so he was not able to reach first.
IX. Ross said his son could not come because of his exams.

Q.66
Whose family could have more than one kid for certain?

1 **Rajesh's**

2 **Ross's**

3 **Anderson's**

4 **Cannot be determined**

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Answer key/Solution

Sec 3

Q.67

Neha starts playing a game with some amount. The amount gets increased by some percentage in the first hour of the game but in the second hour of the game, it was decreased by the same percentage. At the end of the second hour, she had Rs.5,040. Similarly, on increasing and decreasing in the same pattern, also with the same percentage, at the end of the fourth hour, that amount became Rs.4,961.25. Following the same pattern, the amount she had (in nearest integer) at the end of the fifth hour was

1 **Rs.5,278**

2 **Rs.5,581**

3 **Rs.5,349**

4 **Rs.5,287**

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Answer key/Solution

Q.68

There are two cities - A and B - such that the road to travel between them is partly uphill, partly on level ground and partly downhill. It took three hours for a bus to go from A to B, whereas it took 40 minutes more for the same bus to come back from B to A. Find the distance (in km) between A and B, if the speed of the bus at uphill, downhill and that on the level ground are 40 km/hr, 60 km/hr and 48 km/hr respectively.

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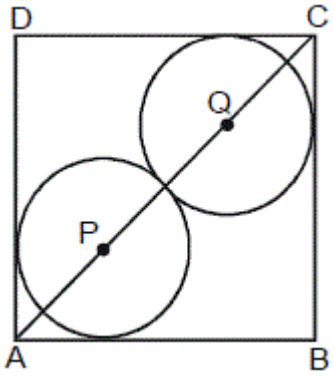
Answer key/Solution

Q.69

In the diagram shown below, ABCD is a square. The two identical circles touch each other and also touch two sides of the square. The centers of the circles, P and Q, lie along the diagonal AC. If the radius of each circle is 1 unit, then find the side of the square ABCD.



1 **2(1 + √2)**

2 **2 + √2**

3 **2√2**

4 **1 + √2**

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Answer key/Solution

Q.70

If N = 84 × 192 × 217 × 301, then find the remainder when N is divided by 27.

1 **9**

2 **7**

3 **6**

4 **5**

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Answer key/Solution

Q.71

For a quadratic equation: $ax^2 + bx + c = 0$, the sum of the square of its roots is equal to the sum of the cubes of its roots. If $b^3 + ab^2 = 2a + 3b \neq 0$, then find the value of 'ac'.

1 **0**

2 **1**

3 **−2**

4 **4**

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Answer key/Solution

Q.72

Manohar, a typist, had just finished typing an entire book. If in order to number all the pages of that book, he made a total of 5001 key presses, then find the number of pages in that book.

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Answer key/Solution

Q.73

A starts a certain work and leaves after completing exactly half of the work, then B takes up the remaining work. In this way, the work is completed in 25 days. If A and B would work together, the same work get completed in 12 days. It is known that A is slower than B. Find the number of days in which the work will be completed, if A alone first works on exactly one-fifth of the work and then B alone completes the rest of the work.

1 **20**

2 **22**

3 **25**

4 **30**

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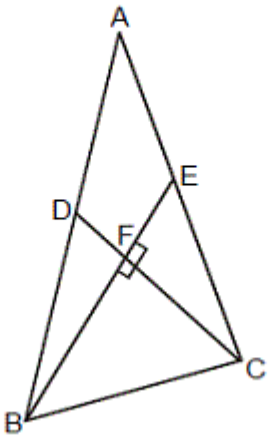
Answer key/Solution

Q.74

In the figure below, DB = DC, ∠ACD = 20°, ∠CAB = 30° and BF ⊥ DC. If BF, when produced intersects AC at E, then find the measure (in degrees) of ∠EBC.



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Answer key/Solution

Q.75

If a certain sum, invested under compound interest, amounts to twice as much at the end of the seventh year as it would at the end of the second year, then the amount at the end of the 64th year will be how many times of the amount that was at the end of the 49th year?

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Answer key/Solution

Q.76

If $L(x)=\frac{1}{2}\times\max(6-x,x+2)$ for all real values of x, then the smallest possible value of L(x) is

1 **1**

2 **2**

3 **3**

4 **4**

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Answer key/Solution

Q.77

There are four identical containers which are half filled with milk solution having concentration level of 100%, 50%, 25% and 20% respectively. The content of the first container is fully poured into the second container and then half of the content of the second container is poured into the third container and so on. Find the concentration of milk in the fourth container after the completion of this process.

1 **35%**

2 **50%**

3 **22.5%**

4 **47.5%**

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Answer key/Solution

Q.78

In a triangle PQR, if PQ = 18 units, QR = 21 units and the length of the altitude drawn from Q to PR measures 13.5 units, then find the area (in sq. units) of the circle circumscribing the triangle. Take π = 22/7

1 **500**

2 **616**

3 **625**

4 **750**

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Answer key/Solution

Q.79

If $x^2 + y^2 = 14xy$, then $\log\left(\frac{x^4 + y^4 - 2x^2y^2}{192}\right)$ is equivalent to which of the following expressions?

1 **log(x) log(y)**

2 **4(logx – logy)**

3 **2(logx + logy)**

4 **None of the above**

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Answer key/Solution

Q.80

Wanik, by means of his false balance, defrauds to the extent of 10% in buying goods. Then he marks up the price by 80% and gives discount of 50% while selling the goods, but defrauds to the extent of 10% with customer also. Find his gain percentage in this whole transaction.

1 $7\frac{7}{7}\%$

2 $11\frac{1}{9}\%$

3 $5\frac{5}{9}\%$

4 **10%**

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Answer key/Solution

Q.81

After giving B a head start of 24 m in a race of 240m, A was able to catch up with B in 16 seconds.

If the speed of A is $33\frac{1}{3}\%$ more than that of B, by how many seconds will A beat B in that race?

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Answer key/Solution

Q.82

There are 3 friends - Sachin, Saurav and Rahul - having a total of 30 apples with them. In how many ways can they distribute the apples among them so that Sachin gets more apples than Saurav, who gets more apples than Rahul, if Rahul gets atleast one apple?

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Answer key/Solution

Q.83

A sequence, whose nth term is 't_n', is defined as $t_n = (t_{n-1} - 1)^2 + 1$ for every n greater than 1. If $t_1 = 3$, then what is the product of the first 10 terms of the sequence?

1 $2^{1023} - 1$

2 $2^{1024} - 1$

3 $2^{512} - 1$

4 $2^{2048} - 1$

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Answer key/Solution

Q.84

In a village 'X', ratio of male to female population is 1 : 3, whereas in another village 'Y', ratio of male to female population is 4 : 5. If the ratio of male to female population of both the villages taken together is 2 : 3, then find the ratio of males in village 'X' to males in village 'Y'.

1 **1 : 6**

2 **1 : 4**

3 **2 : 3**

4 **Cannot be determined**

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Answer key/Solution

Q.85

Raghu wants to construct a circular swimming pool in his trapezium shaped plot. The lengths of the non-parallel sides of the plot are 26 m and 30 m. If the radius of the biggest circular pool that can be constructed inside the plot is 12 m, then what is the least possible area (in sq. meter) of the plot?

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Answer key/Solution

Q.86

If a two-digit number is equal to the sum of its tens place digit and the square of its units place digit, then find the value obtained on adding that 2-digit number to the sum of its digits.

1 **85**

2 **92**

3 **100**

4 **106**

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Answer key/Solution

Q.87

If the number of subsets of set P that contains exactly four elements is 126, then find the total number of proper subsets of set P.

1 **475**

2 **511**

3 **631**

4 **745**

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Answer key/Solution

Q.88

Taps - A, B and C - can fill a tank in 6 hours, 8 hours and 12 hours respectively. Initially, taps A and B were opened but after some time, tap B was closed and tap C was opened. Again, after sometime tap A and tap C both were closed whereas tap B was opened. In this way, the tank was filled in 4 hours. What may be the minimum gap (in hours) between closing and re-opening of tap B?

(Note: Taps are opened or closed only at the interval of $\frac{1}{2}$hr / 1hr / $\frac{3}{2}$hr / 2hr.... and so on.)

1 **1/2**

2 **1**

3 **3/2**

4 **2**

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Answer key/Solution

Q.89

If x, y, and z are three integers such that x + y + z = 15 and xy + xz = 54, then what is the minimum possible value of $y^2 + z^2$?

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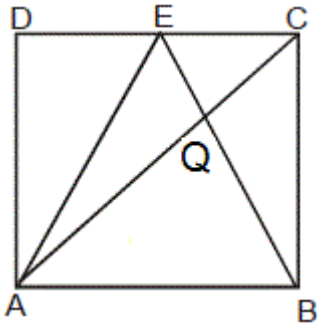
Answer key/Solution

Q.90

In the figure given below, ABCD is a square. A triangle AEB is drawn with a point E on CD. If the diagonal AC intersects BE at Q, such that the area of triangle AQB = 10 sq.cm and that of triangle CQE = 5 sq.cm, then find the area (in sq. cm) of triangle AED.



1 **10**

2 **5**

3 **8**

4 **Cannot be determined**

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Answer key/Solution

Q.91

A dishonest milkman dilutes milk by mixing water in it and then sells the diluted milk at a price of 20% higher than the price at which he purchased the milk. If he makes an overall profit of 50% in this manner, then how many ml of water does he add to every liter of milk?

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Answer key/Solution

Q.92

How many distinct real values of x satisfy the equation $|3x + 2| - |2x - 3| = 5$?

1 **0**

2 **2**

3 **3**

4 **More than 3**

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Answer key/Solution

Q.93

If the average of nine consecutive even natural numbers, the greatest of which is y, is x, then what is the average of 17 consecutive natural numbers, the least of which is x?

1 **y – 2**

2 **y**

3 **y – 1**

4 **y + 4**

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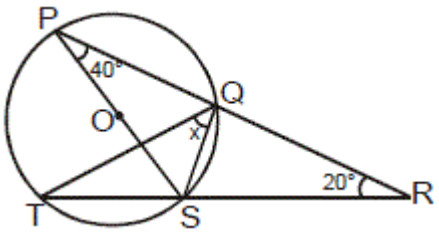
Answer key/Solution

Q.94

PQR and TSR are two secants of the circle, as shown in the figure below. O is the centre of the circle, ∠P = 40° and ∠R = 20°. Find the measure (in degrees) of angle x.



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Answer key/Solution

Q.95

Two trains started simultaneously at 11:00 a.m. from Asansol and Patna moving towards Patna and Asansol respectively, and met each other at 3:00 p.m. If the second train reached its respective destination 88 minutes before the other train reached its respective destination, then when did the train starting from Asansol reach Patna?

1 **7:20 p.m.**

2 **7:30 p.m.**

3 **7:48 p.m.**

4 **8:00 p.m.**

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Answer key/Solution

Q.96

The number 2x + 2, which is the second term in a number series, is obtained by multiplying the number x, which is the first term of the same number series, by y. The third term in that number series is 3x + 3 and it is equal to 2(xy + y). In that number series, if the fourth term is obtained by multiplying the third term by y, then what is the fourth term of the number series? (All the numbers in that series are real numbers)

1 **−13**

2 **12**

3 **−13.5**

4 **4x + 4**

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Answer key/Solution

Q.97

If $a = b^2 = c^3 = d^4$, then find the value of $\log_{(bc)^2} abcd$.

1 **1**

2 **3**

3 **25/108**

4 **5/4**

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Answer key/Solution

Q.98

If A is 25% as efficient as B and can complete a certain work taking 15 days more than that taken by B, then in how many days will both A and B together complete the work?

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Answer key/Solution

Q.99

A seven-digit number is formed by using first seven natural numbers without repetition. What is the probability that the number will be divisible by 11?

1 **2/105**

2 **4/105**

3 **4/35**

4 **2/35**

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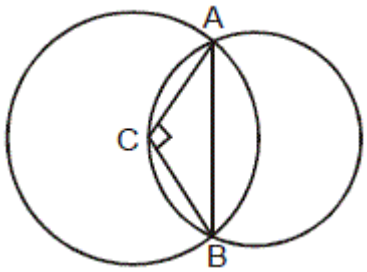
Answer key/Solution

Q.100

If in the figure shown below, C is the center of the bigger circle, ∠ACB = 90° and the measure of the common chord AB is 14 cm, then find the area (in sq. cm) common to both the circles.



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