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Mock CAT – 20 2019

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VARC

DILR

QA

Sec 1

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

[…] Despite what the haters might think, all areas of science confront questions that can't be answered within the process of science itself. Whenever scientists examine the best way to test a theory, or wonder how scientific models relate to reality, they're doing philosophy. But in its unique position as the study of the whole of existence, cosmology in particular is full of philosophical puzzles and positions.

In fact, there's a philosophical belief hiding at the very heart of cosmology. The *cosmological principle* states that, on large scales, the Universe is homogeneous (looks the same at all locations) and isotropic (looks the same in all directions). For example, the view from a ship in the middle of the ocean would be isotropic but, when land is in sight, the view is not the same in all directions. The ocean surface itself is homogeneous, perhaps, until you get near the shore.

The cosmological principle is fundamental to our understanding of how the Universe evolved, expanding from a uniform, hot plasma and cooling to form the intricate cosmic web we can now see through our telescopes. To assume homogeneity and isotropy everywhere, one must first average over insignificant, smaller differences, such as whole planets and even galaxies. The cosmological principle is thus a *statistical* principle: it is true only if you apply it to large-enough scales.

But even then, it might not be true. The Universe need not be homogeneous; Albert Einstein's theory of gravity works just fine if it isn't, and gravity causes structures to grow over time, exaggerating tiny initial differences. Whether these initial differences came from the 'quantum fluctuations' of virtual particles popping into and out of existence is unresolved.

So scientists are left in a state of hesitant acceptance. The cosmological principle is foundational to how we describe the evolution of the Universe, yet so far we've been unable to prove that it's necessarily true. Attempts to measure whether the Universe is homogeneous – or at what scale it becomes homogeneous – have met with mixed results. But cosmological *isotropy* has indeed been observed: the Cosmic Microwave Background radiation, emitted from everywhere in the Universe a few hundred thousand years after the Big Bang, is isotropic to one part in 100,000. Analogously, our ship in the ocean might see tiny differences, such as little choppy waves, but the view is largely isotropic.

Now, it's possible to get isotropy without homogeneity. To an observer in the centre of a spherical distribution of matter, things look the same in all directions, but such a distribution need not be homogeneous. However, many cosmologists are content to believe that homogeneity at some scale exists, whether or not it's been measured – because with the help of a non-empirical, philosophical principle, homogeneity logically follows from isotropy.

This is known as the Copernican principle, which states that there are no privileged observers – we are not in a special place in the Universe, and the centre is certainly a very special place. By this principle, the Universe must be isotropic everywhere, from all vantage points and not just ours – and in order for that to be true, the Universe must be homogeneous as well. If every ship sees a view that looks isotropic, there must be no land to make things look any different, so the ocean must be the same at each location. […]

Q.1

Why is the cosmological principle a statistical principle?

1 **Because it is not true if the sample size is not negligible.**

2 **Because it is applicable to large scale samples.**

3 **Because it is meaningless for gigantic data sizes.**

4 **Because it is not applicable to quantum physics.**

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Q.2

In this passage, the author mainly tries to:

1 **resolve the paradox between the Copernican principle and the cosmological principle.**

2 **highlight the contrast between philosophical theories and scientific studies.**

3 **prove the haters of Philosophical pursuit wrong.**

4 **explain the philosophical basis of cosmological study.**

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Answer key/Solution

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Q.3

Why is cosmology especially related to Philosophy?

1 **Because it asks puzzles and posits questions.**

2 **Because Science is inherently related to Philosophy and Cosmology is the main branch of Science.**

3 **Because both deal with questions related to the entirety of existence.**

4 **Because Cosmology is opposed by the proponents of Philosophy.**

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Q.4

Which of the following can be inferred about the Copernican principle?

1 **It proves that the Earth is the centre of the cosmos.**

2 **It helps prove the logical correlation between homogeneity and isotropy.**

3 **It proves that something that appears homogeneous may in fact not be isotropic.**

4 **It helps prove the theory that everything isotropic must originally be homogeneous.**

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Q.5

Which of the following views would not be isotropic, as per the author?

1 **A child staring at the first floor of his home from the ground below.**

2 **A man stranded in the middle of a desert with no path in view.**

3 **A girl sitting in the middle of a huge dark room that has no door or window.**

4 **A boy looking at the sky from inside a plane.**

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Answer key/Solution

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

Anorexia is the third most chronic illness among adolescents. It leads more often to death than any other mental illness. Therapies that have the greatest success involve extensive family engagement, with parents undertaking the task of persuading the child to eat. It's exhausting and terrifying and demanding for parents, especially if recovery is slow.

Now a new study from Columbia University has identified for the first time what's going on in the brain when anorexics make a decision about what to eat. By using fMRIs, the researchers found that when they decide what food to eat, people with anorexia are engaging a part of the brain that is associated with the habitual control of actions, rather than the part of the brain which is associated with values.

This suggests that anorexics don't decide what to eat or not to eat because they need to lose or gain weight; the brain has just gotten into the habit of deciding not to eat. "The part of the brain they're using is different from the part of the brain healthy people seem to be using," says Daphna Shohamy, a neuroscientist and one of the authors of the study.

While the study was small—just 21 participants with anorexia and 21 without—and did not set out to look for treatment options, there were some implications for parents struggling with an anorexic child. "When we talk about the study with parents it makes an awful lot of sense to them," says Dr. Joanna Steinglass, who specializes in anorexia and worked on the study along with Karin Foerde of New York University and Timothy Walsh of Columbia. "They see habits as they get laid down. They see the behaviour become entrenched. They see behaviour becoming hard to change. What we've now done is begun to look at what basic mechanisms would be that might explain it."

One of the clear implications seems to be that family-based therapy is more likely to work than just talk therapy, since it appears to be the behaviour that needs to change, not any given set of beliefs, or how a patient is feeling that day. "Treatments are going to have to focus in on the behaviour in order to be successful," says Dr. Steinglass.

The study suggests that parents might want to try various strategies to get the kid's brain out of the habit of deciding to eat very little food. It's possible, says Dr. Steinglass that the cue that sets off the behaviour could be changed. "Before [the anorexia sufferers] walk into the meal, before they pick up the fork and knife, what could you do instead of what you always do that might shake it up a little?"

She tells the story of a parent at a conference whose child cut up their food into very small pieces before eating it. One way to short-circuit such behaviour, she suggests, might be to get the child to eat with only his or her left hand. "It's a very over simplified but useful illustration," Dr. Steinglass says. "If you try eating with your left hand, does that just slow the whole meal down enough that you can pay attention? It helps raise awareness of what you're doing."

Another way the study might help parents is in addressing this as a brain problem and not a willpower problem. "Parents seem to find helpful to understand that something has happened where behaviours have gotten stuck," says Dr. Steinglass. "It's not really about logical thinking at this point."

Q.6

Why does the author give the example of the strategy of asking an anorexic child to eat with only one hand?

1 **In order to show that the child won't be able to cut the food into small pieces.**

2 **In order to explain how the child will be cured of anorexia.**

3 In order to show how the parents can stop the child from developing bad habits.

4 In order to explain the benefit of parental involvement in curing anorexia.

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Q.7

Which of the following has been admitted by the author as a drawback of the study cited in the passage?

1 **The slow recovery rate can frustrate parents who have anorexic kids.**

2 **The small sample size and lack of focus on the treatment of the illness.**

3 **The association between value and habit in terms of brain functions is vague.**

4 **The lack of any relevant findings for parents struggling with anorexic children.**

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Q.8

As per the passage, what can be inferred about the association between brain and anorexia?

1 **The difference between an anorexic and non-anorexic is the difference between habits and values.**

2 **An anorexic brain can't develop new habits.**

3 **A non-anorexic person knows how to distinguish between good and bad habits.**

4 **The brain of an anorexic treats not eating food differently than that of a non-anorexic person.**

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Q.9

Which of the following is not untrue as per the passage?

1 **Timothy Walsh is a Colombian.**

2 **Karin Foerde has no relation with Columbia University.**

3 Joanna Steinglass is acquainted with Daphna Shohamy.

4 Daphna Shohamy was one of the subjects of the study mentioned in the passage.

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

Anorexia is the third most chronic illness among adolescents. It leads more often to death than any other mental illness. Therapies that have the greatest success involve extensive family engagement, with parents undertaking the task of persuading the child to eat. It's exhausting and terrifying and demanding for parents, especially if recovery is slow.

Now a new study from Columbia University has identified for the first time what's going on in the brain when anorexics make a decision about what to eat. By using fMRIs, the researchers found that when they decide what food to eat, people with anorexia are engaging a part of the brain that is associated with the habitual control of actions, rather than the part of the brain which is associated with values.

This suggests that anorexics don't decide what to eat or not to eat because they need to lose or gain weight; the brain has just gotten into the habit of deciding not to eat. "The part of the brain they're using is different from the part of the brain healthy people seem to be using," says Daphna Shohamy, a neuroscientist and one of the authors of the study.

While the study was small—just 21 participants with anorexia and 21 without—and did not set out to look for treatment options, there were some implications for parents struggling with an anorexic child. "When we talk about the study with parents it makes an awful lot of sense to them," says Dr. Joanna Steinglass, who specializes in anorexia and worked on the study along with Karin Foerde of New York University and Timothy Walsh of Columbia. "They see habits as they get laid down. They see the behaviour become entrenched. They see behaviour becoming hard to change. What we've now done is begun to look at what basic mechanisms would be that might explain it."

One of the clear implications seems to be that family-based therapy is more likely to work than just talk therapy, since it appears to be the behaviour that needs to change, not any given set of beliefs, or how a patient is feeling that day. "Treatments are going to have to focus in on the behaviour in order to be successful," says Dr. Steinglass.

The study suggests that parents might want to try various strategies to get the kid's brain out of the habit of deciding to eat very little food. It's possible, says Dr. Steinglass that the cue that sets off the behaviour could be changed. "Before [the anorexia sufferers] walk into the meal, before they pick up the fork and knife, what could you do instead of what you always do that might shake it up a little?"

She tells the story of a parent at a conference whose child cut up their food into very small pieces before eating it. One way to short-circuit such behaviour, she suggests, might be to get the child to eat with only his or her left hand. "It's a very over simplified but useful illustration," Dr. Steinglass says. "If you try eating with your left hand, does that just slow the whole meal down enough that you can pay attention? It helps raise awareness of what you're doing."

Another way the study might help parents is in addressing this as a brain problem and not a willpower problem. "Parents seem to find helpful to understand that something has happened where behaviours have gotten stuck," says Dr. Steinglass. "It's not really about logical thinking at this point."

Q.10

With which of the following would the author least likely agree?

1 **A mental illness can be fatal.**

2 **A strong willpower is essential to fight anorexia.**

3 **An anorexic can change his/her attitude towards eating with therapies involving family engagement.**

4 **A slow rate of recovery can demotivate caregivers.**

FeedBack

Bookmark

Answer key/Solution

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

[…] Small-ranged species are disproportionately at risk of extinction. The "Red List" of the International Union for the Conservation of Nature (IUCN) aspires to assess the risks of extinction of all species. It has done so for more than 90,000 plant and animal species, out of a total of nearly 2 million species that taxonomists have described. Birds, mammals, and amphibians are the best known. Overwhelmingly, it's the species with small geographical ranges that are at greatest risk. For birds, the risk of extinction drops dramatically as range size increases. About half the species with ranges smaller than 1,000 square kilometres are at risk.

This pattern is not surprising. Other things being equal, the destruction of habitats is more likely to terminate a species that occurs, for instance, on a few mountaintops in coastal Brazil, than one that occurs across the entire Amazon basin. The challenge for conservation science is what we can do to protect these threatened species.

We now know that species with small geographical ranges, which are so often threatened, are concentrated in certain places. And in these mostly tropical concentrations, human actions not only destroy habitats but also leave what's behind in small, isolated fragments. These patches may be too small to sustain viable populations of species. Restoring corridors—habitat connections between fragments—affords a cost-effective solution. […]

Many more species with small geographical ranges are known now than in Darwin and Wallace's time. By 1850, taxonomists had described close to 5,000 terrestrial bird species in the world. […] In 1850, 14 years after Darwin returned from his voyage, only 200 (4 percent) of the known species at that time had ranges smaller than 10,000 square kilometres. Today, that number is 1,290—close to 13 percent of the more than 10,000 species now known.

We're still finding more such species. Taxonomists have described half of the known amphibian and mammalian species with small ranges in the past few decades. Many more are surely awaiting discovery. As with birds, large-ranged species were discovered earlier than small-ranged ones.

The century and a half of exploration since the travels of Darwin and Wallace has made it possible to produce three key maps that show the areas that have, respectively, the greatest numbers of species, the greatest numbers of species with small ranges, and the greatest numbers of species that are threatened with extinction. Geography is destiny. Understanding the relationships between these geographical patterns is the first vital step in determining where to act to save species.

The greatest numbers of species in a given place are in the tropical moist forests of the world. The patterns are broadly similar for birds, mammals, and amphibians—the taxa we know best. Less geographically resolved data for insects and plants suggest the patterns are also broadly similar. Wallace went to the Amazon because that's where the most species are! He made his living collecting novelties—species other collectors had not discovered. He likely thought that more species would mean more novelties—but he was partly wrong. […]

The environmentalist Norman Myers coined the term "*biodiversity hotspots*" for these places where concentrations of small-ranged species have collided with extensive habitat loss. His influential insight was that human actions are exceptionally damaging. For various reasons, we have disproportionately harmed those places where small-ranged species are concentrated. Maps provide high-resolution improvements on his ground-breaking ideas. […]

Q.11

As per the author, what is the most significant challenge for conservation science?

1 **To identify the exact range of species that are under threat.**

2 **To find measures to contain the habitats of all animals at risk.**

3 **To protect the habitats of threatened species with a small geographical range.**

4 **To restore the lost habitats of all extinct species.**

FeedBack

Bookmark

Answer key/Solution

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Q.12

As per the passage, to sustain viable populations of species, humans should:

1 **create new corridors.**

2 **restore destroyed corridors.**

3 **protect large habitats.**

4 **spread species across vast lands.**

FeedBack

Bookmark

Answer key/Solution

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Q.13

Why does the author call Geography as destiny?

1 **Because Geographical patterns play the most significant role in identifying species and their habitats.**

2 **Because without Geography, there won't be any maps to be produced.**

3 **Because geographical maps help the greatest numbers of species with small ranges.**

4 **Because understanding geographical patterns will help conserve the threatened species.**

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Q.14

Which of the following best describes the author's intention behind talking about 'biodiversity hotspots"?

1 **To explain a possible step in protecting threatened species.**

2 **To show how this term helped create high-resolution maps.**

3 **To highlight a possible solution for creating new cost effective habitats.**

4 **To acknowledge the roles of Darwin, Wallace, and Myers in conservation science.**

FeedBack

Bookmark

Answer key/Solution

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Q.15

As per the passage, which of the following species is at the highest risk of extinction?

1 **Species with ranges over 1,000 square kilometers.**

2 **Species found in the Amazon.**

3 **Species with very limited habitat range.**

4 **Birds, mammals, and amphibians**

FeedBack

Bookmark

Answer key/Solution

Direction for questions (16-19): Read the given passage and answer the questions that follow.

A New York businessman who lives in East Orange and is something of a pigeon fancier recently lost several of his finest birds through the depredations of vagrant cats. A few days ago the losses became so heavy that he armed himself with a gun and lay in ambush one afternoon when he returned from the city.

After a wait he saw a lean cat emerge from the cote with one of his finest pigeons in its mouth. He fired, and the cat fell dead. In the early transports of his joy at having destroyed the thief he forgot that there was yet a task for him to perform, but soon recollected that the body must be disposed of. First he thought of digging a hole in the back yard and interring the cat therein, but then he trembled when he thought what the neighbours might think he was burying. At last a bright idea struck him.

"I'll wrap the cat in papers and throw it off the ferryboat when I cross in the morning," he promised himself.

So, with the bundle neatly tied, he took the train on the following morning. He got off the train and boarded the boat, and there he was greeted by a group of friends from whom he could not escape. He reflected that he might have to make embarrassing explanations if he threw the bundle overboard while he was with them, and he deferred the act until the boat landed, thinking he could easily cast it away in an ash barrel on the way to the office.

He passed several ash barrels on his way, but somehow or other some one always seemed to be gazing in his direction when he approached one, and once or twice he saw a watchful policeman. He recollected how unpleasant discoveries had been made in ash barrels, and he didn't want to be arrested on suspicion. So he went all the way to the office and carefully locked the body in a closet, reflecting he could throw it overboard on his way home.

Going across the river that night he met some more sociable acquaintances, and the cat boarded the train with him as a result. He laid the package down beside him and tried to become absorbed in his paper, but that everlasting cat haunted him. When he reached his station he picked up a package and went home. Reaching there, he handed the bundle to the cook and, as indifferently as he could, told her to bury the cat in the back yard.

"Yes, Sir," said the woman.

There were a few minutes of relief for the East Orangeite, but soon the cook reappeared.

"I guess there's some mistake, Sir. This isn't a cat in the paper. It's a nice leg of mutton."

The man had evidently picked up the wrong bundle on leaving the train, and he only hopes the other fellow who reached home with the dead cat doesn't learn his identity.

Q.16

Why was the man unable to throw the dead cat into an ash barrel?

1 **He was scared of policemen.**

2 **He didn't want to cause a scene.**

3 **He couldn't do it without being noticed.**

4 He couldn't find a suitable barrel.

FeedBack

Bookmark

Answer key/Solution

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Q.17

What best describes the order of events in the passage?

1 **A man discovers the source of his problem; he commits a blunder in solving the problem; he tries to avoid embarrassment; he ends up with yet another embarrassment.**

2 **A man solves a problem; he finds himself in a dilemma; he tries to find a resolution; he commits a blunder.**

3 A man identifies and solves a source of his problems; he tries to get rid of the source; he commits one blunder after another.

4 A man kills a cat; he tries to avoid disposing the body of the cat; he ends up giving the dead cat to an unsuspecting bystander.

FeedBack

Bookmark

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Q.18

What is the tone of the author in the last sentence of the passage?

1 Deprecating

2 Condescending

3 Appealing

4 Sarcastic

FeedBack

Bookmark

Answer key/Solution

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Q.19

As per the passage, which of the following is not necessarily true?

1 **The businessman didn't want to rouse the suspicions of his neighbors.**

2 **The businessman loved his pigeons.**

3 **The businessman didn't like predatory animals.**

4 **The businessman killed the cat with stealth.**

FeedBack

Bookmark

Answer key/Solution

Direction for questions (20-24): Read the given passage and answer the questions that follow.

[...] UBI (Universal Basic Income) has gained considerable popularity of late, certainly among left leaning politicians but also among several celebrity business people in Silicon Valley and elsewhere. Though in some contexts the idea has a surface appeal, it is otherwise wrongheaded. It would steal resources from those truly in need for broader distribution. It would effectively warehouse people who might otherwise find ways to contribute to society and do so at great cost.

Though UBI proposals come in many shapes and sizes, all share certain justifications. Prominent among them, not surprisingly, are claims that it would reduce poverty. Proponents have made an easy calculation from government statistics to show that a generous stipend of $3,000 a month for each adult in the country would cut the nation's poverty rate in half. A stipend of $250 a month for each child would reduce child poverty some 40%. UBI, proponents claim, would break the cycle of dependency among the disadvantaged, giving them time and money at last to seek the training and higher education they need to climb the economic ladder. Some of the more starry-eyed among those Silicon Valley billionaires behind the proposal add that UBI would help bring on a cultural revolution by allowing people time from toil to "contemplate the meaning of life."

Matters, however, are far from as straightforward as these arguments suggest. Cost is an obvious consideration. The most quoted schemes today would, according calculations from Commerce Department data, cost the federal government between $2 and 4 trillion a year, amounting to a 50% increase in current federal outlays or more than 10% of last year's gross domestic product (GDP). Such a draw on the economy would markedly burden taxpayers and increase government debt with all the associated economic ills. At the same time, such a huge draw on federal financial resources would also preclude other government priorities, such as infrastructure refurbishment, including the building of hospitals, and the construction of affordable housing. Both effects would undermine productive incentives and otherwise constrain both public and private investment in the economy. Economic activity and growth potentials would suffer accordingly, not the least because UBI pay-outs would do little to invest in the future except if recipients really do use the funds for education and training.

Not surprisingly, several UBI proponents suggest ways the country might finance the entitlement. These, though sometimes imaginative, would hardly lift the associated economic burdens. Some would sell off government land. That could certainly raise a lot of money initially, perhaps even enough to finance the giveaway for a while. As the government disposed of the land, however, this source of revenue would dwindle and fail to support what the proposers describe as a huge, ongoing entitlement. In any case, such an answer would surely provoke intense resistance from the green lobby. Other UBI proponents suggest a tax on the market capitalization of public companies. One proposal calls for an initial 3% levy on all corporations followed by a lower ongoing tax. Some would add a 5% levy on initial public offerings and a 3% tax on mergers. A carbon tax occasionally makes it into the mix. Even if these financing options could balance the accountant's books, and that is doubtful, they, like other taxes, would still have ill effects on economic incentives as well as investing and hence on growth prospects generally. [...]

Q.20

The author's main aim in the passage is to:

1 **analyse the merits of a social scheme that is set to revolutionize economics.**

2 **explain the disadvantages of a proposed economic scheme.**

3 **justify the concerns of the lobbies opposing the introduction of UBI.**

4 **elucidate the evaluation of UBI as a social scheme.**

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Answer key/Solution

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Q.21

Which of the following has not been cited as an advantage of UBI?

1 **Reducing the toiling of the commoners**

2 **Poverty reduction**

3 **Facilitate social inclusion**

4 **Uplift the disadvantaged**

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Answer key/Solution

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Q.22

Which of the following, if true, would bolster the author's stance on UBI?

1 **A nation-wide survey conducted by the social welfare department showed that a majority of the people in the country are bad at maintaining a financial account.**

2 **A recent labor department survey finding says that the poverty rate in the country has dropped by 5% in the last 5 years without any scheme like UBI.**

3 **A recent labor department survey found that more than 35% of the people on unemployment benefit spend majority of their time in front of the television.**

4 **A nation-wide survey conducted by the social welfare department found that a majority of the people in the country didn't possess the required literary skill or competency to climb the social ladder.**

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Answer key/Solution

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Q.23

What can be inferred from the last two paragraphs of the passage?

1 **The long term benefits of UBI would outweigh the cost incurred in the beginning.**

2 **UBI seems to be a dystopian nightmare for the investors.**

3 **The short term drawbacks of UBI can be overcome with political will.**

4 UBI as a scheme doesn't seem financially sustainable in the long run.

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Answer key/Solution

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Q.24

What would incite strong reaction from the green lobby?

1 **Introducing a carbon tax.**

2 **Selling government land.**

3 **Reducing the construction of affordable housing.**

4 **Merging all social and ecological welfare schemes.**

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Answer key/Solution

Q.25

Directions for question (25): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. This effect becomes important when the acceleration due to gravity falls below a certain threshold, as it does in the outer reaches of galaxies.
2. If $f(R)$ theories try to do away with dark energy, theories of modified Newtonian dynamics (MOND) do away with dark matter.
3. Effectively, gravity no longer weakens with distance, explaining why stars and gas in the outskirts of galaxies orbit just as fast as they do near the core.
4. In this approach, objects respond differently to gravity than Isaac Newton envisaged.

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Answer key/Solution

Q.26

Directions for question (26): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. Because hummingbirds use so much energy, with a heart rate from 450-1300 beats per minute, they must consume several times their body weight in nectar each day.
2. Their heart rate falls to 35-50 beats per minute at night and their body temperature approaches the surrounding temperature.
3. Hummingbirds are the second largest bird family in the New World, with 320 species, and are some of the smallest birds in the world.
4. In addition, hummingbirds conserve energy by falling into a comatose-like state at night.

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Answer key/Solution

Q.27

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

Cost-benefit analysis hinged on an ever-changing calculation of the monetary value of a human life. If a life could be shown to be expensive, regulation could be justified. If not, it would be blocked or scrapped. The EPA, in 2004 – to allow for more lax air pollution regulations – quietly sliced eight percent off their value of human life, and then another three percent in 2008 by deciding to not adjust for inflation.

1 **The quantitative measurement of the value of a human life is inherently flawed.**

2 **Due to the change in EPA regulations, the monetary value of a human life has decreased.**

3 **Deciding the monetary value of a human life depends upon a multitude of factors, not all of which are justified.**

4 **Calculating the relative monetary value of a human life doesn't appear to be a fair process.**

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Answer key/Solution

Q.28

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.

1. The insulin then helps break down the sugars, which either provide immediate energy or go into fat cells for storage.
2. A few recent studies suggest that consuming fake sugar actually trains your insulin response to store more, not less, fat.
3. If your body interprets something as sweet which is not real sugar, it ends up producing that same insulin response.
4. The main one is that artificial sweeteners are actually better for you than real sugar.
5. Basically when you consume real sugar, your taste-buds send an alert to your pancreas saying that calories are on the way.

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Answer key/Solution

Q.29

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

1. I carted it in a wheelbarrow and set it down by the pond.
2. Before leaving, he also showed me how to form them into fist-sized balls.
3. About a week after we started filling the pond, he ordered me to bring out the coil of copper wire from the tool shed.
4. Using a pair of wire-cutters, he snipped the copper into short lengths.

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Answer key/Solution

Q.30

Directions for question (30): Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. While it supports a sizeable population of wild tigers and other wildlife, it is also an ecologically fragile and climatically vulnerable region that is home to over 4.5 million people.
2. The landscape is constantly being transformed by the erosional forces of the sea and wind along the coast and by the enormous loads of silt and other sediments that are deposited along the myriad estuaries.
3. Short term goals include interventions such as ensuring sustainable livelihoods, access to clean and sustainable energy, and effective human wildlife conflict management.
4. The Sundarbans delta in India has been a priority region for WWF-India since 1973 due to its unique biodiversity.
5. Securing the future of the Sundarbans, its biodiversity, and people requires a long term vision that can integrate climate adaptation and conservation strategies.

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Answer key/Solution

Q.31

Directions for question (31): The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Some analysis of ancient chariots provide that the Egyptians greatly improved the design of this vehicle. However, while they certainly did make improvements to certain parts of the chariot, it is arguable whether the Egyptian chariot was better, or simply designed for a different purpose and terrain than others in the Middle East. For example, the Egyptian chariot had a metal covering for the axes, which reduced friction, and this was certainly an improvement. Also, some wooden parts were strengthened by covering them with metal sleeves. However, the fact that the Egyptian chariots were lighter and faster than those of other major powers in the Middle East may not have been considered an absolute improvement in the chariot's design.

1 Although the Egyptians improved the overall design of the chariot, it was no match for the Middle Eastern designs.

2 Research finds that the Egyptians improved the overall design of the ancient chariots; however, questions exist as to the overall efficacy of these.

3 Some analysts find that the Egyptians improved upon the overall structure of the chariot while others feel that the Egyptians had an unfair advantage in terms of a better terrain and speed.

4 The wooden parts and metal sleeves made the Egyptians chariots better than the Middle Eastern ones.

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Answer key/Solution

Q.32

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

1. Even if we do manage time away from the grind, it comes with a looming awareness of the things we should be doing.
2. We put off sleeping in, or going for a long walk, or reading by the window.
3. The break that we take, thus, ends up being an experience weighed down by guilt.
4. The problem comes when we spend so long frantically chasing productivity, we refuse to take real breaks.

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Answer key/Solution

Q.33

Directions for question (33): Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. That would provide enough room for animals to graze, while allowing tractors to work the crops planted on the bare land underneath.
2. Farmers and the nation's future food supplies will benefit from having solar arrays in their fields.
3. That increases its temperature and can reduce electricity production between 1% and 3%.
4. The arrays often sit over a bed of white gravel that stifles vegetation and reflects sunlight back up to the array.
5. The conventional way of installing solar arrays tends to magnify heat.

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Answer key/Solution

Q.34

Directions for question (34): The passage given below is followed by four summaries. Choose the option that best captures the author's position.

The word 'priority' came into the English language in the 1400s. It was singular. It meant the very first or prior thing. It stayed singular for the next five hundred years. Only in the 1900s did we pluralise the term and start talking about 'priorities'. Illogically, we reasoned that by changing the word we could bend reality. Somehow we would now be able to have multiple 'first' things. People and companies routinely try to do just that. This gives the impression of many things being the priority but actually means nothing is.

1 **The definition of the word 'priority' has changed too many times leaving it with no meaning at all.**

2 **Introduced in 1400s, the word 'priority' started as a singular term, but now it has a plural form.**

3 **'Priority', earlier used as a singular term, got a plural form in 1900s. a term that might be misleading.**

4 **The plural form of the word 'priority' means nothing of significance.**

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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.

Last year, seven stores—Laptopwala.com, HP World, Tech Exclusive , Computer India, Rainbow Computers, Ansal Infotech, and Tradelink—each sold exactly 100, 200, 300, 400, or 500 computers, consistent with the following conditions:
1. HP World sold exactly the same number of computers as Rainbow Computers did.
2. Tech Exclusive sold exactly the same number of computers as Tradelink did.
3. Neither Laptopwala.com nor Ansal Infotech sold exactly the same number of computers as any other store.
4. Computer India sold more computers than Tradelink did.
5. Tech Exclusive sold more computers than HP World did.

Q.35

Which one of the following could be an accurate number of computers sold last year by the stores Laptopwala.com, HP World, Tech Exclusive, Computer India, Rainbow Computers, Ansal Infotech and Tradelink respectively, in the same order?

1 **100, 200, 300, 400, 200, 500, 300**

2 100, 200, 400, 300, 200, 500, 400

3 500, 200, 300, 400, 500, 100, 300

4 500, 300, 200, 400, 300, 100, 200

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Answer key/Solution

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Last year, seven stores—Laptopwala.com, HP World, Tech Exclusive , Computer India, Rainbow Computers, Ansal Infotech, and Tradelink—each sold exactly 100, 200, 300, 400, or 500 computers, consistent with the following conditions:
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2. Tech Exclusive sold exactly the same number of computers as Tradelink did.
3. Neither Laptopwala.com nor Ansal Infotech sold exactly the same number of computers as any other store.
4. Computer India sold more computers than Tradelink did.
5. Tech Exclusive sold more computers than HP World did.

Q.36
How many of the above mentioned stores could have sold exactly 400 computers last year?

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Answer key/Solution

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3. Neither Laptopwala.com nor Ansal Infotech sold exactly the same number of computers as any other store.
4. Computer India sold more computers than Tradelink did.
5. Tech Exclusive sold more computers than HP World did.

Q.37
If a condition that, "Laptopwala.com sold more computers than Ansal Infotech, who sold more computers than Tech Exclusive" is added to the above mentioned conditions, then how many combinations of (store, computers sold) are possible?

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Answer key/Solution

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2. Tech Exclusive sold exactly the same number of computers as Tradelink did.
3. Neither Laptopwala.com nor Ansal Infotech sold exactly the same number of computers as any other store.
4. Computer India sold more computers than Tradelink did.
5. Tech Exclusive sold more computers than HP World did.

Q.38
How many of the following statement/(s) must be true?
(I) Laptopwala.com sold more computers last year than HP World did.
(II) Tech Exclusive sold more computers last year than Ansal Infotech did.
(III) Computer India sold more computers last year than Laptopwala.com did.
(IV)Tradelink sold more computers last year than Rainbow Computers did.

Enter '0' if none of these statements are true.

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Answer key/Solution

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

Six students-Praveen, Qureshi, Rohit, Sanjeev, Tarun and Usman-participated in a panel interview of 5 members Akbar, Boman, Chander, Deepak and Ekta -each member could give maximum 10 marks to a student and thus maximum marks that a student could get was 50. Score obtained by the students were 41, 40, 38, 43, 36 and 37 in any order. No member gave less than 6 marks to any student. Neither a member can give 10 marks to more than one student nor a student can get 10 marks from more than one member. The partial information regarding the scores are as below:-

Member / Student	Akbar	Boman	Chander	Deepak	Ekta
Praveen	7		8	10	
Qureshi		9		7	8
Rohit	6		8		9
Sanjeev	8	8		8	9
Tarun		7	9		7
Usman	10		7	6	
Total	48	46	45	47	49

Q.39

Who got the overall least marks in the interview?

1 **Rohit**

2 **Qureshi**

3 **Usman**

4 **Either (1) or (3)**

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Answer key/Solution

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Member / Student	Akbar	Boman	Chander	Deepak	Ekta
Praveen	7		8	10	
Qureshi		9		7	8
Rohit	6		8		9
Sanjeev	8	8		8	9
Tarun		7	9		7
Usman	10		7	6	
Total	48	46	45	47	49

Q.40

Which of the following marks was not given by Boman to any Candidate?

1 **6**

2 **10**

3 **Both (1) and (2)**

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

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Answer key/Solution

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

Six students-Praveen, Qureshi, Rohit, Sanjeev, Tarun and Usman-participated in a panel interview of 5 members Akbar, Boman, Chander, Deepak and Ekta -each member could give maximum 10 marks to a student and thus maximum marks that a student could get was 50. Score obtained by the students were 41, 40, 38, 43, 36 and 37 in any order. No member gave less than 6 marks to any student. Neither a member can give 10 marks to more than one student nor a student can get 10 marks from more than one member. The partial information regarding the scores are as below:-

Member / Student	Akbar	Boman	Chander	Deepak	Ekta
Praveen	7		8	10	
Qureshi		9		7	8
Rohit	6		8		9
Sanjeev	8	8		8	9
Tarun		7	9		7
Usman	10		7	6	
Total	48	46	45	47	49

Q.41

How many of the following statement/(s) must be true?
(I) Boman gave minimum marks to Usman.
(II) Only two students got 10 marks by the interviewer.
(III) Praveen got the highest marks.
(IV)Tarun got the second highest marks.

Enter '0' if none of these statements are true.

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Answer key/Solution

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

Six students-Praveen, Qureshi, Rohit, Sanjeev, Tarun and Usman-participated in a panel interview of 5 members Akbar, Boman, Chander, Deepak and Ekta -each member could give maximum 10 marks to a student and thus maximum marks that a student could get was 50. Score obtained by the students were 41, 40, 38, 43, 36 and 37 in any order. No member gave less than 6 marks to any student. Neither a member can give 10 marks to more than one student nor a student can get 10 marks from more than one member. The partial information regarding the scores are as below:-

Member / Student	Akbar	Boman	Chander	Deepak	Ekta
Praveen	7		8	10	
Qureshi		9		7	8
Rohit	6		8		9
Sanjeev	8	8		8	9
Tarun		7	9		7
Usman	10		7	6	
Total	48	46	45	47	49

Q.42

Which of the following can be the sequence representing the name of students getting marks in increasing order?

1 **Rohit, Qureshi,Usman, Praveen, Sanjeev, Tarun**

2 **Rohit, Usman, Qureshi, Sanjeev, Praveen, Tarun**

3 **Usman, Rohit, Qureshi, Sanjeev, Tarun, Praveen**

4 **Usman, Rohit, Sanjeev, Qureshi, Tarun, Praveen.**

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Answer key/Solution

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

Five friends - Arun, Badal, Chakor, Dhruv and Esha - worked together to solve a crossword puzzle. There are three boys and two girls in the group and each one gave the answer to one clue. Only one person answers at a time. The words are : COLLEGE, CONSUME, SINGLE, SILENCED, SYMBOL. They are the answers to the clues for 3 Down, 7 Across, 12 Down, 12 Across and 19 Across, not necessarily in the same order.

The second answer to be given was not for the clue, 'An educational institution'. The three boys do not answer consecutively. Dhruv was neither the first nor the last to give an answer. The clue 'Not several' was answered by Esha, which was preceded and followed by answers from boys. 12 Down is a six letter word, but it is not the answer to the clue 'Mark of representation'. The answers to 12 Down and 12 Across have different number of letters. 3 Down was not the longest word. The first answer was not given by a boy. Arun gave the answer to 7 Across, which has the same number of letters as the answer preceding it and has one letter more than the answer succeeding it. Badal's answer was not shorter than Dhruv's. 19 Across was the first clue to be answered and it had less number of letters than Arun's answer.

Q.43

Who was the last person to give an answer?

1 **Arun**

2 **Esha**

3 **Badal**

4 **Chakor**

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Answer key/Solution

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

Five friends - Arun, Badal, Chakor, Dhruv and Esha - worked together to solve a crossword puzzle. There are three boys and two girls in the group and each one gave the answer to one clue. Only one person answers at a time. The words are : COLLEGE, CONSUME, SINGLE, SILENCED, SYMBOL. They are the answers to the clues for 3 Down, 7 Across, 12 Down, 12 Across and 19 Across, not necessarily in the same order.

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Q.44

What was the answer to 3D?

1 **COLLEGE**

2 **CONSUME**

3 **SILENCED**

4 **SYMBOL**

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Answer key/Solution

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

Five friends - Arun, Badal, Chakor, Dhruv and Esha - worked together to solve a crossword puzzle. There are three boys and two girls in the group and each one gave the answer to one clue. Only one person answers at a time. The words are : COLLEGE, CONSUME, SINGLE, SILENCED, SYMBOL. They are the answers to the clues for 3 Down, 7 Across, 12 Down, 12 Across and 19 Across, not necessarily in the same order.

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Q.45

What was the position of Dhruv's answer?

1 **3 Down**

2 **7 Across**

3 **12 Down**

4 **12 Across**

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Answer key/Solution

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

Five friends - Arun, Badal, Chakor, Dhruv and Esha - worked together to solve a crossword puzzle. There are three boys and two girls in the group and each one gave the answer to one clue. Only one person answers at a time. The words are : COLLEGE, CONSUME, SINGLE, SILENCED, SYMBOL. They are the answers to the clues for 3 Down, 7 Across, 12 Down, 12 Across and 19 Across, not necessarily in the same order.

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Q.46

What is the difference between the number of letters in the first and last words?

1 **Zero**

2 One

3 Two

4 Cannot be determined

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Answer key/Solution

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

The following table gives the responses of A, B, C and D in a question paper comprising of 6 questions and their scores. The answer to each of the question is either an YES or NO. Each correct response fetches '+5' marks. There are no negative marks for incorrect response or for not attempting.

	Q1	Q2	Q3	Q4	Q5	Q6	Score
A	YES	—	NO	YES	NO	YES	10
B	YES	NO	YES	NO	—	NO	20
C	NO	YES	—	YES	NO	NO	?
D	NO	YES	YES	YES	YES	—	15

Note: "—" denote question not attempted.

Q.47
What is the score of C in the exam?

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Answer key/Solution

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

The following table gives the responses of A, B, C and D in a question paper comprising of 6 questions and their scores. The answer to each of the question is either an YES or NO. Each correct response fetches '+5' marks. There are no negative marks for incorrect response or for not attempting.

	Q1	Q2	Q3	Q4	Q5	Q6	Score
A	YES	—	NO	YES	NO	YES	10
B	YES	NO	YES	NO	—	NO	20
C	NO	YES	—	YES	NO	NO	?
D	NO	YES	YES	YES	YES	—	15

Note: "—" denote question not attempted.

Q.48

If B's response to Q5 had been an YES, what would have been his score?

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Answer key/Solution

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

The following table gives the responses of A, B, C and D in a question paper comprising of 6 questions and their scores. The answer to each of the question is either an YES or NO. Each correct response fetches '+5' marks. There are no negative marks for incorrect response or for not attempting.

	Q1	Q2	Q3	Q4	Q5	Q6	Score
A	YES	—	NO	YES	NO	YES	10
B	YES	NO	YES	NO	—	NO	20
C	NO	YES	—	YES	NO	NO	?
D	NO	YES	YES	YES	YES	—	15

Note: "—" denote question not attempted.

Q.49

One of the answers in the answer key was wrong. When the scores were corrected with the new answer key there were two with the same scores and the other two also had identical scores. Which question was incorrect in the original answer key?

1 **Q1**

2 **Q3**

3 **Q4**

4 **Q6**

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Answer key/Solution

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

The following table gives the responses of A, B, C and D in a question paper comprising of 6 questions and their scores. The answer to each of the question is either an YES or NO. Each correct response fetches '+5' marks. There are no negative marks for incorrect response or for not attempting.

	Q1	Q2	Q3	Q4	Q5	Q6	Score
A	YES	—	NO	YES	NO	YES	10
B	YES	NO	YES	NO	—	NO	20
C	NO	YES	—	YES	NO	NO	?
D	NO	YES	YES	YES	YES	—	15

Note: "—" denote question not attempted.

Q.50

If any answered responses from the table given above is randomly selected, then what is the probability that it is wrong?

1 **7/20**

2 **4/5**

3 **9/20**

4 **1/2**

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Answer key/Solution

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

Seven persons – Pankaj, Ranjeet, Tarun, Saket, Teejay, Karan and Arun work in a company whose weekly-off is on a different day among Monday to Sunday. Their daily wages are among Rs. 350, Rs. 450, Rs. 300 and Rs. 400. The additional information is as below:
(I) Ranjeet's daily wage, whose weekly-off is on Tuesday is more than that of Karan which in turn is more than that of Arun and these two have weekly-off on successive days.
(II) Person having weekly-off on Saturday and Thursday have same wages. At most, 2 persons can have same wage. The weekly-off of Karan was on Thursday.
(III) The sum of wages of Pankaj and Tarun is equal to that of persons having weekly-off on Friday and Saturday whose wages are in increasing order.
(IV) Saket's weekly-off is two days before that of Pankaj, whose salary is Rs. 450.
(V) Wage of the person whose weekly-off is on Wednesday has the same wage as Ranjeet.

[Note: Wages of each of Pankaj and Tarun were different from that of persons having weekly-off on Friday and Saturday and each of them have different wages.]

Q.51
How many persons, out of seven, can have minimum wages?

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Answer key/Solution

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

Seven persons – Pankaj, Ranjeet, Tarun, Saket, Teejay, Karan and Arun work in a company whose weekly-off is on a different day among Monday to Sunday. Their daily wages are among Rs. 350, Rs. 450, Rs. 300 and Rs. 400. The additional information is as below:
(I) Ranjeet's daily wage, whose weekly-off is on Tuesday is more than that of Karan which in turn is more than that of Arun and these two have weekly-off on successive days.
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(III) The sum of wages of Pankaj and Tarun is equal to that of persons having weekly-off on Friday and Saturday whose wages are in increasing order.
(IV) Saket's weekly-off is two days before that of Pankaj, whose salary is Rs. 450.
(V) Wage of the person whose weekly-off is on Wednesday has the same wage as Ranjeet.

[Note: Wages of each of Pankaj and Tarun were different from that of persons having weekly-off on Friday and Saturday and each of them have different wages.]

Q.52
The weekly-off of Teejay is on

1 **Friday**

2 **Saturday**

3 **Sunday**

4 **Either (1) or (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.

Seven persons – Pankaj, Ranjeet, Tarun, Saket, Teejay, Karan and Arun work in a company whose weekly-off is on a different day among Monday to Sunday. Their daily wages are among Rs. 350, Rs. 450, Rs. 300 and Rs. 400. The additional information is as below:
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(IV) Saket's weekly-off is two days before that of Pankaj, whose salary is Rs. 450.
(V) Wage of the person whose weekly-off is on Wednesday has the same wage as Ranjeet.

[Note: Wages of each of Pankaj and Tarun were different from that of persons having weekly-off on Friday and Saturday and each of them have different wages.]

Q.53
Which of the following can have maximum wages?

1 **Tarun**

2 **Pankaj**

3 **Saket**

4 **Teejay**

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Answer key/Solution

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

Seven persons – Pankaj, Ranjeet, Tarun, Saket, Teejay, Karan and Arun work in a company whose weekly-off is on a different day among Monday to Sunday. Their daily wages are among Rs. 350, Rs. 450, Rs. 300 and Rs. 400. The additional information is as below:
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(IV) Saket's weekly-off is two days before that of Pankaj, whose salary is Rs. 450.
(V) Wage of the person whose weekly-off is on Wednesday has the same wage as Ranjeet.

[Note: Wages of each of Pankaj and Tarun were different from that of persons having weekly-off on Friday and Saturday and each of them have different wages.]

Q.54
If Saket's wage is more than that of Tarun, then the sum of their wages is

1 **Rs. 750**

2 **Rs. 650**

3 **Either (1) or (2)**

4 **Rs. 850**

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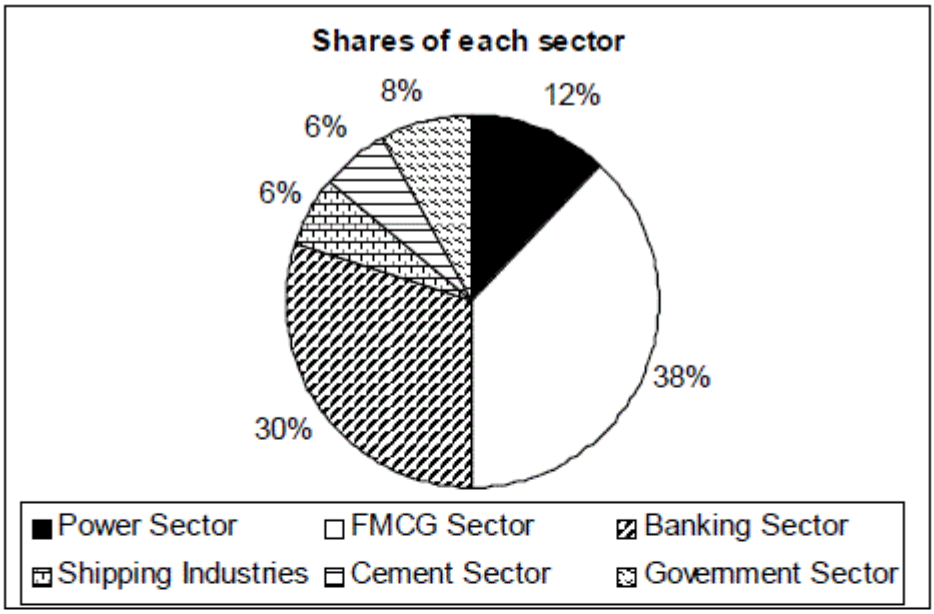
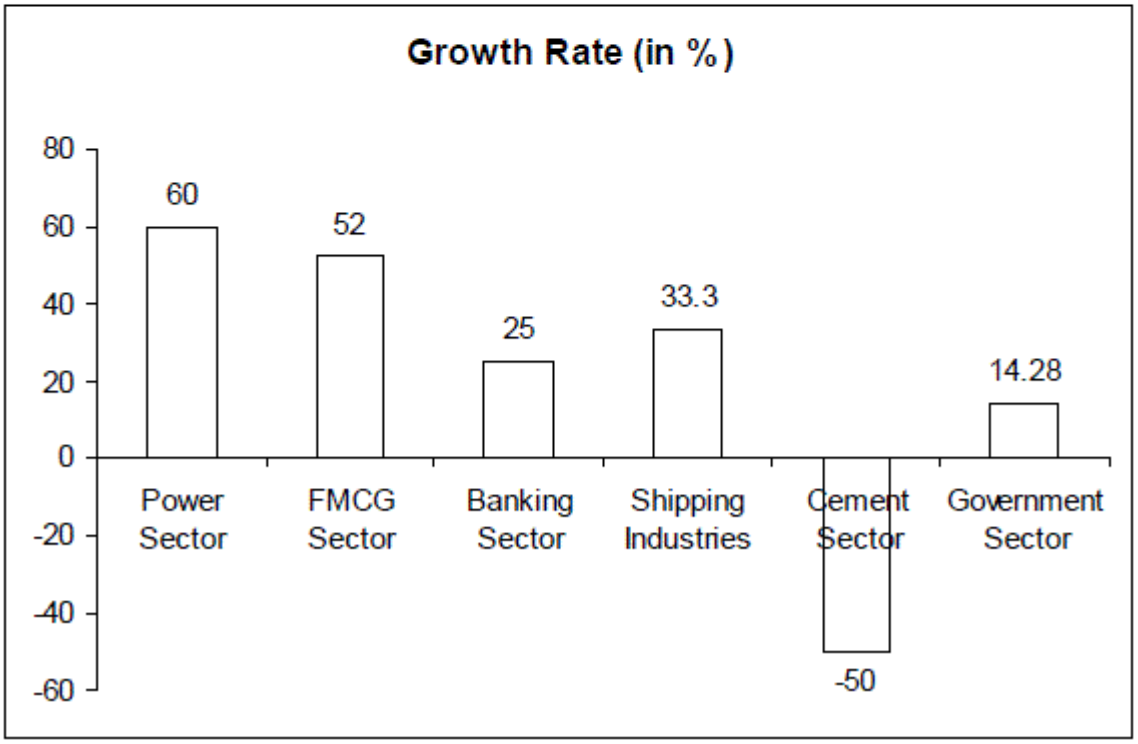
Answer key/Solution

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

Axis blue chip fund growth had 92% of its fund in equity and 8% of funds in Debt in the year 2019. The mutual fund has diversified its equity part in 5 different sectors and debt fund in Government sector. The equity fund investment is in the power sector, the FMCG sector, the banking sector, the shipping industries and the cement sector. Further, for each sector, the mutual fund divides the fund in five different companies of each sector in equal proportions in 2019. The total funds available in 2019 are Rs. 1000 million and growth over the previous year is 25%.

The pie chart given below describes the share of investments in different sectors in 2019 and the bar graph shows the growth rate of each sector in 2019 over the previous year 2018.





Q.55

Find the percentage share of investments in shipping industries in the year 2018.

1 **5.6%**

2 **4%**

3 **4.5%**

4 **7%**

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Answer key/Solution

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

Axis blue chip fund growth had 92% of its fund in equity and 8% of funds in Debt in the year 2019. The mutual fund has diversified its equity part in 5 different sectors and debt fund in Government sector. The equity fund investment is in the power sector, the FMCG sector, the banking sector, the shipping industries and the cement sector. Further, for each sector, the mutual fund divides the fund in five different companies of each sector in equal proportions in 2019. The total funds available in 2019 are Rs. 1000 million and growth over the previous year is 25%.

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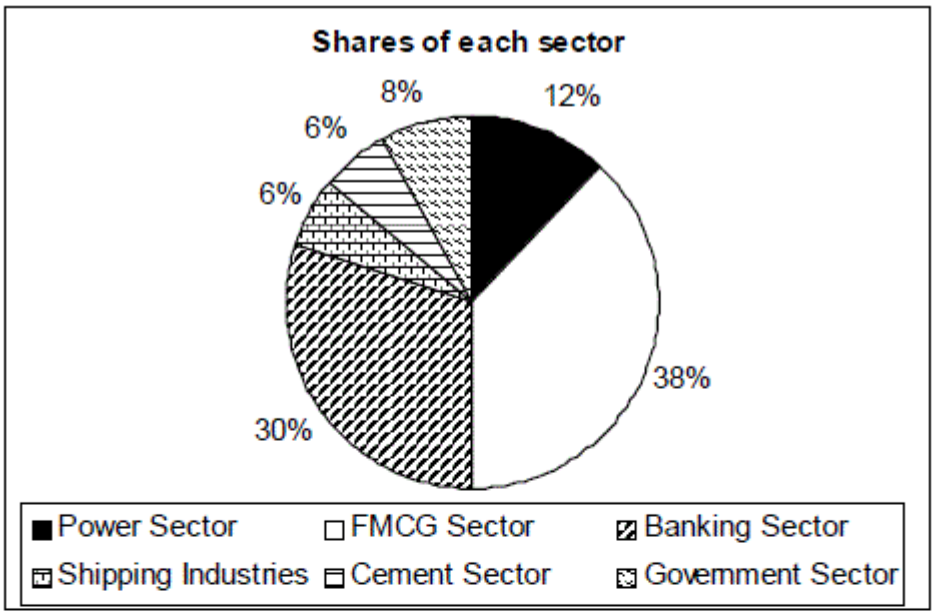

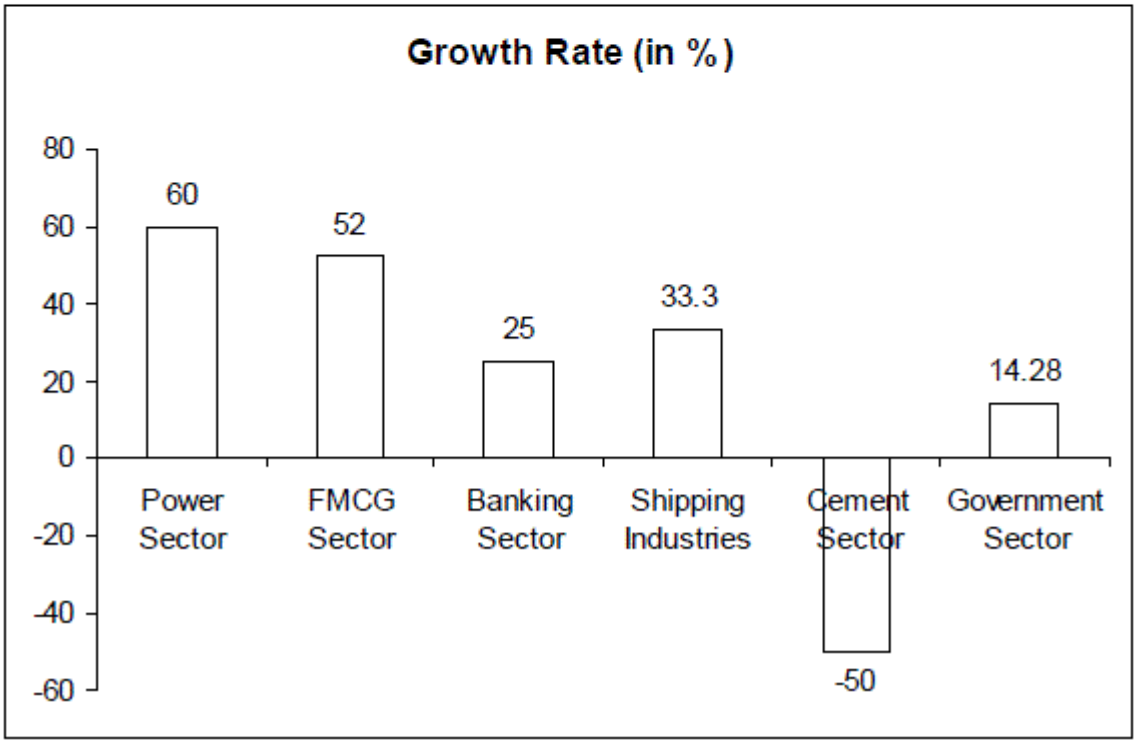

Q.56

If the market share of NTPC, one of the companies in the power sector, gets doubled in the year 2019, then find the percentage increase in the total shares of other four companies in the power sector in 2019 over the previous year.

1 **42.85%**

2 **52.3%**

3 **75%**

4 **37.5%**

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Answer key/Solution

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

Axis blue chip fund growth had 92% of its fund in equity and 8% of funds in Debt in the year 2019. The mutual fund has diversified its equity part in 5 different sectors and debt fund in Government sector. The equity fund investment is in the power sector, the FMCG sector, the banking sector, the shipping industries and the cement sector. Further, for each sector, the mutual fund divides the fund in five different companies of each sector in equal proportions in 2019. The total funds available in 2019 are Rs. 1000 million and growth over the previous year is 25%.

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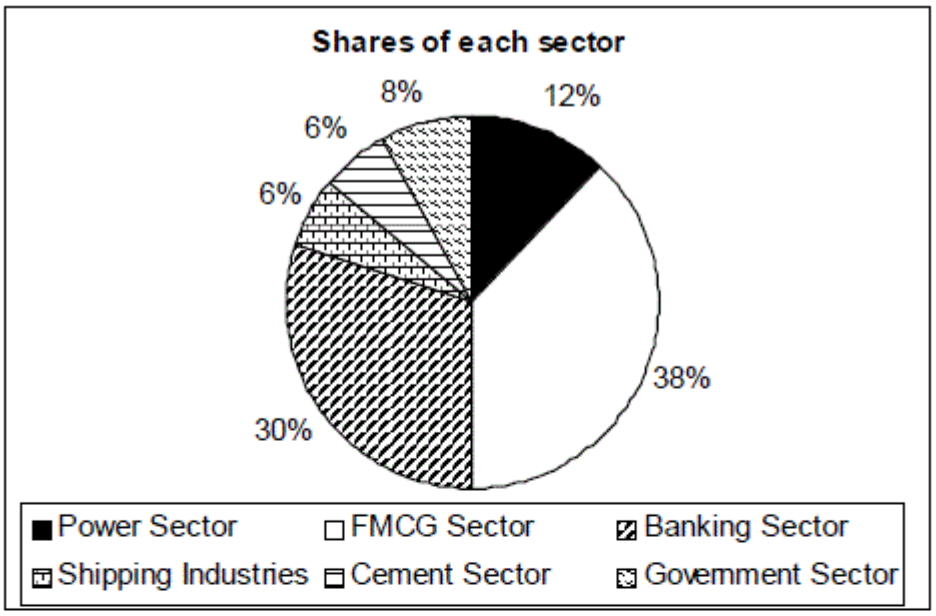

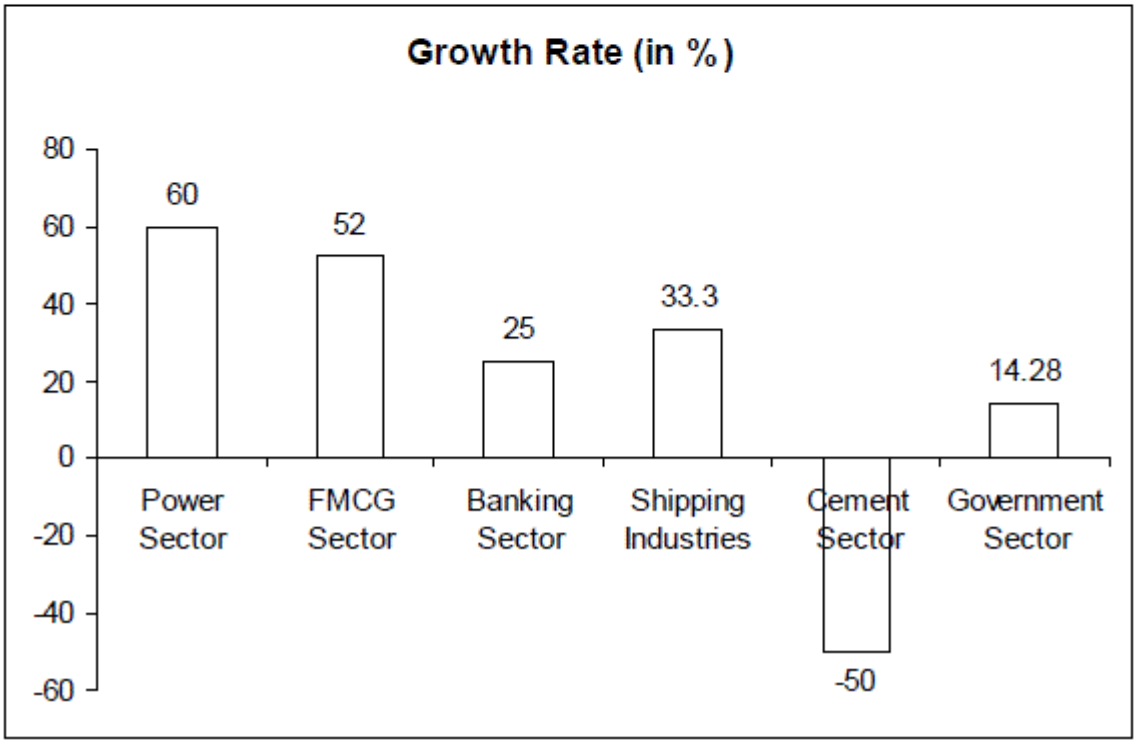

Q.57

If Nestle, one of the companies in FMCG sector, expected to show a negative growth rate of 25% in 2020 and FMCG sector is expected to show an overall growth rate of 15%, then find the maximum growth rate (in %), a company other than Nestle in FMCG sector could have in 2020. (Note:- no other companies in FMCG sector is expected to have negative growth rate.)

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Answer key/Solution

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

Axis blue chip fund growth had 92% of its fund in equity and 8% of funds in Debt in the year 2019. The mutual fund has diversified its equity part in 5 different sectors and debt fund in Government sector. The equity fund investment is in the power sector, the FMCG sector, the banking sector, the shipping industries and the cement sector. Further, for each sector, the mutual fund divides the fund in five different companies of each sector in equal proportions in 2019. The total funds available in 2019 are Rs. 1000 million and growth over the previous year is 25%.

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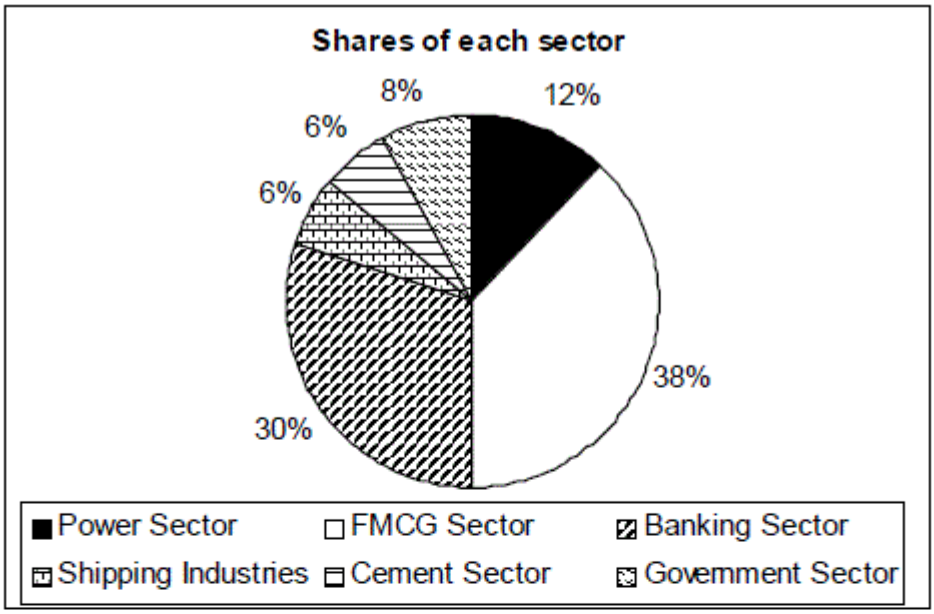

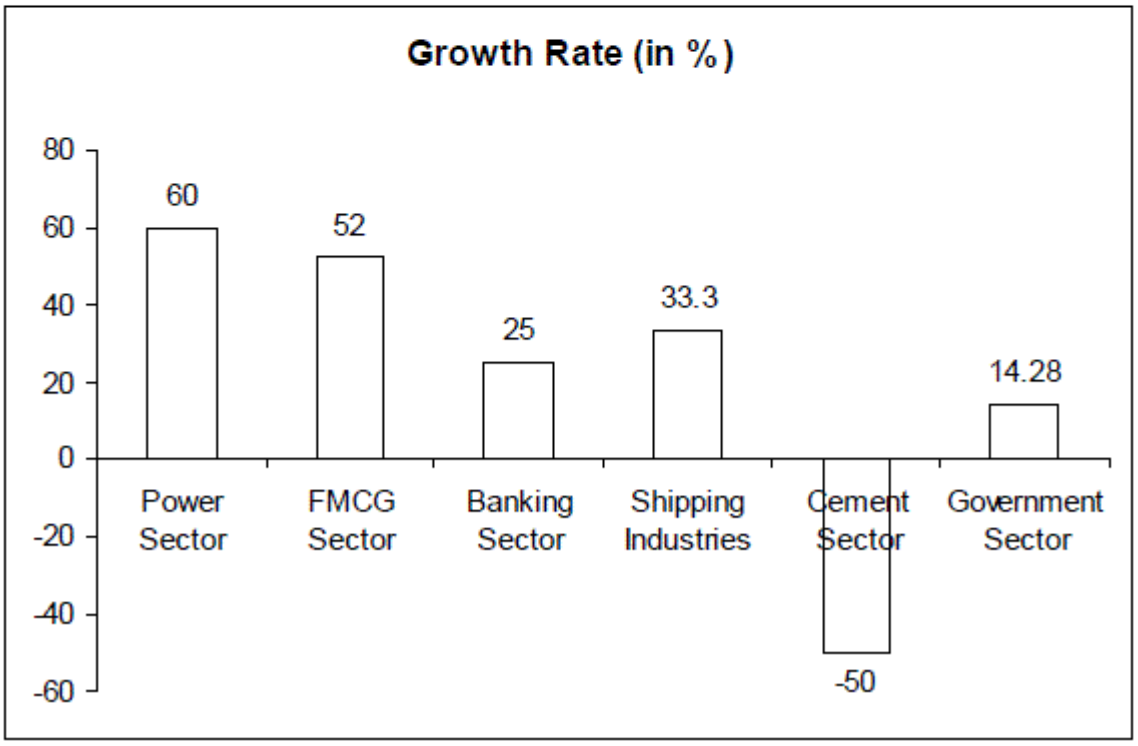

Q.58

The market share of which sector in 2018 is twice of the market share of another sector in the same year?

1 **Banking Sector**

2 **FMCG sector**

3 **Power Sector**

4 **Shipping industries**

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Answer key/Solution

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

A committee of 11 members is to be formed by the Prime Minister from a group of 15 key members — K, L, M, N, P, Q, R, S, T, U, V, W, X, Y and Z. Among the members, K, N, V, X, Y and Z are the members of Lok Sabha; L, M, Q, R and S are the members of Rajya Sabha; P and W are the Chief Ministers; T and U are the retired judges of Supreme Court. It is also known that:
(i) Q can be selected in the committee only if both R and Y are selected.
(ii) If T is selected, then Q is also selected.
(iii) V and X cannot be selected together in the committee. The same is true for L and R.
(iv) The committee must have at least 4 members of Lok Sabha, at least 1 Chief Minister and exactly 1 retired judge.
(v) S can be selected only if L is selected.

Q.59

If R is one of the members of Rajya Sabha in the committee, then who will be the Chief Minister(s)?

1 **P**

2 **W**

3 **Either (1) or (2)**

4 **Both (1) and (2)**

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Answer key/Solution

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

A committee of 11 members is to be formed by the Prime Minister from a group of 15 key members — K, L, M, N, P, Q, R, S, T, U, V, W, X, Y and Z. Among the members, K, N, V, X, Y and Z are the members of Lok Sabha; L, M, Q, R and S are the members of Rajya Sabha; P and W are the Chief Ministers; T and U are the retired judges of Supreme Court. It is also known that:
(i) Q can be selected in the committee only if both R and Y are selected.
(ii) If T is selected, then Q is also selected.
(iii) V and X cannot be selected together in the committee. The same is true for L and R.
(iv) The committee must have at least 4 members of Lok Sabha, at least 1 Chief Minister and exactly 1 retired judge.
(v) S can be selected only if L is selected.

Q.60
Which of the following statement(s) is/are true?
I. If L is selected, then T is also selected.
II. If S is selected, then M is also selected.
III. P, W and M cannot be selected together in the committee.

1 **Only I**

2 **Only II**

3 **Only III**

4 **Both II and III**

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Answer key/Solution

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

A committee of 11 members is to be formed by the Prime Minister from a group of 15 key members — K, L, M, N, P, Q, R, S, T, U, V, W, X, Y and Z. Among the members, K, N, V, X, Y and Z are the members of Lok Sabha; L, M, Q, R and S are the members of Rajya Sabha; P and W are the Chief Ministers; T and U are the retired judges of Supreme Court. It is also known that:
(i) Q can be selected in the committee only if both R and Y are selected.
(ii) If T is selected, then Q is also selected.
(iii) V and X cannot be selected together in the committee. The same is true for L and R.
(iv) The committee must have at least 4 members of Lok Sabha, at least 1 Chief Minister and exactly 1 retired judge.
(v) S can be selected only if L is selected.

Q.61
In how many ways can the committee be formed?

1 **3**

2 **6**

3 **2**

4 **4**

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Answer key/Solution

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

A committee of 11 members is to be formed by the Prime Minister from a group of 15 key members — K, L, M, N, P, Q, R, S, T, U, V, W, X, Y and Z. Among the members, K, N, V, X, Y and Z are the members of Lok Sabha; L, M, Q, R and S are the members of Rajya Sabha; P and W are the Chief Ministers; T and U are the retired judges of Supreme Court. It is also known that:
(i) Q can be selected in the committee only if both R and Y are selected.
(ii) If T is selected, then Q is also selected.
(iii) V and X cannot be selected together in the committee. The same is true for L and R.
(iv) The committee must have at least 4 members of Lok Sabha, at least 1 Chief Minister and exactly 1 retired judge.
(v) S can be selected only if L is selected.

Q.62
If S is selected, then who among the following cannot be selected in the committee?

1 **R**

2 **U**

3 **Z**

4 **Y**

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Answer key/Solution

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

Arbutus College owns exactly four houses that it leases to faculty or students. Of these houses, no two are exactly the same distance from Arbutus campus, and each house is either a student house (occupied entirely by students) or a faculty house (occupied entirely by faculty). The lease length for each house is one, two, or three semesters. The following conditions must hold:
1. No student house has a three-semester lease.
2. At least two houses have longer leases than that of the house closest to campus.
3. Every student house (if there are any) is farther from campus than any faculty house (if there are any).

Q.63
Which one of the following could be a complete and accurate list of the leases of the student houses, ordered from the student house closest to campus to the student house farthest from campus?

1 One semester, one semester

2 Two semesters, three semesters

3 One semester, two semesters, one semester

4 One semester, two semesters, two semesters, one semester

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Answer key/Solution

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

Arbutus College owns exactly four houses that it leases to faculty or students. Of these houses, no two are exactly the same distance from Arbutus campus, and each house is either a student house (occupied entirely by students) or a faculty house (occupied entirely by faculty). The lease length for each house is one, two, or three semesters. The following conditions must hold:
1. No student house has a three-semester lease.
2. At least two houses have longer leases than that of the house closest to campus.
3. Every student house (if there are any) is farther from campus than any faculty house (if there are any).

Q.64
If the house farthest from campus has a lease longer than that of each of the other houses, then which one of the following could be true?

1 Each faculty house has a two-semester lease.

2 Exactly two houses each have a one-semester lease.

3 Exactly three houses each have a two-semester lease.

4 None of the houses has a one-semester lease.

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Answer key/Solution

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

Arbutus College owns exactly four houses that it leases to faculty or students. Of these houses, no two are exactly the same distance from Arbutus campus, and each house is either a student house (occupied entirely by students) or a faculty house (occupied entirely by faculty). The lease length for each house is one, two, or three semesters. The following conditions must hold:
1. No student house has a three-semester lease.
2. At least two houses have longer leases than that of the house closest to campus.
3. Every student house (if there are any) is farther from campus than any faculty house (if there are any).

Q.65

What is the maximum number of houses that could all be student houses with two-semester leases?

1 Zero

2 One

3 Two

4 Three

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Answer key/Solution

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

Arbutus College owns exactly four houses that it leases to faculty or students. Of these houses, no two are exactly the same distance from Arbutus campus, and each house is either a student house (occupied entirely by students) or a faculty house (occupied entirely by faculty). The lease length for each house is one, two, or three semesters. The following conditions must hold:
1. No student house has a three-semester lease.
2. At least two houses have longer leases than that of the house closest to campus.
3. Every student house (if there are any) is farther from campus than any faculty house (if there are any).

Q.66

Which one of the following must be true of the two houses that are neither the house farthest from campus nor the house closest to campus?

1 At least one of them has a lease the same length as that of the house closest to campus.

2 At least one of them has a lease longer than that of the house closest to campus.

3 At least one of them has a lease shorter than three semesters.

4 Neither of them is a student house.

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Answer key/Solution

Sec 3

Q.67

Two cars, an Alto and a Swift, start at the same time in opposite directions from two distinct points P and Q. Starting from P, the Alto reaches Q in 6 hours 20 minutes and the Swift starting from Q, reaches P in 4 hours 45 minutes. What is the speed of the Swift, if the speed of the Alto is 60 km/ hr?

1 **110 km/hr**

2 **100 km/hr**

3 **90 km/hr**

4 **80 km/hr**

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Answer key/Solution

Q.68

A vendor purchased 20 items at Rs. 400 per item. He sold 'n' items at n% profit and rest at (100 – n)% loss. Find the number of items sold at profit if he had made overall loss of Rs. 800 in this transaction.

1 **8**

2 **15**

3 **12**

4 **10**

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Answer key/Solution

Q.69

How many perfect cube are there between the numbers $3^9 + 1$ and $3^{12} + 1$?

1 **53**

2 **27**

3 **54**

4 **26**

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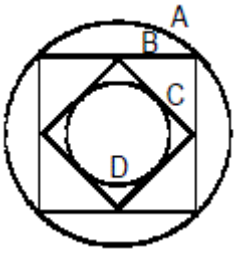
Answer key/Solution

Q.70

In this figure, A and D are circles and B and C are squares. Given that the radius of circle D is 5 cm, what will be the sum (in cm) of diameter of circle A and side of square C?



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Answer key/Solution

Q.71

Find the 100th term of the sequence $\frac{1}{2}, \frac{5}{3}, \frac{11}{4}, \frac{19}{5}, \ldots$

1 **99**

2 $\frac{10100}{101}$

3 $\frac{9899}{100}$

4 $\frac{10099}{101}$

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Answer key/Solution

Q.72

The smallest integer x such that $x^3 - 14x^2 + 56x - 76 > 0$ is

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Answer key/Solution

Q.73

Four typists A, B, C and D can type atleast 96 pages in 12 days working in turns every four days. The number of pages typed in a day by these four typists working together must be more than

1 31

2 32

3 33

4 34

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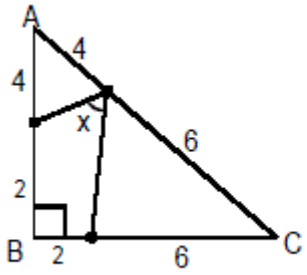
Answer key/Solution

Q.74



In ΔABC right angled at B, what is the value of x (in degrees)?

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Answer key/Solution

Q.75

The difference between simple and compound interest for the fourth year was Rs. 662. Find the principal sum (in Rs.) if that was last at 10% per annum.

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Answer key/Solution

Q.76

If $\log_a b - \log_b a^{12} = 4$, which of the following must be true?

1 $a^2b = 1$

2 $a = b^6$

3 $a = b^2$

4 $ab^2 = 1$

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Answer key/Solution

Q.77

The profit earned on an article when selling price is Rs. 6875 is 14.28% less than the loss occurred when selling price is Rs. 4275. Find the approximate cost price (in Rs.) of the article.

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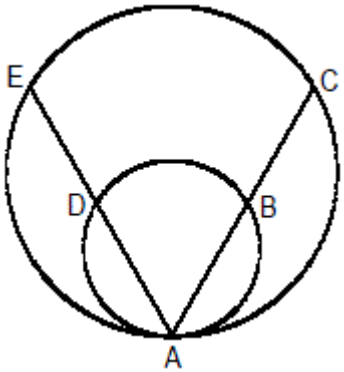
Answer key/Solution

Q.78

In the figure shown below, the smaller circle touches the bigger circle at point A. AC and AE are the chords of the bigger circle. If AB = 4 cm, AD = 2 BC and DE = 3 cm, then find AE (in cm).



1 $3+\sqrt{6}$

2 $3+2\sqrt{6}$

3 $2\sqrt{6}$

4 $2+3\sqrt{6}$

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Answer key/Solution

Q.79

If $f(x)=\frac{1}{x-1}-\frac{1}{x}$ and $g(x)=\frac{x}{3}\left(\frac{1}{x-1}-\frac{1}{x+2}\right)$ for all $x>0$; the value of $f(g(x))$, at the value of x when $f(x)=g(x)$, will be

1 **2**

2 **4**

3 **−2**

4 **−4**

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Answer key/Solution

Q.80

A child consumed an ice-cream of inverted right-circular conical shape from the top and left only 12.5% of the cone for her mother. If the height of the ice-cream cone was 8 cm, what was the height (in cm) of the remaining ice-cream cone?

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Answer key/Solution

Q.81

What is the remainder if $x^{99} + x^{51} + x^{18} + x^3 + 5$ is divided by $x^3 - 1$?

1 **9**

2 **1**

3 **$x^2 + 1$**

4 **0**

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Answer key/Solution

Q.82

Find the number of different signals that can be generated by arranging at least 2 flags in order (one below the other) on a vertical staff, if five different flag are available.

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Answer key/Solution

Q.83

If $x = \frac{3+\sqrt{5}}{2}$ and $y = x^3$, then y satisfies the quadratic equation

1 **$y^2 - 18y + 1 = 0$**

2 **$y^2 + 18y + 1 = 0$**

3 **$y^2 - 18y - 1 = 0$**

4 **$y^2 + 18y - 1 = 0$**

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Answer key/Solution

Q.84

Tank 'A' is filled in four hours when 2 inlet and 3 outlet pipes are opened together and tank 'B' of double capacity as that of A, is filled in 3 hours when 5 inlet and 5 outlet pipes are opened together. If only inlet pipes connected with tank 'A' are operational, then the tank will be filled in [Note: each inlet pipe of both the tanks has same efficiency whereas each outlet pipe of both the tanks have same efficiencies.]

1 $3\frac{1}{3}$ hours

2 $2\frac{2}{3}$ hours

3 **3 hours**

4 **2 hours**

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Answer key/Solution

Q.85

a, b and c are three distinct positive integers less than 25. If |a − c| + |b − a| = |c − b|, then the minimum possible value of a is

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Answer key/Solution

Q.86

Sum of first 10 terms of an A.P. is 100 and that of next 10 terms is 120. Find the first term of the A.P.

1 **9**

2 **89/10**

3 **91/10**

4 **19/2**

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Answer key/Solution

Q.87

In a survey of 800 students, it was found that 12% of students don't play Cricket, Hockey or Football. 10% play all the three. There are 16% who play only Cricket and Hockey, 18% who play only Hockey and Football and 23% who play only Cricket and Football. Number of students that play only Cricket, only Hockey and only Football are equal. How many students play either Football or Cricket or both?

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Answer key/Solution

Q.88

In a club, red juice and yellow juice were consumed in the ratio of 9 : 4 on the first day. On the second day the juices were consumed in the ratio 2 : 1 respectively. If the ratio of yellow juice consumed on the first day to the yellow juice consumed on the second day was 1 : 2, then what is the minimum number of drinks consumed on both the days? Given that at least 16 drinks of yellow juice were consumed on at least one of the days.

1 **148**

2 **74**

3 **181**

4 **144**

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Answer key/Solution

Q.89

$10^{\log(2-x)} = \log_5(10 - 5^x)$, solve for x.

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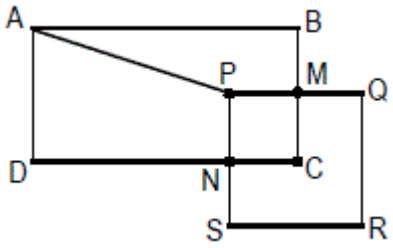
Answer key/Solution

Q.90

ABCD is a rectangle and PQRS is a square as shown in the figure. M is a mid-point of both BC and PQ where BC = PQ. The ratio of lengths of CN and ND is 3 : 8. If the area of square PQRS is 144 sq. cm, then find the length of AP (in cm).



1 $5\sqrt{23}$

2 $\sqrt{73}$

3 $7\sqrt{23}$

4 $2\sqrt{73}$

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Answer key/Solution

Q.91

Three jugs I, II and III each contains 200 ml of liquids X, Y and Z respectively. 50 ml of X from jug- I is added to jug-II. Then 50 ml of this mixture is added to jug-III. Then 50 ml of this mixture from jug- III is added to jug-I. Finally 100 ml of this mixture from jug I was added to 100 ml of W to prepare a drink. What is the ratio of W : X : Z in the final mixture?

1 **15 : 19 : 8**

2 **25 : 19 : 1**

3 **19 : 5 : 1**

4 **25 : 19 : 5**

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Answer key/Solution

Q.92

The number of polynomials p(x) with integer coefficients such that the curve y = p(x) passes through (6, 8) and (4, 9) is

1 **0**

2 1

3 More than 1 but finite

4 Infinite

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Answer key/Solution

Q.93

On his way to city B, Mr. X who is driving his car, overtakes a truck at point P at 1 pm. Mr. X reaches city B at 5 pm, but did not stop there and turned back immediately to his home city taking the same route back. On his way back, he, again met the same truck, (which was still going towards city B) at point Q at 5 : 48 pm. If the car and the truck are running at uniform speeds throughout, then find at what time will the truck reach city B?

1 7:30 pm

2 7:45

3 7 pm

4 None of these

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Answer key/Solution

Q.94

Let S_m be the sum of squares of the first m natural numbers and A be the set of all values of m < 50 such that S_m is exactly divisible by 4. Which of the following statements is/are true about n(A), where n(A) represents the number of elements in set A?

I. n(A) is an even number.

II. n(A) is a multiple of 6

III. n(A) > 12

1 Only I

2 Both I and II

3 Only III

4 Both II and III

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Answer key/Solution

Q.95

Set A = {1, 2, 3}. All subsets of A are found except the null set and then the product of the reciprocals of all the elements of all the subsets of set A is calculated. The sum of all these products is

1 **3**

2 **4**

3 **1**

4 **None of these**

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Answer key/Solution

Q.96

A cistern has an inlet pipe A and an outlet pipe B. If pipe B is closed, then pipe A fills the empty cistern in 18 minutes. If pipe B is open, then pipe A fills the empty cistern in 24 minutes. If only pipe B is open, then in how many minutes the full cistern becomes three-fourth empty?

1 **18**

2 **36**

3 **54**

4 **72**

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Answer key/Solution

Q.97

How many integers values of x satisfy the inequality $\frac{x+1}{2x-3} < \frac{x-1}{2x+5}$ where $x \in [-10, 10]$?

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Answer key/Solution

Q.98

In a mixture of milk and water, there is 24% water. After replacing 6 litres of the mixture with 6 litres of pure milk, the percentage of milk in the mixture became 80%. Find the volume of milk in the original mixture.

1 **22.04 litres**

2 **22.80 litres**

3 **21.28 litres**

4 **27.36 litres**

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Answer key/Solution

Q.99

Ram is moving on a travelator at the airport, which moves at 2m/s. When Ram has covered 1/4th length of the travelator he sees Shyam who is at certain distance and is chasing him from behind. Ram can run at 10m/s. Shyam manages to catch him at the exit whether he moves in the direction of the travelator or in the opposite direction. What is Shyam's speed (in m/s)?

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Answer key/Solution

Q.100

All the value of 'p' for which both roots of the equations $x^2 - 2px + p^2 - 1 = 0$ are greater than -2 but less than 4, lie in the interval.

1 **$-2 < p < 0$**

2 **$p > 3$**

3 **$-1 < p < 3$**

4 **$1 < p < 4$**

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Answer key/Solution