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Mock CAT – 02 2019

Scorecard (procreview.jsp?sid=aaaFOuj1h2PZo7o7VNG6wSat Jan 11 21:00:24 IST 2020&qsetId=mP3JvM6KnEA=&qsetName=Mock CAT – 02 2019)

Accuracy (AccSelectGraph.jsp?sid=aaaFOuj1h2PZo7o7VNG6wSat Jan 11 21:00:24 IST 2020&qsetId=mP3JvM6KnEA=&qsetName=Mock CAT – 02 2019)

Qs Analysis (QsAnalysis.jsp?sid=aaaFOuj1h2PZo7o7VNG6wSat Jan 11 21:00:24 IST 2020&qsetId=mP3JvM6KnEA=&qsetName=Mock CAT – 02 2019)

Video Attempt (VideoAnalysis.jsp?sid=aaaFOuj1h2PZo7o7VNG6wSat Jan 11 21:00:24 IST 2020&qsetId=mP3JvM6KnEA=&qsetName=Mock CAT – 02 2019)

Solutions (Solution.jsp?sid=aaaFOuj1h2PZo7o7VNG6wSat Jan 11 21:00:24 IST 2020&qsetId=mP3JvM6KnEA=&qsetName=Mock CAT – 02 2019)

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VARC

LRDI

QA

Sec 1

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

Passage 1

The animals of neuroscience research are an eclectic bunch, and for good reason. Different model organisms—like zebra fish larvae, C. elegans worms, fruit flies, and mice—give researchers the opportunity to answer specific questions. The first two, for example, have transparent bodies, which let scientists easily peer into their brains; the last two have eminently tweakable genomes, which allow scientists to isolate the effects of specific genes. For cognition studies, researchers have relied largely on primates and, more recently, rats, which I use in my own work. But the time is ripe for this exclusive club of research animals to accept a new, avian member: the corvid family.

Corvids, such as crows, ravens and magpies, are among the most intelligent birds on the planet—the list of their cognitive achievements goes on and on—yet neuroscientists have not scrutinized their brains for one simple reason: They don't have a neocortex. The obsession with the neocortex in neuroscience research is not unwarranted; what's unwarranted is the notion that the neocortex alone is responsible for sophisticated cognition. Because birds lack this structure—the most recently evolved portion of the mammalian brain, crucial to human intelligence—neuroscientists have largely and unfortunately neglected the neural basis of corvid intelligence.

This makes them miss an opportunity for an important insight. Having diverged from mammals more than 300 million years ago, avian brains have had plenty of time to develop along remarkably different lines (instead of a cortex with its six layers of neatly arranged neurons, birds evolved groups of neurons densely packed into clusters called nuclei). So, any computational similarities between corvid and primate brains—which are so different neurally—would indicate the development of common solutions to shared evolutionary problems, like creating and storing memories, or learning from experience. If neuroscientists want to know how brains produce intelligence, looking solely at the neocortex won't cut it; they must study how corvid brains achieve the same clever behaviors that we see in ourselves and other mammals.

While there have been a number of fascinating behavioral studies in corvids (especially from the lab of Nicola Clayton at the University of Cambridge) so far only Andreas Nieder, a neuroscientist at the University of Tübingen, has examined the neuronal activity of crows during sophisticated behavior. In Nieder's first of such studies, published in 2013 in *Nature Communications*, he and graduate student Lena Veit wanted to see what crows' brains did when following an abstract rule.

In their experiment, Nieder's team had the crows play an image matching game. The crows first had to briefly look at a sample image on a computer screen. Then, a cue indicated whether they should subsequently select the same (matching) image, or a different one, once the computer screen lit up again. Importantly, the cues for which image to select could be either visual (in this case, red or blue circles) or auditory (noise or glissando sound). The blue circle or glissando sound cued the crow to select the same image as appeared initially; the red circle or noise sound cued the different one. This required the crows to interpret the cue flexibly, since a sound or a visual could cue the same action.

Once the birds learned the rule (they were rewarded with treats when behaving correctly), Nieder's team began recording neuronal activity in the birds' nucleus NCL (nidopallium caudolaterale), an area of the avian brain thought to be most like the mammalian prefrontal cortex (PFC), which enables decision-making, short-term memory, and planning for the future.

Q.1

Why have researchers neglected the neural basis of corvid intelligence?

1 **Because they are obsessed with neocortex.**

2 **Because birds lack the structure of neocortex.**

3 **Because they believe that neocortex alone is responsible for sophisticated cognition.**

4 **Because the mammalian brain is recently evolved.**

FeedBack

Bookmark

Answer key/Solution

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Q.2

As per the passage, which of the following can be inferred about the purpose of the first paragraph?

1 It discusses the different model organisms and their special features.

2 It introduces the theme of the passage – the cognition studies on mammals.

3 It subtly highlights the need to include corvids in neuroscience studies.

4 It highlights the fact that the club of animal being studied by neuroscience should no longer remain exclusive.

FeedBack

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Q.3

Which of the following best describes the main idea of the passage?

1 **To show how neuroscientists have to study the corvid brains if they want to succeed professionally**

2 **To show how corvid brains achieved the same level of neurological sophistication as other animals did**

3 **To show how PFC in mammals have been replicated in corvids allowing the latter to have traits of decision-making, short-term memory, and planning for the future**

4 To show the importance of the corvid brain in the field of animal neuroscience

FeedBack

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Answer key/Solution

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Q.4

Which of the following is not true regarding the corvid brain?

1 **It contains a cortex with six layers of neurons.**

2 **It shows some features of sophisticated cognition.**

3 **It has a lot of significance for the researchers studying animal neuroscience.**

4 **It is neurally different from primate brains.**

FeedBack

Bookmark

Answer key/Solution

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Q.5

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

1 **Avian brains developed on different lines than those of mammals.**

2 **Andreas Nieder alone published a study in 2013 that dealt with crows during sophisticated behaviour.**

3 **The crows in the Nieder's study of matching game were given both auditory as well as visual clues.**

4 **A lab in Cambridge has done some fascinating behavioural studies on corvids.**

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

Passage 2

Almost 200 countries are in the process of negotiating a series of resolutions on pollution at the United Nations, and cities around the world are being encouraged to be part of the UN Environment's BreatheLife campaign to clear their air to meet health targets by 2030.

Cities can learn quickly from each other about what works, with transport policies crucial. Curitiba in southern Brazil has been said to set the gold standard in sustainable urban planning, with a comprehensive, high-quality public transport system and bus system used by 85% of local people.

In the UK, Nottingham introduced an all-electric park-and-ride service and one of the biggest electric bus fleets in Europe, while Birmingham promotes a "bicycle revolution", offering free bikes, cycle training and maintenance lessons. Freiburg in Germany coordinated transport and land use to increase journeys by bike threefold, double public transport use, and cut the share of trips by car to less than one third.

But how could the UK government deliver a meaningful right to clean air? There could be a nationwide duty on all public bodies to take into account the impact of air pollution and climate change whenever they make a decision about public services or public funds. A precedent exists in the form of the public sector equality duty, which assesses whether the decisions of public bodies will have a discriminatory impact on vulnerable groups, and if so take reasonable steps to prevent discrimination. It is now embedded in almost every public body decision-making process.

We urgently need to change how we live, work and run the economy, to stop avoidable, premature deaths, tackle climate change, and advance visions of a world in which the air is fit to breathe. Today's awareness-raising Smog Day is a step in the right direction.

Thought for the day comes from the book of Luke: "There will be more joy in heaven over one sinner who repents than over 99 righteous ones who do not need to repent." Might we place in the repenting category the UK boss of bankers Santander, the former chairs of Marks & Spencer and HSBC, and the heads of the Confederation of British Industry, Barclays and Lloyds?

All have now, in one way or other, questioned the viability of capitalism as we currently practise it, blaming management greed, tax evasion, and other corporate sins. It has been reported that Shriti Vadera – once Gordon Brown's eyes and ears at the Treasury, now head of Santander – told a conference that "the underlying promise of western capitalist economies – that a rising tide lifts all boats – has been broken"; a "better model" is needed.

Robert Swannell, once of M&S, said capitalism has "lost its way", with companies and investors preoccupied by short-termism. Carolyn Fairbairn, of the CBI, spoke of capitalism's wrong turnings. "The financial crash, a fixation on shareholder value at the expense of purpose, and the toxic issues of … payment of tax and executive pay stand in the way of redemption," she said.

These sentiments aren't new. Reflecting on the financial crash, Brexit, and the rise of conservatism on the back of America's left-behinds, many have said much the same. But still it is a moment to hear the stewards of the capitalist system admit that the game, as it has been ruinously played, is up.

Q.6

The author in the passage primarily aims to:

1 **question the continued existence and effectiveness of capitalism.**

2 **highlight the need for a better social model for sustainable consumption.**

3 **explain the need for better governance in order to have a cleaner environment.**

4 **showcase some examples that back the fact that the world is becoming more breathable.**

FeedBack

Bookmark

Answer key/Solution

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

Passage 2

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Q.7

Which of the following options can be inferred from Shriti Vadera's comments?

1 **Capitalists are now repenting their greed.**

2 **The current model of capitalism is unsustainable.**

3 **Capitalists are now repenting their short-sightedness.**

4 The current model of capitalism is not the most effective, but it is for the best.

FeedBack

Bookmark

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Q.8

As per the passage, all of the following are not true except:

1 **Curitiba is the cleanest city in the world.**

2 **Nottingham has taken a commendable step in fighting air pollution by promoting the use of bicycles.**

3 **Capitalism continues to thrive despite efforts to eradicate it.**

4 **Smog Day is a welcome step in the world's effort to fight air pollution.**

FeedBack

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These sentiments aren't new. Reflecting on the financial crash, Brexit, and the rise of conservatism on the back of America's left-behinds, many have said much the same. But still it is a moment to hear the stewards of the capitalist system admit that the game, as it has been ruinously played, is up.

Q.9

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

1 **To show that some welcome changes are taking place in our efforts to fight air pollution**

2 **To show that all economic policies eventually become obsolete**

3 **To show that despite all the proclamations by these business leaders, there is nothing new to be offered**

4 To show that these business leaders are simply stating something that is neither new nor useful

FeedBack

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Answer key/Solution

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

Passage 2

Almost 200 countries are in the process of negotiating a series of resolutions on pollution at the United Nations, and cities around the world are being encouraged to be part of the UN Environment's BreatheLife campaign to clear their air to meet health targets by 2030.

Cities can learn quickly from each other about what works, with transport policies crucial. Curitiba in southern Brazil has been said to set the gold standard in sustainable urban planning, with a comprehensive, high-quality public transport system and bus system used by 85% of local people.

In the UK, Nottingham introduced an all-electric park-and-ride service and one of the biggest electric bus fleets in Europe, while Birmingham promotes a "bicycle revolution", offering free bikes, cycle training and maintenance lessons. Freiburg in Germany coordinated transport and land use to increase journeys by bike threefold, double public transport use, and cut the share of trips by car to less than one third.

But how could the UK government deliver a meaningful right to clean air? There could be a nationwide duty on all public bodies to take into account the impact of air pollution and climate change whenever they make a decision about public services or public funds. A precedent exists in the form of the public sector equality duty, which assesses whether the decisions of public bodies will have a discriminatory impact on vulnerable groups, and if so take reasonable steps to prevent discrimination. It is now embedded in almost every public body decision-making process.

We urgently need to change how we live, work and run the economy, to stop avoidable, premature deaths, tackle climate change, and advance visions of a world in which the air is fit to breathe. Today's awareness-raising Smog Day is a step in the right direction.

Thought for the day comes from the book of Luke: "There will be more joy in heaven over one sinner who repents than over 99 righteous ones who do not need to repent." Might we place in the repenting category the UK boss of bankers Santander, the former chairs of Marks & Spencer and HSBC, and the heads of the Confederation of British Industry, Barclays and Lloyds?

All have now, in one way or other, questioned the viability of capitalism as we currently practise it, blaming management greed, tax evasion, and other corporate sins. It has been reported that Shriti Vadera – once Gordon Brown's eyes and ears at the Treasury, now head of Santander – told a conference that "the underlying promise of western capitalist economies – that a rising tide lifts all boats – has been broken"; a "better model" is needed.

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These sentiments aren't new. Reflecting on the financial crash, Brexit, and the rise of conservatism on the back of America's left-behinds, many have said much the same. But still it is a moment to hear the stewards of the capitalist system admit that the game, as it has been ruinously played, is up.

Q.10

As per the passage, which of the following best represents the gist of the quotation from Book of Luke?

1 Sinners who repent are dearer to God than those who never sin.

2 Heaven acknowledges the importance of repentance.

3 It is better to sin and repent than to never sin at all.

4 In heaven, sinners who repent are better liked than the righteous ones.

FeedBack

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Answer key/Solution

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

Passage 3

Despite massive campaign spending in India, there is barely any public scrutiny of such spending because of the opaque nature of the transactions. The electoral bonds scheme amplifies such opacity by not disclosing the identity of the donor. In reality, the scheme undermines the complementary nature of the rights to privacy and information, namely, to make the state more transparent.

Electoral bonds were introduced in 2017 when the Finance Act amended four different statues: the Reserve Bank of India Act, 1934; the Representation of Peoples Act, 1951; the Income Tax Act, 1961; and the Companies Act, 2013. However, the terms of the scheme appear to have disastrous consequences for political transparency. Under the scheme, both the purchaser of the bond and the political party receiving the money has a right to not disclose the identity of the donor. Also, the policy dismantles several restrictions that checked illegal corporate sponsoring previously — for example, by removing a cap on corporate sponsorship. Donations can now be made by any "artificial juridical person". This means that even foreign donations are now allowed. The requirement that a company has to be in existence for three years for it to make political donations has also been removed. This ignores all the concerns regarding the use of shell companies to siphon black money into the system.

The Centre informed the Supreme Court that protecting the privacy of electoral bond buyers is vital. While the right to privacy in India safeguards the individual's autonomy and dignity, it is subject to restriction on the basis of "compelling public interest". If the information pertains to matters which affect the lives of others, or is closely linked to a public person, it must be disclosed. The policy choices and decisions of public officials have to be brought under public scrutiny to ensure that they have not acted in a manner that unfairly benefits them or their benefactors. The same logic can then be extended to the funding of political parties, where the funder's actions are bound to have an influence on the policy decisions of the party, if the party wins.

A clear conflict of interest would likely arise if important policy decisions are taken that could affect the donors to the party. Let's imagine that an Indian company decides to make a huge political donation through the electoral bonds scheme and the political party it donates to emerges victorious. What if the government decides to provide favourable deals to the sector in question? The public will have no way of knowing what guided such a biased action.

Q.11

How do electoral bonds increase the opacity in political transactions?

1 By having no lower limit on the permissible amount

2 By not disclosing the identity of the donor

3 By providing incentive for high political donations

4 By providing income tax rebate on such donations and giving incentive to donors to hide their donations

FeedBack

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Answer key/Solution

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Q.12

Which of the following describes a feature of the scheme of electoral bonds?

1 Both the donors and the political parties receiving the donation can hide their identities.

2 The donors can hide the identity of the political parties they are funding.

3 The donors and political parties both can hide the identities of the donors.

4 Only the political parties alone can hide the identities of the donors.

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Bookmark

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Q.13

Which of the following provisions in the Finance Act encourages siphoning of black money through shell companies?

1 Removing a cap on corporate sponsorship

2 Allowing foreign donations

3 Removing the compulsions of three years of existence for companies before making donations

4 Artificial juridical person can also donate to parties

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Q.14

Which of the following restricts the right to privacy in India?

1 **If the information hidden through right to privacy affects public interest then it must be disclosed.**

2 **If the beneficiaries of right to privacy abuse that privilege then that right must be revoked.**

3 **The actions of specifically the executives in Indian democracy must remain open to public scrutiny.**

4 **The right to privacy of individuals can be revoked without citing any reason.**

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Q.15

What vested interests do the donors have in mysteriously funding the political parties?

1 **These donors enjoy high income tax rebates on such donations.**

2 **The donors could very likely affect the policy of the government they have financed to bring in power.**

3 **The political parties so funded by these hidden donors tend to give tax benefits to their funders.**

4 **These donors derive huge moral satisfaction in supporting the political party of their liking.**

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Answer key/Solution

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

Passage 4

It may give you some idea of rural humour if I begin this tale with an anecdote that concerns me. I was walking alone through a village at night when I met an old man carrying a lantern. I found, to my surprise, that the man was blind. 'Old man,' I asked, 'if you cannot see, why do you carry a lantern?'

'I carry this,' he replied, 'so that fools do not stumble against me in the dark.'

This incident has only a slight connection with the story that follows, but I think it provides the right sort of tone and setting. Mr. Oliver, an Anglo-Indian teacher, was returning to his school late one night, on the outskirts of Simla. Mr. Oliver had been teaching in the school for several years. The Simla bazaar, was about two miles from the school; and Mr. Oliver, a bachelor, usually strolled into the town in the evening, returning after dark, when he would take a short cut through a pine forest.

When there was a strong wind, the pine trees made sad, eerie sounds that kept most people to the main road. But Mr. Oliver was not a nervous or imaginative man. He carried a torch and, on the night I write of, its pale gleam — the batteries were running down — moved fitfully over the narrow forest path. When its flickering light fell on the figure of a boy, who was sitting alone on a rock, Mr. Oliver stopped. Boys were not supposed to be out of school after 7 p.m., and it was now well past nine.

'What are you doing out here, boy?' asked Mr. Oliver sharply, moving closer so that he could recognise the miscreant. But even as he approached the boy, he sensed that something was wrong. The boy appeared to be crying. 'Well — what's the matter?' he asked, his anger giving way to concern. 'What are you crying for?' Tell me the trouble. Look up!' The boy looked up. He took his hands from his face and looked up at his teacher. The light from Mr. Oliver's torch fell on the boy's face — if you could call it a face.

He had no eyes, ears, nose or mouth. It was just a round smooth head — with a school cap on top of it. And that's where the story should end — as indeed it has, for several people who have had similar experiences and dropped dead of inexplicable heart attacks But for Mr. Oliver it did not end there.

The torch fell from his trembling hand. He turned and scrambled down the path, running blindly through the trees and calling for help. Mr. Oliver had never before been so pleased to see the night-watchman. He stumbled up the watchman, gasping for breath and speaking incoherently. 'What is it, Sahib?' asked the watchman. 'Has there been an accident? Why are you running?'

'I saw something — something horrible — a boy weeping in the forest — and he had no face!' 'No face, Sahib?' 'No eyes, nose, mouth — nothing.' 'Do you mean it was like this, Sahib?' asked the watchman, and raised the lamp to his own face. The watchman had no eyes, no ears, no features at all — not even an eyebrow! The wind blew the lamp out, and Mr. Oliver had his heart attack.

Q.16

What could be the writer's intention behind introducing an anecdote before the story?

1 **To bring some humour to the story**

2 To personalize himself to the readers

3 To relate his story to reality

4 To set the tone and setting for the story

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Q.17

Mr. Oliver often used to take the secluded shortcut through a pine forest, what does that indicate about his character?

1 **He was a fearless man.**

2 **He was an unimaginative man.**

3 **He was very fond of nature.**

4 **He was searching for a partner.**

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Q.18

What should have marked the end of the story but didn't for Mr. Oliver?

1 **Mr. Oliver strolling down the town lanes**

2 **Mr. Oliver's encounter with the faceless boy**

3 **Mr. Oliver choosing the short-cut over the main road**

4 **Mr. Oliver stumbling upon the watchman**

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Q.19
What caused Mr. Oliver's heart attack?

1 **The sight of the faceless boy**

2 **Watching the boy cry and sob**

3 **The encounter with the faceless watchman**

4 **The eerie sounds of the pine forests**

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Answer key/Solution

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

Passage 5

It is not enough for a country to attempt to increase its national income. It is also necessary to ensure that it is evenly distributed. But inequality of income is an important feature of capitalist economies. The socialist countries like the U.S.S.R. and Communist China have established systems whose aim is to reduce inequalities of incomes. Even they have failed to attain perfect equality. In the capitalist countries, on the other hand, it is generally recognized that inequalities will remain and that cannot be helped. Some economists make even virtue of this necessity and they see lot of good in these inequalities from the point of view of capital formation.

Some persons are born with a silver spoon. Rich inheritance gives them a start in life and if they are reasonably prudent, they keep up the lead. Some persons are born landless; others inherit a few acres and still others thousands of acres. So long as the system of inheritance lasts, inequalities are bound to be perpetuated.

Inequality of incomes leads to some very serious economic and social consequences. It has created two sections in society—the 'haves' and the 'have-not's—which are ever on the war path. This has resulted in ever mounting social tensions and political discontent. The rich dominate the political machinery, and they use it to promote their own exclusive interests. This results in corruption, graft and social injustice. Thus inequality of incomes is an important cause of social and political instability.

Unequal incomes promote monopolies. These powerful monopolies and industrial combines charge unfair prices from the consumer? And crush the small producers. It is not easy for a poor man to make his way in life, however brilliant he may be. It is a great social loss that brainy people without money are unable to make their due contribution to social welfare. Democracy is a farce when there is a wide gulf between the rich and the poor. Political equality is a myth without economic equality.

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As a counterpart, a ceiling on urban property can be imposed so that inequalities in urban areas can also be toned down. More radical socioeconomic reforms seem to be in the offing in India. These are some of the measures that can be adopted to reduce inequalities. While inequalities can be reduced, they cannot be eliminated altogether. In fact, absolute equality is unattainable.

Q.20

Which of the following reasons do the capitalistic economists cite for the necessity of income inequality?

1 **It boosts industrial production as the richer section consumes more.**

2 **It aids in higher tax revenues as the more affluent class contribute higher tax.**

3 **It helps in the process of capital formation in a capitalist economy.**

4 **Income inequality gradually eliminates poverty by eradicating the poor strata of the society.**

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Answer key/Solution

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

Passage 5

It is not enough for a country to attempt to increase its national income. It is also necessary to ensure that it is evenly distributed. But inequality of income is an important feature of capitalist economies. The socialist countries like the U.S.S.R. and Communist China have established systems whose aim is to reduce inequalities of incomes. Even they have failed to attain perfect equality. In the capitalist countries, on the other hand, it is generally recognized that inequalities will remain and that cannot be helped. Some economists make even virtue of this necessity and they see lot of good in these inequalities from the point of view of capital formation.

Some persons are born with a silver spoon. Rich inheritance gives them a start in life and if they are reasonably prudent, they keep up the lead. Some persons are born landless; others inherit a few acres and still others thousands of acres. So long as the system of inheritance lasts, inequalities are bound to be perpetuated.

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Q.21

Which of the following is the most potent factor of income inequality?

1 **Inheritance from one generation to another**

2 **Government's taxation policy**

3 **Exploitation of the poor by the rich**

4 **Inability of the poor section to rise from the backward environment that surrounds them**

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Answer key/Solution

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Q.22

How is inequality of income related to social and political instability?

1 **The 'haves not' are frustrated with the injustices of the society and they rise against the political machinery.**

2 **The rich dominate the political machinery furthering their interests, thus, causing political injustice.**

3 **Income inequality leads to social tensions and political discontent.**

4 **The workforce that mainly consists of the lower economic strata becomes dysfunctional.**

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Answer key/Solution

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Passage 5

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Q.23

What purpose would be served by heavily taxing the rich?

1 **It would increase the tax revenues for the government.**

2 **It would check the bodacious consumption by the rich of luxury commodities.**

3 **It would promote the production of necessary goods in the economy.**

4 **It would help in transferring wealth to the poor.**

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Answer key/Solution

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Q.24

Which of the given choices could help in reducing urban inequality?

1 **Providing mass scale high paying jobs**

2 **Imposing a ceiling on urban investments in bonds**

3 **Imposing a ceiling on urban property**

4 **Converting slum areas into low priced apartments**

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Answer key/Solution

Directions for question (25): Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

Q.25

1. This is according to the Internal Security Threat Report of 2017 by Symantec.
2. Till June 2017, 27,482 cybersecurity threats had been reported in the country, according to the Indian Computer Emergency Response Team's report.
3. India's technological achievements come with a serious problem.
4. Historically, criminal law has focused on the injury or harm caused by a single incident, rather than the cumulative fear and damage caused by repeated incidents in cases of domestic violence and stalking.
5. Innovation in technology, enhanced connectivity, and increasing integration in commerce and governance also make India the fifth most vulnerable country in the world in terms of cybersecurity breaches.

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Answer key/Solution

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

Q.26

Hate crimes are particularly serious because of their potential to provoke panic. The speed with which the videos travelled on social media frames a difficult challenge for law enforcement authorities. A temporary Internet shutdown that was enforced in Rajsamand may appear unavoidable, but these are post-hoc measures and cannot prevent the problem of provocative, even grisly, content being made available and even spreading online. Such crimes pose a very stiff challenge in a democratic society. They may be isolated but the impact of these crimes spills into the wider community. There is only one way to counter them: with a clear, unambiguous consensus against hate.

1 **Hate crimes are serious as their consequences can be far reaching.**

2 **Hate crimes are serious and their solution needs a clear stance against the concept of hate, instead of short-term measures.**

3 **Hate crimes have become more serious in the world of social media and communication revolution.**

4 **Hate crimes can be solved only if we come together to fight the menace of technology and social media.**

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Answer key/Solution

Directions for question (27): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

Q.27

1. We spend one-third of our day sleeping, and studies have reported that seven-eight hours of sleep is positively associated with health and longevity.
2. Sleep is the most important piece of the health and wellness puzzle.
3. So, sleep plays a vital role in overall well-being.
4. It has a profound impact on both psychological and physical state of our health.

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Answer key/Solution

Directions for question (28): Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

Q.28

1. As regimes are forming only now, it is possible to study them at an early stage to compare their structure, content, and driving variables with environmental regimes found in other areas such as South Asia and the Mediterranean.
2. As a "latecomer" to environmental cooperation, the states of Northeast Asia have the opportunity to learn from prior regional experience.
3. Northeast Asia also poses many challenges to paradigms of environmental cooperation derived from other regions.
4. Northeast Asia is an excellent region in which to study environmental conflict and cooperation.
5. The precise scale and impact of transfrontier acid rain deposition remains unclear, in part due to the lack of monitoring stations and ecological studies.

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Answer key/Solution

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

Q.29

The idea that intelligence could be quantified, like blood pressure or shoe size, was barely a century old when I took the test that would decide my place in the world. But the notion that intelligence could determine one's station in life was already much older. It runs like a red thread through Western thought, from the philosophy of Plato to the policies of UK Prime Minister Theresa May. To say that someone is or is not intelligent has never been merely a comment on their mental faculties. It is always also a judgment on what they are permitted to do. Intelligence, in other words, is political.

1 **Intelligence tests are politically motivated and many times politicians take advantage of this.**

2 The assertion of someone's intelligence is not only limited to the individual's ability, but it also determines the person's social position.

3 The idea of intelligence as a determiner of one's potential has been there for a long time.

4 Intelligence can be quantified, tested, and proven.

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Answer key/Solution

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.

Q.30

1. The baby Sun -born about 4.6 billion years ago, 50 million years before the Earth - was no exception.
2. Ice-blue crystals, called hibonite, found in a meteorite preserved at the Field Museum in the University of Chicago revealed that our Sun too went through the "terrible twos".
3. Understanding the early history of the Sun will help scientists know the physics and chemistry of our natural world and predict the future better.
4. Stars are typically violently active in their early phase of evolution.

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Answer key/Solution

Directions for question (31): Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

Q.31

1. The adoption of specific movement and gesture distinguished one from the other.
2. Lee-Hart seeks music which is "liberating and beautiful".
3. Contemporary visual art falls into many categories (figurative, abstract, conceptual etc).
4. Whatever modern classical music is (experimental, atonal, electro-acoustic), it requires one to invest of oneself in the audition process.
5. Similarly, "modern classical music" cannot just be lumped into one nebulous category.

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Answer key/Solution

Directions for question (32): The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Q.32

History is at its most exciting and stimulating for students and teachers alike when there is scope to look at connectivity, to identify and work through deep rhythms and trends, and to explore the past by challenging assumptions that the story of the world can be charted through a linear progression – as the AP College Board seems to think with its statement linking 1200 with the 'modern era'. If you really want to see how foolish this view is – and how unfortunate it is to narrow down the scope of the World History course, then take a look at the front pages in just about any country in the world today. In China, news is dominated by the Belt and Road Initiative, the Chinese-led plan to re-galvanise the ancient networks of the past into the modern-day Silk Roads: there are many and sharply divergent views about the aims, motivations and likely outcomes of the Belt and Road Initiative. This is far and away the single most important geopolitical development in the modern world today. Understanding why Beijing is trying to return to the glory years of the Silk Roads (which date back 2,000 years) would seem to be both interesting, and important – and largely to be bypassed by the new World History scope.

1 **The attempt of China to go back to its glory days shows how misguided the study of History can be.**

2 **History is studied in a more holistic manner if it is analysed, and a lack of perspective acts as a hindrance to understanding this subject.**

3 **If students and teachers are not encouraged to ask questions, the real value of studying History will be defeated, as it is proven in case of China.**

4 **The single most geopolitical development of the modern era is most likely to be ignored by History, thus proving the futility of attempting to understand socio-historical complexities.**

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Answer key/Solution

Directions for question (33): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

Q.33

1. Scientists are not sure where snakes originated and how they spread around the world.
2. Trapped inside the amber was a 99-million-year-old snakeskin.
3. Lida Xing, a paleontologist from the China University of Geosciences in Beijing, was combing the amber markets of Myanmar when he came across an interesting piece.
4. This discovery may give them some clues.

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Answer key/Solution

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

Q.34

1. You can make an egg into an omelet, but you can't turn an omelet back into an egg.
2. Above all, we age and become decrepit; there is no return to youth.
3. As conscious beings, we are constantly aware of the relentless march of time.
4. Dropped glasses, too, shatter and do not reassemble themselves.

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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.

Divanshu, the father to a son Vihaan and a daughter Nidhi, decided to do Diwali shopping for himself and his kids. So, Vihaan and Nidhi gave him their individual list of toys, which is as follows, to buy from the market.

Vihaan's list: Robot, Rocket, Activity Ball, Bicycle, and Racing Car
Nidhi's list: Barbie Doll, Guitar, Fidget Spinner, Building Blocks and Toy House.

After seeing such a big list from both the kids, Divanshu decided to buy at least three toys for Nidhi and at most three toys for Vihaan in such a way that the total number of toys should sum up to be exactly six.
While shopping, Divanshu thought of buying the items by following the set of certain rules.
1. If he buys a barbie doll, then he should buy at most one out of the rocket and building blocks.
2. If he buys a robot, then he should not buy a bicycle and racing car.
3. He should buy at least one and at most two from guitar, fidget spinner and building blocks.
4. If fidget spinner is bought, then he should not buy a toy house and barbie doll.
5. If he has bought a racing car, then he must buy a guitar.
Note: The quantity of the toy of a kind to buy is at most one.

Q.35
In how many different ways can Divanshu buy the equal number of toys for his son and daughter?

1 **8**

2 **5**

3 **11**

4 **13**

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Answer key/Solution

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Q.36
In how many different ways can Divanshu buy more toys for Nidhi than for Vihaan?

1 **4**

2 **3**

3 **5**

4 **7**

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Answer key/Solution

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Note: The quantity of the toy of a kind to buy is at most one.

Q.37

Which of the following toys will definitely be bought by Divanshu?

1 Barbie doll

2 Guitar

3 Building Blocks

4 Rocket

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Answer key/Solution

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5. If he has bought a racing car, then he must buy a guitar.
Note: The quantity of the toy of a kind to buy is at most one.

Q.38

Which of the following toys will definitely not be bought by Divanshu?

1 Barbie doll

2 Robot

3 Building Blocks

4 Fidget spinner

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Answer key/Solution

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

Air-India operates round trip flights between cities A and B, B and C, C and D, and D and E. All these cities are in different time zones. The 'To' flights are from A to B, B to C, C to D and D to E whereas the 'Fro' flights are from B to A, C to B, D to C and E to D. Also the speed of airplane for a 'To' journey is half of the 'Fro' journey for any particular set of cities whereas the path taken is same for both sides.

The following table shows the local time of departure(arrival) from(to) a city. '↑ stands for departure' and '↓ stands for arrival'. The arrival and departure are given in adjacent cells only. For example, the flight from A that departs at 7:00 AM (in A's time zone) reaches B at 11:00 AM(in B's time zone), and the flight from C which departs at 3:00 PM(in C's time zone) reaches B at 4:00 PM(in B's time zone). All the given timings are for the same day.

A	B	C	D	E
7:00 AM ↑	11:00 AM ↓	4:00 PM ↓	3:45 PM ↑	
11:45 AM ↓	12:00 Noon ↑		10:00 AM ↑	4:30 PM ↓
	9:30 AM ↑	12:30 PM ↓	8:15 PM ↓	5:45 PM ↑
	4:00 PM ↓	3:00 PM ↑		
		7:45 AM ↑	2:15 PM ↓	

Q.39

When the flight from C reaches D, what is the local time in A?

1 **10:25 AM**

2 **10:25 PM**

3 **6:05 PM**

4 **6:05 AM**

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Answer key/Solution

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

Air-India operates round trip flights between cities A and B, B and C, C and D, and D and E. All these cities are in different time zones. The 'To' flights are from A to B, B to C, C to D and D to E whereas the 'Fro' flights are from B to A, C to B, D to C and E to D. Also the speed of airplane for a 'To' journey is half of the 'Fro' journey for any particular set of cities whereas the path taken is same for both sides.

The following table shows the local time of departure(arrival) from(to) a city. '↑ stands for departure' and '↓ stands for arrival'. The arrival and departure are given in adjacent cells only. For example, the flight from A that departs at 7:00 AM (in A's time zone) reaches B at 11:00 AM(in B's time zone), and the flight from C which departs at 3:00 PM(in C's time zone) reaches B at 4:00 PM(in B's time zone). All the given timings are for the same day.

A	B	C	D	E
7:00 AM ↑	11:00 AM ↓	4:00 PM ↓	3:45 PM ↑	
11:45 AM ↓	12:00 Noon ↑		10:00 AM ↑	4:30 PM ↓
	9:30 AM ↑	12:30 PM ↓	8:15 PM ↓	5:45 PM ↑
	4:00 PM ↓	3:00 PM ↑		
		7:45 AM ↑	2:15 PM ↓	

Q.40

The total time taken (in minutes) for a round trip between B and C (excluding the stoppage time) 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.

Air-India operates round trip flights between cities A and B, B and C, C and D, and D and E. All these cities are in different time zones. The 'To' flights are from A to B, B to C, C to D and D to E whereas the 'Fro' flights are from B to A, C to B, D to C and E to D. Also the speed of airplane for a 'To' journey is half of the 'Fro' journey for any particular set of cities whereas the path taken is same for both sides.

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	4:00 PM ↓	3:00 PM ↑		
		7:45 AM ↑	2:15 PM ↓	

Q.41

When the time is 8:30 AM in city B, what time is it in city E?

1 **8:50 AM**

2 **9:00 AM**

3 **10:50 AM**

4 **11:20 AM**

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Answer key/Solution

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

Air-India operates round trip flights between cities A and B, B and C, C and D, and D and E. All these cities are in different time zones. The 'To' flights are from A to B, B to C, C to D and D to E whereas the 'Fro' flights are from B to A, C to B, D to C and E to D. Also the speed of airplane for a 'To' journey is half of the 'Fro' journey for any particular set of cities whereas the path taken is same for both sides.

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A	B	C	D	E
7:00 AM ↑	11:00 AM ↓	4:00 PM ↓	3:45 PM ↑	
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	4:00 PM ↓	3:00 PM ↑		
		7:45 AM ↑	2:15 PM ↓	

Q.42

If all the flights mentioned in the table operate daily at the given timings, then what is the minimum time taken (in minutes) by a person to reach D from A?

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Answer key/Solution

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

Six girls – Alka, Barkha, Chitra, Devi, Ela, and Fiza - talk about their parents having surnames - Saxena, Sinha, Singh, Arora, Pandey and Gupta - not necessarily in this order. For no two girls the surnames of their Mothers is the same. Same is true for their fathers.
Further, no two girls have parents with the same pair of surnames. Also, the surnames of both, father and mother of any girl, cannot be the same. Further, it is known that the age of each girl, is a distinct positive integer less than 28 and more than 20 except 22.

Some additional information is also known about the mothers, fathers and the ages of the six girls.
1. The surname of the father of Alka is the same as that of the mother of Devi, but neither of their parents is Sinha.
2. The age of Chitra is 3 years more than that of Ela.
3. The surname of the mother of one of the girls is Saxena and that of her father is Gupta and her age is 23.
4. The age of Fiza, whose father is Singh, is less than twenty-seven years, while the age of the girl whose mother is Singh is 24 years.
5. The age of Barkha, whose mother is Pandey, is the average of the ages of the girl whose mother is Arora and the girl whose mother is Gupta and it is an even number.
6. The girl whose father's surname is Sinha has her mother's surname as Singh, while the surname of Devi's mother is not Gupta.

Q.43
The surname of the father of 27 year old girl is

1 **Arora**

2 **Gupta**

3 **Saxena**

4 **Singh**

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Answer key/Solution

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

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5. The age of Barkha, whose mother is Pandey, is the average of the ages of the girl whose mother is Arora and the girl whose mother is Gupta and it is an even number.
6. The girl whose father's surname is Sinha has her mother's surname as Singh, while the surname of Devi's mother is not Gupta.

Q.44
What is the age (in years) of Barkha?

1 **25**

2 **26**

3 **27**

4 **21**

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Answer key/Solution

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

Six girls – Alka, Barkha, Chitra, Devi, Ela, and Fiza - talk about their parents having surnames - Saxena, Sinha, Singh, Arora, Pandey and Gupta - not necessarily in this order. For no two girls the surnames of their Mothers is the same. Same is true for their fathers.
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6. The girl whose father's surname is Sinha has her mother's surname as Singh, while the surname of Devi's mother is not Gupta.

Q.45
Which of the following is a correct combination of mother's surname - father's surname (in that order only)?

1 **Saxena- Arora**

2 **Pandey-Sinha**

3 **Gupta- Singh**

4 **Arora-Gupta**

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Answer key/Solution

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

Six girls – Alka, Barkha, Chitra, Devi, Ela, and Fiza - talk about their parents having surnames - Saxena, Sinha, Singh, Arora, Pandey and Gupta - not necessarily in this order. For no two girls the surnames of their Mothers is the same. Same is true for their fathers.
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5. The age of Barkha, whose mother is Pandey, is the average of the ages of the girl whose mother is Arora and the girl whose mother is Gupta and it is an even number.
6. The girl whose father's surname is Sinha has her mother's surname as Singh, while the surname of Devi's mother is not Gupta.

Q.46
If the age of the girl whose mother's surname is Gupta is mistakenly interchanged with the age of the girl whose father's surname is Gupta, in some singing competition's form, then what is the average (in years) of the ages of the girls, among these 6 girls, whose father's surname start with same initials in the singing competition?

1 **25.33**

2 **22**

3 **24.66**

4 **23.66**

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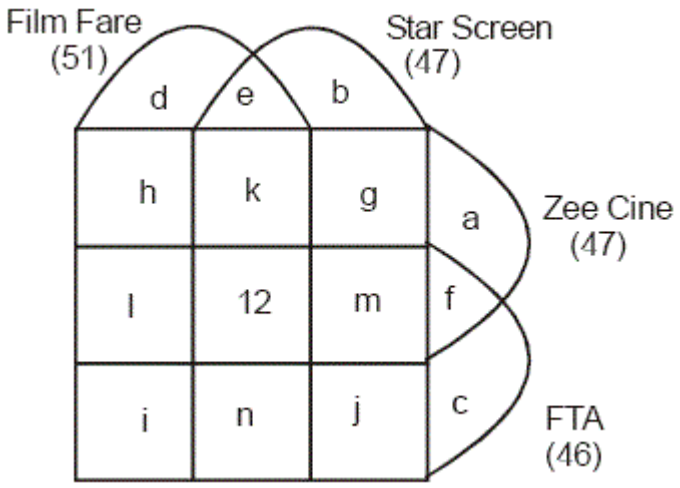
Answer key/Solution

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

An Indian news channel "Khabardar news 24 x 7" is collecting some data of 82 actors to know the awards won by them from these four famous awards - Filmfare, Star Screen, Zee Cine and FTA. Each of these 82 actors has got at least one of the four awards. The Venn-diagram shown below represents these awards and the various possible combination of awards given to these actors. It is known from the diagram that 51 actors won Filmfare, 47 actors won Star Screen, 47 won Zee Cine and 46 won FTA. Every alphabet written in the figure represents the number of actors winning the respective combination of awards.



Some additional information is also known:
(i) The number of actors who got exactly 1 award, 2 awards and all 4 awards is 14, 39 and 12 respectively.
(ii) a, b, c and d are in an Arithmetic Progression having common difference 1 (in that order). Same is true for e, f, g, h, i and j, in that same order.

Q.47
Find the number of actors who won Filmfare, Star Screen and Zee Cine awards but not FTA.

1 **3**

2 **9**

3 **4**

4 **6**

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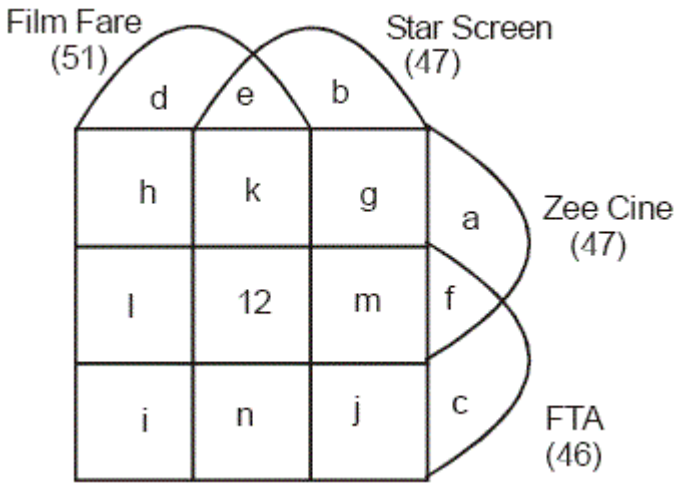
Answer key/Solution

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

An Indian news channel "Khabardar news 24 x 7" is collecting some data of 82 actors to know the awards won by them from these four famous awards - Filmfare, Star Screen, Zee Cine and FTA. Each of these 82 actors has got at least one of the four awards. The Venn-diagram shown below represents these awards and the various possible combination of awards given to these actors. It is known from the diagram that 51 actors won Filmfare, 47 actors won Star Screen, 47 won Zee Cine and 46 won FTA. Every alphabet written in the figure represents the number of actors winning the respective combination of awards.



Some additional information is also known:
(i) The number of actors who got exactly 1 award, 2 awards and all 4 awards is 14, 39 and 12 respectively.
(ii) a, b, c and d are in an Arithmetic Progression having common difference 1 (in that order). Same is true for e, f, g, h, i and j, in that same order.

Q.48
The number of actors who won Zee Cine and FTA only is

1 **4**

2 **5**

3 **6**

4 **7**

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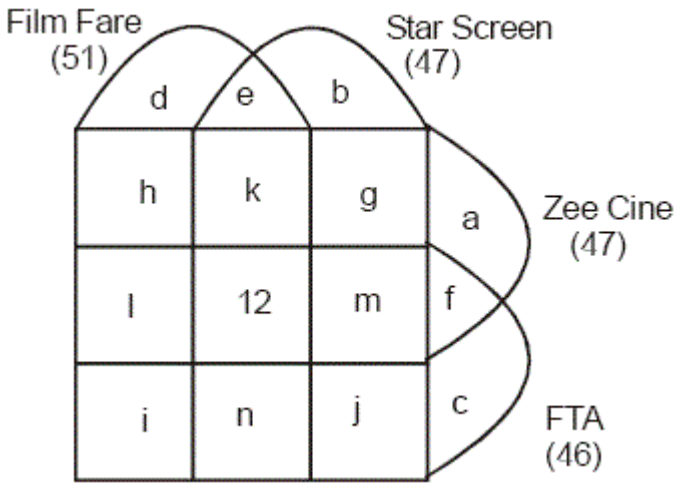
Answer key/Solution

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

An Indian news channel "Khabardar news 24 x 7" is collecting some data of 82 actors to know the awards won by them from these four famous awards - Filmfare, Star Screen, Zee Cine and FTA. Each of these 82 actors has got at least one of the four awards. The Venn-diagram shown below represents these awards and the various possible combination of awards given to these actors. It is known from the diagram that 51 actors won Filmfare, 47 actors won Star Screen, 47 won Zee Cine and 46 won FTA. Every alphabet written in the figure represents the number of actors winning the respective combination of awards.



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(i) The number of actors who got exactly 1 award, 2 awards and all 4 awards is 14, 39 and 12 respectively.
(ii) a, b, c and d are in an Arithmetic Progression having common difference 1 (in that order). Same is true for e, f, g, h, i and j, in that same order.

Q.49
k, l, m, n are in

1 **A.P. with common difference 1**

2 **G.P. with common ratio 1**

3 **A.P. with common difference 2**

4 **No special order**

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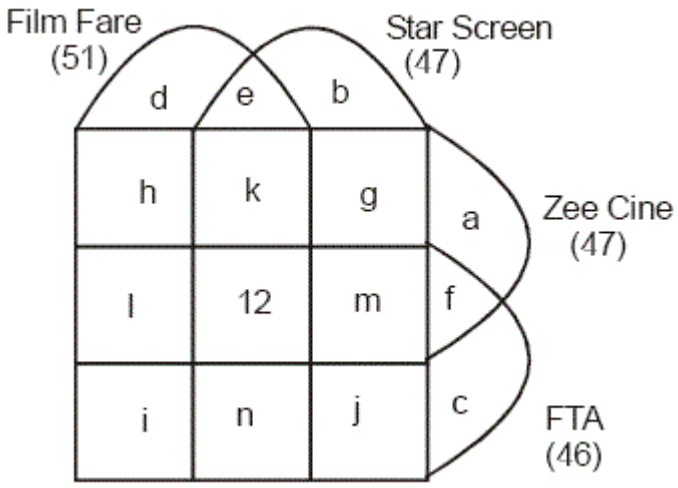
Answer key/Solution

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

An Indian news channel "Khabardar news 24 x 7" is collecting some data of 82 actors to know the awards won by them from these four famous awards - Filmfare, Star Screen, Zee Cine and FTA. Each of these 82 actors has got at least one of the four awards. The Venn-diagram shown below represents these awards and the various possible combination of awards given to these actors. It is known from the diagram that 51 actors won Filmfare, 47 actors won Star Screen, 47 won Zee Cine and 46 won FTA. Every alphabet written in the figure represents the number of actors winning the respective combination of awards.



Some additional information is also known:
(i) The number of actors who got exactly 1 award, 2 awards and all 4 awards is 14, 39 and 12 respectively.
(ii) a, b, c and d are in an Arithmetic Progression having common difference 1 (in that order). Same is true for e, f, g, h, i and j, in that same order.

Q.50
How many actors won at least 3 awards out of the given four awards?

1 **29**

2 **30**

3 **35**

4 **40**

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Answer key/Solution

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

Eight players - A, B, C, D, E, F, G and H - played in a chess tournament. Initially, in round-1 there were 4 matches (match 1, match 2, match 3 and match 4) involving 2 players in each match, and no one played more than one match in a round. The winners of these four matches played in round-2 having 2 matches (match 1 and match 2), where again every player played only in one match in that round. The winners of these two matches reached to the next round i.e, the final.

It is also known that:
I. A and B won at least 1 match, C and D lost 1 match, E and F did not win more than 1 match and G and H did not win more than 2 matches.
II. A did not play match 1 (of any of the 2 rounds) and B did not play match 2 (of any of the 2 rounds).

Q.51
For how many players, out of these 8 players, was it possible to reach the final?

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Answer key/Solution

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

Eight players - A, B, C, D, E, F, G and H - played in a chess tournament. Initially, in round-1 there were 4 matches (match 1, match 2, match 3 and match 4) involving 2 players in each match, and no one played more than one match in a round. The winners of these four matches played in round-2 having 2 matches (match 1 and match 2), where again every player played only in one match in that round. The winners of these two matches reached to the next round i.e, the final.

It is also known that:
I. A and B won at least 1 match, C and D lost 1 match, E and F did not win more than 1 match and G and H did not win more than 2 matches.
II. A did not play match 1 (of any of the 2 rounds) and B did not play match 2 (of any of the 2 rounds).

Q.52
How many different pairs are possible who could have played match 2 of round 2?

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Answer key/Solution

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

Eight players - A, B, C, D, E, F, G and H - played in a chess tournament. Initially, in round-1 there were 4 matches (match 1, match 2, match 3 and match 4) involving 2 players in each match, and no one played more than one match in a round. The winners of these four matches played in round-2 having 2 matches (match 1 and match 2), where again every player played only in one match in that round. The winners of these two matches reached to the next round i.e, the final.

It is also known that:
I. A and B won at least 1 match, C and D lost 1 match, E and F did not win more than 1 match and G and H did not win more than 2 matches.
II. A did not play match 1 (of any of the 2 rounds) and B did not play match 2 (of any of the 2 rounds).

Q.53
If the winners of match 3 and match 4 played in the final, and the winners of match 1 and match 3 of round 1 played against each other in match 2 of round 2, then who won the tournament in final?

1 **Either A or B**

2 **Definitely A**

3 **Definitely B**

4 **Either G or H**

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Answer key/Solution

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

Eight players - A, B, C, D, E, F, G and H - played in a chess tournament. Initially, in round-1 there were 4 matches (match 1, match 2, match 3 and match 4) involving 2 players in each match, and no one played more than one match in a round. The winners of these four matches played in round-2 having 2 matches (match 1 and match 2), where again every player played only in one match in that round. The winners of these two matches reached to the next round i.e, the final.

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II. A did not play match 1 (of any of the 2 rounds) and B did not play match 2 (of any of the 2 rounds).

Q.54
If G and H played against each other in match 1 of round 1, and B and D played against each other in match1 of round 2, then how many pairs of players are possible who could have played the final?

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Answer key/Solution

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

Punjab National Bank, to get their defaulted money back, has decided to auction certain properties of Vijay Mallya which includes - 2 bungalows, 1 jet,1 yacht, a farmhouse of 5-acre area, a farmhouse of 6-acre area and a private resort. Five well-known billionaires of our country - Mr. Heera, Mr. Panna, Mr. Tara, Mr. Moti and Mr. Jawahar - planned to take part in that auction. Each of them has some fixed budget amount in their mind to buy these properties within that amount. The total budget of Mr. Heera, Mr. Panna, Mr. Tara, Mr. Moti and Mr. Jawahar are Rs. 290 crores, 350 crores, 275 crores, 270 crores and 280 crores respectively. The following table shows the price bid by each person for each property. The order of properties to be auctioned is same as written in the table i.e, first Farmhouse 1 (5-acre), then Farmhouse -2 (6 acre) and so on till Yacht auctioned at the end. It is also known that every property was sold out among these five billionaires only. Each of them tried to bid the best possible amount within their budget. Each property was sold to the one bidding the highest amount for that property and also that amount must be a multiple of 10 crores. Some cells in the table are left blank intentionally.

Billionaires	Value (in crores)						
	Farmhouse1	Farmhouse2	Resort	Bungalow1	Bungalow2	Jet	Yacht
Mr.Heera	190	100		100		92	95
Mr.Panna	140		160		150		40
Mr.Tara		180				80	90
Mr.Moti	160	170	150	120			120
Mr.Jawahar	150		170	110	105	90	

It is also known that each of them is left with some money at the end of the auction which is (Rs. in crores) 40, 50, 95, 100 and 110, not necessarily in the same order.

Q.55

Find the difference between the money (in crores) spent by Mr. Heera and by Mr. Panna.

1 **120**

2 **100**

3 **150**

4 **130**

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Answer key/Solution

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

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Mr.Moti	160	170	150	120			120
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It is also known that each of them is left with some money at the end of the auction which is (Rs. in crores) 40, 50, 95, 100 and 110, not necessarily in the same order.

Q.56

Which of the following is the difference between the final price (in crores) of Resort and that of the Bungalow 2?

1 **55**

2 **30**

3 **40**

4 **20**

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Answer key/Solution

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

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It is also known that each of them is left with some money at the end of the auction which is (Rs. in crores) 40, 50, 95, 100 and 110, not necessarily in the same order.

Q.57

Which of the following is the final price (in crores) of Farmhouse-2?

1 **200**

2 **210**

3 **180**

4 **170**

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Answer key/Solution

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

Punjab National Bank, to get their defaulted money back, has decided to auction certain properties of Vijay Mallya which includes - 2 bungalows, 1 jet,1 yacht, a farmhouse of 5-acre area, a farmhouse of 6-acre area and a private resort. Five well-known billionaires of our country - Mr. Heera, Mr. Panna, Mr. Tara, Mr. Moti and Mr. Jawahar - planned to take part in that auction. Each of them has some fixed budget amount in their mind to buy these properties within that amount. The total budget of Mr. Heera, Mr. Panna, Mr. Tara, Mr. Moti and Mr. Jawahar are Rs. 290 crores, 350 crores, 275 crores, 270 crores and 280 crores respectively. The following table shows the price bid by each person for each property. The order of properties to be auctioned is same as written in the table i.e, first Farmhouse 1 (5-acre), then Farmhouse -2 (6 acre) and so on till Yacht auctioned at the end. It is also known that every property was sold out among these five billionaires only. Each of them tried to bid the best possible amount within their budget. Each property was sold to the one bidding the highest amount for that property and also that amount must be a multiple of 10 crores. Some cells in the table are left blank intentionally.

Billionaires	Value (in crores)						
	Farmhouse1	Farmhouse2	Resort	Bungalow1	Bungalow2	Jet	Yacht
Mr.Heera	190	100		100		92	95
Mr.Panna	140		160		150		40
Mr.Tara		180				80	90
Mr.Moti	160	170	150	120			120
Mr.Jawahar	150		170	110	105	90	

It is also known that each of them is left with some money at the end of the auction which is (Rs. in crores) 40, 50, 95, 100 and 110, not necessarily in the same order.

Q.58

Which of the following is the amount (in crores) spent by Panna in the auction?

1 **180**

2 **310**

3 **250**

4 **220**

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Answer key/Solution

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

'CLUB'S', a famous card game, can be played between two players at a time.
In this game, initially, 4 cards are given to each of the two players.
To start the game, each player selects one card by looking into his cards.
Based on their selected card, one of the following will be done:

Case 1: If the selected cards, one from each player, are of the same suit, then each player will give an amount equivalent to the double of the denomination of the opponent's card to his opponent.

Case 2: If selected cards, one from each player, are of the same colour, then each player will give an amount equivalent to the denomination of the opponent's card to his opponent.

Case 3: If selected cards, one from each player, are of a different colour, then each player will give an amount equivalent to the denomination of his own card to his opponent.

Denomination of J, Q, K and A will be taken as 11, 12, 13 and 1 respectively. Also, suit of Diamonds and Hearts is of red colour and that of Spades and Clubs is of black colour.

Following are the details of the cards received by the two friends, Jon and Snow, interested in playing that game.

Jon : J of Diamonds, 7 of Hearts, 8 of Spades, K of Clubs.
Snow : 9 of Hearts, 6 of Diamonds, Q of Diamonds, 10 of Spades.
Also, it is known that each of them has a sufficient amount with them to pay another player.

Q.59
What can be the maximum amount won by Jon by the end of the game?

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Answer key/Solution

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

'CLUB'S', a famous card game, can be played between two players at a time.
In this game, initially, 4 cards are given to each of the two players.
To start the game, each player selects one card by looking into his cards.
Based on their selected card, one of the following will be done:

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Case 3: If selected cards, one from each player, are of a different colour, then each player will give an amount equivalent to the denomination of his own card to his opponent.

Denomination of J, Q, K and A will be taken as 11, 12, 13 and 1 respectively. Also, suit of Diamonds and Hearts is of red colour and that of Spades and Clubs is of black colour.

Following are the details of the cards received by the two friends, Jon and Snow, interested in playing that game.

Jon : J of Diamonds, 7 of Hearts, 8 of Spades, K of Clubs.
Snow : 9 of Hearts, 6 of Diamonds, Q of Diamonds, 10 of Spades.
Also, it is known that each of them has a sufficient amount with them to pay another player.

Q.60
What can be the minimum amount with Snow by the end of the game?

1 **2 more than his initial amount**

2 **2 less than his initial amount**

3 **14 more than his initial amount**

4 **13 less than his initial amount**

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Answer key/Solution

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

'CLUB'S', a famous card game, can be played between two players at a time.
In this game, initially, 4 cards are given to each of the two players.
To start the game, each player selects one card by looking into his cards.
Based on their selected card, one of the following will be done:

Case 1: If the selected cards, one from each player, are of the same suit, then each player will give an amount equivalent to the double of the denomination of the opponent's card to his opponent.

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Following are the details of the cards received by the two friends, Jon and Snow, interested in playing that game.

Jon : J of Diamonds, 7 of Hearts, 8 of Spades, K of Clubs.
Snow : 9 of Hearts, 6 of Diamonds, Q of Diamonds, 10 of Spades.
Also, it is known that each of them has a sufficient amount with them to pay another player.

Q.61
What can be the maximum amount won by Snow by the end of the game?

1 **14**

2 **17**

3 **15**

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.

'CLUB'S', a famous card game, can be played between two players at a time.
In this game, initially, 4 cards are given to each of the two players.
To start the game, each player selects one card by looking into his cards.
Based on their selected card, one of the following will be done:

Case 1: If the selected cards, one from each player, are of the same suit, then each player will give an amount equivalent to the double of the denomination of the opponent's card to his opponent.

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Denomination of J, Q, K and A will be taken as 11, 12, 13 and 1 respectively. Also, suit of Diamonds and Hearts is of red colour and that of Spades and Clubs is of black colour.

Following are the details of the cards received by the two friends, Jon and Snow, interested in playing that game.

Jon : J of Diamonds, 7 of Hearts, 8 of Spades, K of Clubs.
Snow : 9 of Hearts, 6 of Diamonds, Q of Diamonds, 10 of Spades.
Also, it is known that each of them has a sufficient amount with them to pay another player.

Q.62
If instead of having K of clubs, Jon had A of spades, then what can be the maximum amount won by him by the end of the game?

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Answer key/Solution

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

A square matrix of dimension n x n is drawn where n denotes the number of rows and columns each. The cells of the matrix are denoted as P(r, c), where r denotes the row number counted from top and c denotes the column number counted from left. For example, P(2, 3) is the cell which is in the second row from the top and third column from left.

In the square matrix, as defined above, when a token (say a coin) is kept at some random cell, it can move only horizontally and vertically, i.e, along the rows and columns only. For a token placed in a cell, the remaining cells of the matrix are marked with numbers which denote the minimum number of steps required by the token to reach that given cell. For example, if the token is put in cell P(1, 1), then the cells P(1, 2) and P(2, 1) both will be numbered 1, cells P(1, 3), P(2, 2) and P(3, 1) all will be numbered 2 and so on.

Q.63
Two tokens T1 and T2 are positioned one by one at P(1, 1) and P(5, 5) respectively in a matrix of dimension 5 × 5. How many cells will have the same number written on them respective to both tokens?

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Answer key/Solution

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

A square matrix of dimension n x n is drawn where n denotes the number of rows and columns each. The cells of the matrix are denoted as P(r, c), where r denotes the row number counted from top and c denotes the column number counted from left. For example, P(2, 3) is the cell which is in the second row from the top and third column from left.

In the square matrix, as defined above, when a token (say a coin) is kept at some random cell, it can move only horizontally and vertically, i.e, along the rows and columns only. For a token placed in a cell, the remaining cells of the matrix are marked with numbers which denote the minimum number of steps required by the token to reach that given cell. For example, if the token is put in cell P(1, 1), then the cells P(1, 2) and P(2, 1) both will be numbered 1, cells P(1, 3), P(2, 2) and P(3, 1) all will be numbered 2 and so on.

Q.64

Two tokens T1 and T2 are positioned one by one at P(1, 1) and P(a, b) respectively in a matrix of dimension 4 × 4. If the number of cells having the same number for both the tokens is 4, then how many value(s) of (a, b) are possible?

1 **3**

2 **4**

3 **5**

4 **6**

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Answer key/Solution

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

A square matrix of dimension n x n is drawn where n denotes the number of rows and columns each. The cells of the matrix are denoted as P(r, c), where r denotes the row number counted from top and c denotes the column number counted from left. For example, P(2, 3) is the cell which is in the second row from the top and third column from left.

In the square matrix, as defined above, when a token (say a coin) is kept at some random cell, it can move only horizontally and vertically, i.e, along the rows and columns only. For a token placed in a cell, the remaining cells of the matrix are marked with numbers which denote the minimum number of steps required by the token to reach that given cell. For example, if the token is put in cell P(1, 1), then the cells P(1, 2) and P(2, 1) both will be numbered 1, cells P(1, 3), P(2, 2) and P(3, 1) all will be numbered 2 and so on.

Q.65

Two tokens T1 and T2 are positioned respectively at P(1, 1) and P(a, b) in a matrix of dimension 4 × 4. If both the tokens have no cell with the same number, then which of the following cannot be the value of (a, b)?

1 (4, 3)

2 (4, 2)

3 (2, 3)

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 information given below.

A square matrix of dimension n x n is drawn where n denotes the number of rows and columns each. The cells of the matrix are denoted as P(r, c), where r denotes the row number counted from top and c denotes the column number counted from left. For example, P(2, 3) is the cell which is in the second row from the top and third column from left.

In the square matrix, as defined above, when a token (say a coin) is kept at some random cell, it can move only horizontally and vertically, i.e, along the rows and columns only. For a token placed in a cell, the remaining cells of the matrix are marked with numbers which denote the minimum number of steps required by the token to reach that given cell. For example, if the token is put in cell P(1, 1), then the cells P(1, 2) and P(2, 1) both will be numbered 1, cells P(1, 3), P(2, 2) and P(3, 1) all will be numbered 2 and so on.

Q.66

Two tokens T1 and T2 are positioned one by one at P(1, 1) and P(a, b) respectively in a matrix of dimension 5 × 5. If 'x' is the number of cells having the same number for both the tokens, then how many value(s) of (a, b) are possible for which 'x' is a maximum possible integer?

1 **1**

2 **3**

3 **4**

4 **5**

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Answer key/Solution

Sec 3

Q.67

Three friends - Amit, Sanjeev and Vicky - start building a wall. Amit is 50% more efficient than Sanjeev, who is 25% more efficient than Vicky. All 3 of them work together on each day but exactly one of them reduces his efficiency by 50% in such a way that no one works with his original efficiency for more than 2 consecutive days. If Vicky alone can build the wall in 26 days, then what is the maximum number of days in which the wall can be built?

1 $7\frac{5}{8}$ days

2 $7\frac{35}{51}$ days

3 $8\frac{6}{51}$ days

4 **None of these**

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Answer key/Solution

Q.68

If each alphabet in the figure given below represents a distinct non-zero digit, then the value of S must be

$$\begin{array}{cccc} & S & E & E \\ + & E & Y & E \\ \hline & Y & E & S \end{array}$$

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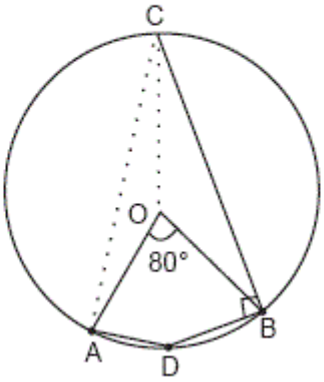
Answer key/Solution

Q.69

In the figure shown below, O is the centre of the circle. If ∠DBC = 90°, ∠AOB = 80°, AD = BD and area of ΔBOC = P sq. units, then find the area (in sq. units) of the quadrilateral ACBD.



1 **3P**

2 **9P/2**

3 **4P**

4 **11P/2**

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Answer key/Solution

Q.70

The concentration of milk in two solutions A and B are 30% and 50% respectively. The two solutions are mixed in a ratio of x : y and the concentration of milk in the resulting solution is a%. An equal quantity of this resulting solution and another solution C, having concentration of milk as 45%, are mixed to form a new solution with the concentration of milk as 40%. What is the minimum value of (x + y), where both x and y are integers?

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Answer key/Solution

Q.71

Ravi has a bottle full of mango juice. He pours half the content of the bottle into an empty can, then fills the bottle completely with water and mixes thoroughly. Then he repeats this process for 43 times more. Afterward, he pours the whole content of the bottle into the can. If the capacity of the bottle is 3 liters, then what is the ratio of the volume of the mango juice to the volume of water in the can?

1 **1 : 19**

2 **1 : 20**

3 **1 : 21**

4 **1 : 22**

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Answer key/Solution

Q.72

Find the value of $\sqrt{x}$, such that x satisfies the following expression:

$2^{((\log_x 9)+1)} + 3 = 9^{(\log_x 4)}$

1 **2**

2 **3**

3 **4**

4 **9**

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Answer key/Solution

Q.73

There are ten positive integers less than 1000 out of which 4 have equal values, 3 others also have equal values and the remaining 3 are distinct. If one of these integers is equal to the average of all these ten integers and is less than 100, then what can be the largest possible value of one of the ten integers?

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Answer key/Solution

Q.74

A function 'f' is defined as $f(x) = (1 + x)^2$ for $-3 \le x \le 3$. What is the range of f(x)?

1 **[0, 9]**

2 **[0, 16]**

3 [4, 9]

4 [4, 16]

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Answer key/Solution

Q.75

What is the minimum value of K such that the equation 20x + 27y = K has exactly 8 positive integral solutions?

1 3888

2 3780

3 4320

4 3827

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Answer key/Solution

Q.76

P and Q are standing between Dwarka and Hauz Khas, talking to each other, at a point 40 km from Hauz Khas. They started travelling towards opposite ends, then turned back from the ends and again travelled towards each other to meet at a point 100 km from Dwarka. If the ratio of the speeds of P and Q is 1 : 2, then what is the distance (in kilometers) between Dwarka and Hauz Khas?

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Answer key/Solution

Q.77

The height of a cylinder is twice the height of a hemisphere but the radius of the cylinder is half the radius of the hemisphere. What is the ratio of the curved surface area of the cylinder to that of the hemisphere?

1 1 : 1

2 1 : 2

3 **2 : 3**

4 **3 : 4**

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Answer key/Solution

Q.78

How many natural numbers, below 600, are not divisible by 9 or 5 but are divisible by 8?

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Answer key/Solution

Q.79

Ashish and Munish started running simultaneously on a circular track from the same point but in opposite directions. If the speed of Ashish is 2.5 times the speed of Munish, then for how many times will they meet during the 4th round of Munish around the track (excluding their meeting at the starting point, if any)?

1 **4**

2 **1**

3 **2**

4 **3**

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Answer key/Solution

Q.80

In a class, 31 students passed in Physics, 19 in Chemistry and 12 in Biology. If 13 students passed in at least two subjects, then find the minimum number of students who passed in exactly one subject. (Given that every student appeared for these three exams only.)

1 **23**

2 **24**

3 22

4 36

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Answer key/Solution

Q.81

An operation '*', on the set of positive integers, is defined as a*b = (a + b)(a – b).
Evaluate: 1024 * (512 * (256 * (128 * (64 * (32 * (16 * (8 * (4 * (2 * 1)))))))))

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Answer key/Solution

Q.82

In an examination paper, there are 20 questions, each having 4 options. In how many ways can one attempt the paper such that exactly 2 questions are answered correctly? (Note: Each question will have only one correct answer and a question can remain unattempted, too)

1 $^{20}C_2 \times 3^{18}$

2 $^{20}C_2 \times 4^{18}$

3 $^{20}C_2 \times 2^{18}$

4 $^{20}C_2 \times 5^{18}$

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Answer key/Solution

Q.83

A, B and C entered a room and saw a bowl full of grapes. Firstly, A ate 5/8th of all the grapes and three more grapes. Then, B ate 1/3rd of the remaining grapes and two more grapes. Finally, C ate 3/ 4th of the remaining grapes and one more grape. To their surprise, one grape was still left in the bowl. Find the difference between the number of grapes eaten by A and C.

1 6

2 **26**

3 **30**

4 **48**

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Answer key/Solution

Q.84

Aman, Baman and Chaman invested some amount in a partnership. The amounts invested by the three are in the ratio of x : y : z and the profits earned by them are in the ratio of z : y : x. Find the ratio of the time period for which the amount is invested by them respectively.

1 **$x^2 : y^2 : z^2$**

2 **xy : yz : zx**

3 **$z^2 : zx : x^2$**

4 **$x^2 : xz : z^2$**

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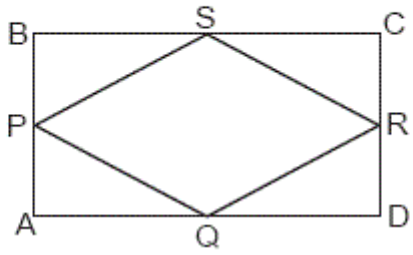
Answer key/Solution

Q.85

A quadrilateral PQRS is formed by joining the mid-points of the quadrilateral ABCD, as shown in the figure given below. If ∠A = 65°, ∠B = 80°, ∠C = 105°, ∠QRS = 70° and ∠BSP = 45°, then the value (in degrees) of ∠DQR is



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Answer key/Solution

Q.86

The selling price of 25 oranges is equal to the cost price of 35 oranges, which in turn is equal to the one-third of the total discount offered upon the marked price of 175 oranges. If the mark-up percentage is halved and the discount percentage is decreased by 10 percentage points, then find the profit / loss percentage on oranges.

1 7.5% loss

2 20% profit

3 12.5% profit

4 10% loss

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Answer key/Solution

Q.87

A student has some books, out of which, he is unable to fit 17 books in his bookshelf. He exchanges his bookshelf with a new bookshelf having capacity 25% higher than that of the previous one. Now he has space for 8 more books. How many books does the student have? (Assume that the size of all the books is same.)

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Answer key/Solution

Q.88

A sum of money gets doubled in less than 6 years but more than 5 years at X% per annum simple interest. Also, the same sum becomes thrice in less than 9 years but more than 8 years at Y% per annum simple interest. What is the minimum value of (Y – X), where both X and Y are integers?

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Answer key/Solution

Q.89

A shopkeeper purchases toffees at the rate of 8 toffees per rupee. He sells these toffees at 6 toffees per rupee. If he starts selling them at 7 toffees per rupee, then by what percentage his sales per hour must be increased so that his profit per hour remains the same?

1 16.66%

2 33.33%

3 116.66%

4 133.33%

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Answer key/Solution

Q.90

Find the number of different triangles that can be formed from a heptagon in such a way that its vertices coincide with the vertices of the heptagon but none of its sides coincide with any side of the heptagon.

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Answer key/Solution

Q.91

Vikram bought three different varieties of rice - R_1, R_2 and R_3 - costing Rs. 20/kg, Rs. 50/kg and Rs. 100/kg respectively. He mixes them in some ratio and sells them at Rs. 100/kg which earns him a profit of 25%. In what ratio did he mix R_1, R_2 and R_3?

1 1 : 5 : 9

2 1 : 1 : 1

3 3 : 2 : 12

4 3 : 2 : 15

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Answer key/Solution

Q.92

The ratio of the sum of the first 25 terms of an Arithmetic Progression (AP) to the sum of the next 20 terms of the same AP is 13 : 19. Find the ratio of the 13th term to the 23rd term of the Arithmetic Progression.

1 **169 : 437**

2 **299 : 247**

3 **117 : 160**

4 **169 : 361**

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Answer key/Solution

Q.93

Two triangles, ABC and PQR, are similar with AB : PQ = 2 : 3. AD and PS are the medians to the sides BC and QR respectively. What is the value of $(BD/QS)^2$?

1 **3/5**

2 **4/9**

3 **2/3**

4 **4/7**

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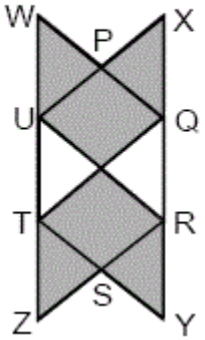
Answer key/Solution

Q.94

PQRSTU is a regular hexagon whose side is 4 cm. PWU, PXQ, STZ and SRY are equilateral triangles, as shown in the figure given below. What is the area (in cm^2) of the shaded region?



1 **$24\sqrt{3}$**

2 **$16\sqrt{3}$**

3 **$32\sqrt{3}$**

4 **$36\sqrt{3}$**

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Answer key/Solution

Q.95

The equation of a circle is $(x - 17)^2 + (y - 15)^2 = 369$. P, a point on the circle, is taken in such a way that it is farthest from a point having coordinates (47, 39). Find the distance between P and (47, 39).

1 **$7\sqrt{41}$**

2 **$5\sqrt{41}$**

3 **$9\sqrt{41}$**

4 **$10\sqrt{41}$**

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Answer key/Solution

Q.96

A bacteria, Abeoma, has a property to get split into 15 bacteria of the next generation. But due to environmental haphazard, only 60% of one generation can produce the next generation and the remaining 40% don't survive. If the number of bacteria in the seventh generation is 531441 million, then what was the number (in millions) of bacteria in the first generation?

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Answer key/Solution

Q.97

Eight couples participated in a reality game show called "The Great Family Show", in which each couple formed a team, having one male and one female. Now, for a particular round, the game show host decided to randomly select 6 people who will earn a cash prize of rupees one thousand for their respective teams based on their performances in that round. What is the probability that both the male and the female member of exactly one team get selected?

1 **80/143**

2 **82/143**

3 **64/143**

4 **72/143**

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Answer key/Solution

Q.98

The equation |x − 3| + |x − 1| = x − 4 has

1 **Infinitely many roots**

2 **No roots**

3 **Two roots**

4 **None of these**

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Answer key/Solution

Q.99

X is the product of the positive integers from 90 to 96, both inclusive, and N, a, b, c, d and e are positive integers such that X = (N)(2^a 3^b 5^c 7^d 13^e), where a, b, c, d and e are the highest possible exponents of 2, 3, 5, 7 and 13, respectively. What is the number of factors that N has?

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Answer key/Solution

Q.100

If $25^{(\log_5 12+3\log_x 16)} = \frac{9}{256}$, then find the value of x.

1 $5^{-\frac{1}{2}}$

2 5^{-2}

3 $5^{-\frac{1}{3}}$

4 $5^{\frac{1}{4}}$

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Answer key/Solution