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Master series Mock CAT – 2 2019

Scorecard (procreview.jsp?sid=aaaacfmeUdDwo8biKQs_wSat Jan 11 23:23:33 IST 2020&qsetId=dFIMToUwrFw=&qsetName=Master series Mock CAT – 2 2019)

Accuracy (AccSelectGraph.jsp?sid=aaaacfmeUdDwo8biKQs_wSat Jan 11 23:23:33 IST 2020&qsetId=dFIMToUwrFw=&qsetName=Master series Mock CAT – 2 2019)

Qs Analysis (QsAnalysis.jsp?sid=aaaacfmeUdDwo8biKQs_wSat Jan 11 23:23:33 IST 2020&qsetId=dFIMToUwrFw=&qsetName=Master series Mock CAT – 2 2019)

Video Attempt (VideoAnalysis.jsp?sid=aaaacfmeUdDwo8biKQs_wSat Jan 11 23:23:33 IST 2020&qsetId=dFIMToUwrFw=&qsetName=Master series Mock CAT – 2 2019)

Solutions (Solution.jsp?sid=aaaacfmeUdDwo8biKQs_wSat Jan 11 23:23:33 IST 2020&qsetId=dFIMToUwrFw=&qsetName=Master series Mock CAT – 2 2019)

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VARC

LRDI

QA

Sec 1

Directions for questions (1to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.1
What is the main point of the author in the passage?

1 ○ **To highlight the importance of past memories in creating a work of import**

2 ○ **To elaborate the process behind the creation of a certain work of fiction**

3 ○ **To point out the flaws of being over-reliant on autobiographical elements in writing a work of fiction**

4 **To lament the lack of unity in the novel which ultimately led to its disastrous reception by critics**

Solution:
Correct Answer : 2
GENRE: Autobiography / Memoir
(This is an excerpt from the preface to "A House for Mr. Biswas" written by the novel's author Sir V.S. Naipaul. Try reading this book. It's a classic.)

Bookmark

Answer key/Solution

It's an easy to answer question if one remembers the fundamental rule of locating the main idea of the passage. The main idea can't be too broad or too narrow. The passage discusses the author's method of writing the novel under discussion. It states how it was started, what the theme of the novel was, and what criticism it had faced. He mentions that the inspiration behind the novel was autobiographical elements aided by plain old fabrication.
1 – Too generic. The passage doesn't talk about the roles of memoirs in general.
2 – Correct option. "A certain work of fiction" makes it logically correct.
3 – Too narrow. It is only mentioned in the last part of the passage.
4 – Is out of scope.

FeedBack

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Q.2

Which of the following can be inferred from the passage?

1 **Imagination is the key behind a successful novel.**

2 **Pastoral writing is looked down upon by people.**

3 **The author had been cautious about his use of language.**

4 **Unity in the plot is essential to writing a successful novel.**

Solution:
Correct Answer : 3
It's another easy question. The options are easy to eliminate. A logical inference has to be backed by facts mentioned in the passage.
1 and 4 – Too generic. "Imagination is the key" has not been supported by the author via evidence or premises in the passage. "Unity is essential" is similarly out of scope.
2 – Incorrect. It is out of scope. "Looked down upon" is too extreme a stance.
3 – Correct. Refer to the lines 'my too-careful use of language, for example, which had been the support of my early writing'.

Bookmark

Answer key/Solution

FeedBack

Directions for questions (1to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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anything else. So I can say that the book, though autobiographical in one way, is, in the profoundest way, a work of the imagination, as Richard Hughes had seen.

Q.3

The author cites Richard Hughes in the passage in order to:

1 **show how the novel had divided opinions.**

2 **mention the reception that the novel had received.**

3 **show how people misread literary works.**

4 **specify the factors that shaped the novel.**

Solution:
Correct Answer : 4
This is a tricky question. In case of example based questions, one has to keep in mind the main aim of the author in the passage.
The last two paragraphs where Hughes has been mentioned shows the ingredients that went in the making of the novel. The last line also states that, 'So I can say that the book, though autobiographical in one way, is, in the profoundest way, a work of the imagination, as Richard Hughes had seen.' Hence, 4 is the correct choice.
1 and 3 – Talk about a negative outcome which is not mentioned in the passage.
2 – Is not the main aim of the author as he is not trying to focus on the success of the book. Rather, he is focused on explaining how the book came into existence.

Bookmark

Answer key/Solution

FeedBack

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Q.4

With which of the following would the author of the passage not agree?

1 **The author had expected to spontaneously start writing at some point.**

2 **The novel has elements of rusticity in it.**

3 **The author at an early stage was restrictive in his writing method.**

4 **The novel is a product of imaginary conceptions.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
It is a moderate level question. The logic is that of inferential questions.
1 – Can be backed by the lines "I had a belief that if I wrote on in my dogged way some magic would ensue, the pencilled or inked words on my foolscap paper would take on the authority of real writing and I would be swept on to the end."
2 – The author mentions the pastoral origin of the book. So, 2 is also something the author would surely support.
3 – Can be backed by "This was a very precious feeling; and its virtue so far as this book was concerned was that it did away with the too schematic structure with which I had begun."
4 – Incorrect inference. Hence, it is the answer. The author specifies that the book is both autobiographical and a work of profound fabrication. Even the 'fabrication that came easily rested on the profound knowledge of the social structure I had grown up with.'

FeedBack

Directions for questions (1to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.5

Which of the following is true with respect to the story of the novel the author discusses in the passage?

1 **The story is about a man who is reflecting upon his past.**

2 **The story is about a man who is reflecting upon the significance of relationships.**

3 **The story is about a man who is reflecting upon the comforting presence of his acquired objects.**

4 **The story is about a man who is validating his success via the network of his relationships.**

Solution:
Correct Answer : 1
It is a moderately difficult question. This question can be answered by a careful reading of the second paragraph and by following the process of elimination. This paragraph deals with the story of the novel.
1 – Correct. The author mentions in the novel that the man 'at the end is reduced to these few physical objects rather than a network of relationships.' This shows that the protagonist is in the process of "looking back at his life".
2 and 4 – Exactly the opposite is mentioned. So, these are factually incorrect.
3 – Doesn't match the tone of the author. The key is "comforting presence". It can't be justified by the narration.

Bookmark

Answer key/Solution

FeedBack

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anything else. So I can say that the book, though autobiographical in one way, is, in the profoundest way, a work of the imagination, as Richard Hughes had seen.

Q.6

Which of the following would best be in line with the author's belief in magic?

1 **The way an atheist views his/her faith in times of trouble**

2 **The way a pragmatist views his winning of a lottery**

3 **The way a child gasps with wonder at the rainbow during Summers**

4 **The way a mother prays for the recovery of her sick child**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
This is a tough question. These kinds of questions test your ability to discard ambiguous questions. It can be answered but it might take time. So, the key is to leave these questions if you fail to get the logic behind the question stem within 30 seconds or so. It is an analogy question which is based on the line - "This was a little bit like a belief in magic because I hadn't arrived at any book in this way before, but I was supported by this idea. And, miraculously, it happened just as I had foreseen." So, the logic is that the author didn't have any reason to believe in magic, but he did anyway. It doesn't state whether the author believed or disbelieved in magic in general.
1 – An atheist doesn't have faith. We can't assume that he/she will develop faith during times of trouble. So, this is not a correct analogy.
3 and 4 – There are solid reasons for the child or mother in question to react the way they did. So, these options don't follow the logic required by the question.
2 – A pragmatist is a practical person who may or may not believe in luck. Winning a lottery is a matter of luck. Irrespective of his prior belief, he/she will accept that luck played a role in his/her winning the lottery. So, this is the closest to the author's belief in magic.

FeedBack

Directions for questions (7 to 12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

At first glance, the Cornish mallow *(Lavatera cretica)* is little more than an unprepossessing weed. It has pinkish flowers and broad, flat leaves that track sunlight throughout the day. However, it's what the mallow does at night that has propelled this humble plant into the scientific spotlight. Hours before the dawn, it springs into action, turning its leaves to face the anticipated direction of the sunrise. The mallow seems to remember where and when the Sun has come up on previous days, and acts to make sure it can gather as much light energy as possible each morning. When scientists try to confuse mallows in their laboratories by swapping the location of the light source, the plants simply learn the new orientation.

What does it even mean to say that a mallow can learn and remember the location of the sunrise? The idea that plants can behave intelligently, let alone learn or form memories, was a fringe notion until quite recently. Memories are thought to be so fundamentally cognitive that some theorists argue that they're a necessary and sufficient marker of whether an organism can do the most basic kinds of thinking. Surely memory requires a brain, and plants lack even the rudimentary nervous systems of bugs and worms.

However, over the past decade or so this view has been forcefully challenged. The mallow isn't an anomaly. Plants are not simply organic, passive automata. We now know that they can sense and integrate information about dozens of different environmental variables, and that they use this knowledge to guide flexible, adaptive behaviour.

For example, plants can recognise whether nearby plants are kin or unrelated, and adjust their foraging strategies accordingly. The flower *Impatiens pallida,* also known as pale jewelweed, is one of several species that tends to devote a greater share of resources to growing leaves rather than roots when put with strangers – a tactic apparently geared towards competing for sunlight, an imperative that is diminished when you are growing next to your siblings. Plants also mount complex, targeted defences in response to recognising specific predators. The small, flowering *Arabidopsis thaliana*, also known as thale or mouse-ear cress, can detect the vibrations caused by caterpillars munching on it and so release oils and chemicals to repel the insects. Perhaps it's not really so surprising, then, that plants learn and use memories for prediction and decision-making.

'The plants remember,' said the behavioural ecologist Monica Gagliano , 'they know exactly what's going on.'. She reasons that if plants can produce the results that lead us to believe *other* organisms can learn and remember, we should similarly conclude that plants share these cognitive capacities. One form of learning that's been studied extensively is *habituation*, in which creatures exposed to an unexpected but harmless stimulus (a noise, a flash of light) will have a cautionary response that slowly diminishes over time. Think of entering a room with a humming refrigerator: it's initially annoying, but usually you'll get used to it and perhaps not even notice after a while. True habituation is stimulus-specific, so with the introduction of a different and potentially dangerous stimulus, the animal will be re-triggered. Even in a humming room, you will probably startle at the sound of a loud bang. This is called *dishabituation*, and distinguishes genuine learning from other kinds of change, such as fatigue.

Of course, it's a stretch of the imagination to try to think about what thinking might even mean for these organisms, lacking as they do the brain(mind)/body(motor) divide. However, by pushing ourselves, we might end up expanding the concepts – such as 'memory', 'learning' and 'thought' – that initially motivated our enquiry. Having done so, we see that in many cases, talk of plant learning and memory is not just metaphorical, but also matter-of-fact. Next time you stumble upon a kerbside mallow bobbing in the sunlight, take a moment to look at it with new eyes, and to appreciate the window this little weed provides into the extraordinary cognitive capacities of plants.

Q.7

Why does the author give the example of the Cornish mallow in the first paragraph?

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1 To show that plants can learn new orientations easily

2 To show that mallows have good memory

3 To show that mallows can remember or predict the location of sunrise

4 To show that plants can use information to have a flexible and adaptive behaviour

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
GENRE: Science / Biology/ Botany (Very similar to the passage on 'Subvinium' which appeared in CAT 2017, Slot 2.)
It is an easy question. Follow the rule that an author gives an example to support his main idea.
1, 2, and 3 - Factually correct according to the passage. But they don't mention the main idea of the author behind writing the passage.
4 - Explains the primary purpose of writing the first paragraph. Hence, it is the answer.

FeedBack

Directions for questions (7 to 12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

At first glance, the Cornish mallow *(Lavatera cretica)* is little more than an unprepossessing weed. It has pinkish flowers and broad, flat leaves that track sunlight throughout the day. However, it's what the mallow does at night that has propelled this humble plant into the scientific spotlight. Hours before the dawn, it springs into action, turning its leaves to face the anticipated direction of the sunrise. The mallow seems to remember where and when the Sun has come up on previous days, and acts to make sure it can gather as much light energy as possible each morning. When scientists try to confuse mallows in their laboratories by swapping the location of the light source, the plants simply learn the new orientation.

What does it even mean to say that a mallow can learn and remember the location of the sunrise? The idea that plants can behave intelligently, let alone learn or form memories, was a fringe notion until quite recently. Memories are thought to be so fundamentally cognitive that some theorists argue that they're a necessary and sufficient marker of whether an organism can do the most basic kinds of thinking. Surely memory requires a brain, and plants lack even the rudimentary nervous systems of bugs and worms.

However, over the past decade or so this view has been forcefully challenged. The mallow isn't an anomaly. Plants are not simply organic, passive automata. We now know that they can sense and integrate information about dozens of different environmental variables, and that they use this knowledge to guide flexible, adaptive behaviour.

For example, plants can recognise whether nearby plants are kin or unrelated, and adjust their foraging strategies accordingly. The flower *Impatiens pallida,* also known as pale

jewelweed, is one of several species that tends to devote a greater share of resources to growing leaves rather than roots when put with strangers – a tactic apparently geared towards competing for sunlight, an imperative that is diminished when you are growing next to your siblings. Plants also mount complex, targeted defences in response to recognising specific predators. The small, flowering *Arabidopsis thaliana*, also known as thale or mouse-ear cress, can detect the vibrations caused by caterpillars munching on it and so release oils and chemicals to repel the insects. Perhaps it's not really so surprising, then, that plants learn and use memories for prediction and decision-making.

'The plants remember,' said the behavioural ecologist Monica Gagliano , 'they know exactly what's going on.'. She reasons that if plants can produce the results that lead us to believe *other* organisms can learn and remember, we should similarly conclude that plants share these cognitive capacities. One form of learning that's been studied extensively is *habituation*, in which creatures exposed to an unexpected but harmless stimulus (a noise, a flash of light) will have a cautionary response that slowly diminishes over time. Think of entering a room with a humming refrigerator: it's initially annoying, but usually you'll get used to it and perhaps not even notice after a while. True habituation is stimulus-specific, so with the introduction of a different and potentially dangerous stimulus, the animal will be re-triggered. Even in a humming room, you will probably startle at the sound of a loud bang. This is called *dishabituation*, and distinguishes genuine learning from other kinds of change, such as fatigue.

Of course, it's a stretch of the imagination to try to think about what thinking might even mean for these organisms, lacking as they do the brain(mind)/body(motor) divide. However, by pushing ourselves, we might end up expanding the concepts – such as 'memory', 'learning' and 'thought' – that initially motivated our enquiry. Having done so, we see that in many cases, talk of plant learning and memory is not just metaphorical, but also matter-of-fact. Next time you stumble upon a kerbside mallow bobbing in the sunlight, take a moment to look at it with new eyes, and to appreciate the window this little weed provides into the extraordinary cognitive capacities of plants.

Q.8

All of the following help to prove that plants exhibit a flexible and adaptive behaviour except:

1 **The mouse-ear cress launches a targeted response when it recognises a specific predator.**

2 **Leaves of the touch- me- not plant curl up in response to human touch.**

3 **Hibiscus plant flowers in spring.**

4 **The Pale jewel weed plant diverts greater resources to growing leaves of the plant in certain situations.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Analogy based questions are normally difficult. However, this one asks us to find the option which is not logically close. Because of the question stem, this is a moderate level question.
The logic here is to find elements of "flexibility and adaptability" in the options.
1, 2, and 4 - Refer to a flexible and adaptive approach.
3 - Hibiscus plant flowering in spring might be a regular phenomenon. It does not necessarily signify any adaptive approach or flexibility. Hence, this is the answer.

FeedBack

Directions for questions (7 to 12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

At first glance, the Cornish mallow *(Lavatera cretica)* is little more than an unprepossessing weed. It has pinkish flowers and broad, flat leaves that track sunlight throughout the day. However, it's what the mallow does at night that has propelled this humble plant into the scientific spotlight. Hours before the dawn, it springs into action, turning its leaves to face the anticipated direction of the sunrise. The mallow seems to remember where and when the Sun has come up on previous days, and acts to make sure it can gather as much light energy as possible each morning. When scientists try to confuse mallows in their laboratories by swapping the location of the light source, the plants simply learn the new orientation.

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and use memories for prediction and decision-making.

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Q.9

According to the passage, all of the following may lead to habituation except:

1 **a smelly room.**

2 **street dogs barking in the night.**

3 **a creaking fan.**

4 **utensils suddenly dropped in the kitchen.**

Solution:
Correct Answer : 4
It is an easy question. The logic is very simple and straightforward. As per the passage, habit formation happens as a result of behavioural adjustment. It happens for things which happen suddenly and continue for a period of time.
A suddenly dropped utensil in the kitchen is not an action that is likely to continue for a prolonged period of time. It will not require any behavioural adjustment and, hence, it is not likely to lead to 'habituation'. The other options require behavioural adjustment. Hence, 4 is the correct answer.

Bookmark

Answer key/Solution

FeedBack

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For example, plants can recognise whether nearby plants are kin or unrelated, and adjust their foraging strategies accordingly. The flower *Impatiens pallida,* also known as pale jewelweed, is one of several species that tends to devote a greater share of resources to growing leaves rather than roots when put with strangers – a tactic apparently geared towards competing for sunlight, an imperative that is diminished when you are growing next to your siblings. Plants also mount complex, targeted defences in response to recognising specific predators. The small, flowering *Arabidopsis thaliana*, also known as thale or mouse-ear cress, can detect the vibrations caused by caterpillars munching on it and so release oils and chemicals to repel the insects. Perhaps it's not really so surprising, then, that plants learn and use memories for prediction and decision-making.

'The plants remember,' said the behavioural ecologist Monica Gagliano , 'they know exactly what's going on.'. She reasons that if plants can produce the results that lead us to believe *other* organisms can learn and remember, we should similarly conclude that plants share these cognitive capacities. One form of learning that's been studied extensively is *habituation*, in which creatures exposed to an unexpected but harmless stimulus (a noise, a flash of light) will have a cautionary response that slowly diminishes over time. Think of entering a room with a humming refrigerator: it's initially annoying, but usually you'll get used to it and perhaps not even notice after a while. True habituation is stimulus-specific, so with the introduction of a different and potentially dangerous stimulus, the animal will be re-triggered. Even in a humming room, you will probably startle at the sound of a loud bang. This is called *dishabituation*, and distinguishes genuine learning from other kinds of change, such

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Q.10

The author intends to prove all of the following in the passage except:

1 **that plants can learn and store memory as other animals do.**

2 **that Plants do not have a division of body and mind.**

3 **that Plants have cognitive capacities.**

4 **that plants have a flexible and adaptive approach.**

Solution:

Correct Answer : 2

This is an easy main idea question. The main idea of the author in the passage is that plants probably have some elements of memory. They change their behaviour by learning from past experiences. The author uses an academic style of writing and doesn't indulge in speculation. So, the author's focus is on the "cognitive or mental ability of plants" and how they adapt to different challenges. So, options 1, 3, and 4 are part of this discussion. "Plants do not have a body and mind divide" is not part of the author's main point. Hence, 2 is the correct answer.

Bookmark

Answer key/Solution

FeedBack

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Q.11

Which of the following can't be inferred from the above passage?

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1 Plants have well-developed defence mechanism to ward off specific predators.

2 Plants can divert their resources when put up with strangers.

3 Plants have cognitive skills.

4 Plants can assimilate and integrate information.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Inference based questions are normally difficult. However, the concise options make this a moderate level question.
2 – "Can divert" is the clue word and it is backed by the line "Plants also mount complex, targeted defences in response to recognising specific predators."
3 – It is the main idea of the passage.
4 – Again, 'can' makes this option logically correct. It is part of the central narrative of the passage.
1 – The main logical flaw of this option is the phrase 'well-developed'. Plants have a defence mechanism. It is evident from the example of the mouse ear cress plant. Whether it is well developed or not hasn't been supported by facts. So, it is the answer because of data inadequacy.

FeedBack

Directions for questions (7 to 12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.12

Which of the following is the essence of the last paragraph of the passage?

1 **The notion that plants have thinking capacities was unimaginable a few years ago.**

2 **We need to redefine memory and learning to fully understand the intelligence of plants.**

3 **Plants do not fit our set notions of memory and learning.**

4 **Plant memory and learning is a fact and not a mere metaphor.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
It is a moderately difficult question. It can be answered by eliminating the incorrect options.
1 – It is a fact. It is not the main idea or aim of the author.
2 – Correct. Refer to these lines of the last paragraph "However, by pushing ourselves, we might end up expanding the concepts – such as 'memory', 'learning' and 'thought' – that initially motivated our enquiry. Having done so, we see that in many cases, talk of plant learning and memory is not just metaphorical, but also matter-of-fact."
3 – Out of scope
4 - Looks correct. But it is not what the author has tried to prove. He hasn't stated that it is now an established fact. He says that research indicates so. Hence, it can be eliminated.

FeedBack

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

In 1996, New York State governor George Pataki announced a plan to reduce the cost of care in the state's hospitals. The plan is in response to the state's perceived explosion in health care spending. The plan's savings come largely in the form of deregulating hospital's rates and reducing subsidies for hospitals' medical training. Under the plan, rate regulation for private insurance will be phased out, and will eventually be replaced by competitive bidding. Thus, insurance companies will be able to negotiate bulk rate discounts with individual hospitals. In addition, Medicaid subsidies for medical training at state hospitals will be reduced. This plan can be expected to save some money, particularly for New York State itself, through the reduction in Medicaid subsidies. It will probably save more than the current regulatory system, in which total New York State medical spending has outpaced national spending by 22% from 1980 to 1991. Unfortunately, it probably won't achieve a truly dramatic savings (aside from the Medicaid savings from the subsidy cut). In 1980-1991, New York's growth in hospital costs has only slightly exceeded that of most other states, which operate on a competitive system.

The major concern is that this plan will shift rather than reduce medical costs, which creates winners and losers. Among the winners will be, predictably, the state itself, which will reduce the amount it pays for hospital's training subsidies through Medicaid (the nationwide program which subsidizes medical care for low-income residents, particularly through emergency hospital care). Insurance carriers are also expected to benefit; by exploiting the state's high concentration of hospitals, insurers will probably be able to negotiate discounts for the insureds' hospital care, thus cutting costs and increasing their profit margins. Those who have insured themselves may also share in the savings, depending on what percentage of the discounts will be passed along to consumers. On net, it is anticipated that most will probably enjoy somewhat lower premiums.

Much of the "savings" will fall on the shoulders of New York City, which will have to scramble

to subsidize costs for the poor and uninsured, who will be turned away from hospitals. Hospitals may opt not to turn away any and, in fact, will be prohibited from turning away certain extremely low income patients, whose right to certain emergency care is protected by the state's Hill-Burton law. Of course, should hospitals continue to offer access to the uninsured, they will effectively be subsidizing the poor, and will be rewarded with lower profit margins. Some may be forced to close.

Undoubtedly, the greatest impact will be felt by the uninsured - often the poor and elderly. Since they do not enjoy the negotiated rates set by insurance companies, costs to the uninsured may rise to cover hospitals' reduced profits on insured patients. Simple economics dictates that uncompensated care will be reduced as a result of lower profit margins.

However, the plan does not take into account the historical fact that, of the increase in the cost of medical care over the past 17 years, the portion attributable to rising salaries among doctors and other hospital staff amounts to only 18.5% and that attributable to insurance costs and insurance abuse only 12.2%. Over 55% of the increase is directly related to the staggering cost of new medical technologies. The unavoidable fact remains that, if Americans insist on receiving state-of-the-art treatments, the money will have to come from somewhere.

Q.13

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

1 **Deregulating hospital's rates and reducing subsidies for hospitals' medical training will reduce the healthcare cost for most parties involved.**

2 **The plan to reduce the cost of care in the state's hospitals is fine but there has been increase in healthcare cost and that additional money has to be paid by someone.**

3 **Deregulating hospital's rates and reducing subsidies for hospitals' medical training are making healthcare expensive for the uninsured.**

4 **The recent plan to reduce the cost of care in the New York's hospitals will provide much improved and significantly cheaper healthcare to its citizens.**

Solution:
Correct Answer : 2
GENRE: Healthcare / Social Issues / Public Administration It is a difficult question as the options are lengthy. However, if one has a good reading speed and has the right approach of eliminating options, this question can be answered.
1 – It states something which is factually correct but it excludes the information from the last paragraph.
2 - Right answer as it mentions the main gist of the passage.
3 – Too narrow. It states a fact from the passage but it is not the main idea.
4 – Alien to the passage as it is not mentioned anywhere.

Bookmark

Answer key/Solution

FeedBack

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

In 1996, New York State governor George Pataki announced a plan to reduce the cost of care in the state's hospitals. The plan is in response to the state's perceived explosion in health care spending. The plan's savings come largely in the form of deregulating hospital's rates and reducing subsidies for hospitals' medical training. Under the plan, rate regulation for private insurance will be phased out, and will eventually be replaced by competitive bidding. Thus, insurance companies will be able to negotiate bulk rate discounts with individual hospitals. In addition, Medicaid subsidies for medical training at state hospitals will be reduced. This plan can be expected to save some money, particularly for New York State itself, through the reduction in Medicaid subsidies. It will probably save more than the current regulatory system, in which total New York State medical spending has outpaced national spending by 22% from 1980 to 1991. Unfortunately, it probably won't achieve a truly dramatic savings (aside from the Medicaid savings from the subsidy cut). In 1980-1991, New York's growth in hospital costs has only slightly exceeded that of most other states, which operate on a competitive system.

The major concern is that this plan will shift rather than reduce medical costs, which creates winners and losers. Among the winners will be, predictably, the state itself, which will reduce the amount it pays for hospital's training subsidies through Medicaid (the nationwide program which subsidizes medical care for low-income residents, particularly through emergency hospital care). Insurance carriers are also expected to benefit; by exploiting the state's high concentration of hospitals, insurers will probably be able to negotiate discounts for the insureds' hospital care, thus cutting costs and increasing their profit margins. Those who have insured themselves may also share in the savings, depending on what percentage of the discounts will be passed along to consumers. On net, it is anticipated that most will probably enjoy somewhat lower premiums.

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staggering cost of new medical technologies. The unavoidable fact remains that, if Americans insist on receiving state-of-the-art treatments, the money will have to come from somewhere.

Q.14

All of the following have led to an increase in the cost of healthcare EXCEPT:

1 **Rising salaries of the healthcare professionals.**

2 **Increase in the insurance premium where false insurance claims are also a factor.**

3 **Hospitals charging exorbitant amounts to recover the cost of their huge investments.**

4 **Money spent on bringing in new medical technologies.**

Solution:
Correct Answer : 3
It is an easy question. Options 1, 2, and 4 can be found in the last paragraph of the passage. Option 3 is not mentioned anywhere.

FeedBack

Bookmark

Answer key/Solution

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In 1996, New York State governor George Pataki announced a plan to reduce the cost of care in the state's hospitals. The plan is in response to the state's perceived explosion in health care spending. The plan's savings come largely in the form of deregulating hospital's rates and reducing subsidies for hospitals' medical training. Under the plan, rate regulation for private insurance will be phased out, and will eventually be replaced by competitive bidding. Thus, insurance companies will be able to negotiate bulk rate discounts with individual hospitals. In addition, Medicaid subsidies for medical training at state hospitals will be reduced. This plan can be expected to save some money, particularly for New York State itself, through the reduction in Medicaid subsidies. It will probably save more than the current regulatory system, in which total New York State medical spending has outpaced national spending by 22% from 1980 to 1991. Unfortunately, it probably won't achieve a truly dramatic savings (aside from the Medicaid savings from the subsidy cut). In 1980-1991, New York's growth in hospital costs has only slightly exceeded that of most other states, which operate on a competitive system.

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who have insured themselves may also share in the savings, depending on what percentage of the discounts will be passed along to consumers. On net, it is anticipated that most will probably enjoy somewhat lower premiums.

Much of the "savings" will fall on the shoulders of New York City, which will have to scramble to subsidize costs for the poor and uninsured, who will be turned away from hospitals. Hospitals may opt not to turn away any and, in fact, will be prohibited from turning away certain extremely low income patients, whose right to certain emergency care is protected by the state's Hill-Burton law. Of course, should hospitals continue to offer access to the uninsured, they will effectively be subsidizing the poor, and will be rewarded with lower profit margins. Some may be forced to close.

Undoubtedly, the greatest impact will be felt by the uninsured - often the poor and elderly. Since they do not enjoy the negotiated rates set by insurance companies, costs to the uninsured may rise to cover hospitals' reduced profits on insured patients. Simple economics dictates that uncompensated care will be reduced as a result of lower profit margins.

However, the plan does not take into account the historical fact that, of the increase in the cost of medical care over the past 17 years, the portion attributable to rising salaries among doctors and other hospital staff amounts to only 18.5% and that attributable to insurance costs and insurance abuse only 12.2%. Over 55% of the increase is directly related to the staggering cost of new medical technologies. The unavoidable fact remains that, if Americans insist on receiving state-of-the-art treatments, the money will have to come from somewhere.

Q.15

According to the passage, the greatest adverse effect of the plan to reduce healthcare costs will fall upon the uninsured because:

1 ○ **they will be forced to buy insurance.**

2 ○ **hospitals will charge more for them to compensate for their lower profits.**

3 ○ **they are the only category from whom a higher charge can be levied.**

4 ○ **they may have to go without treatment leading to their missing out on work and corresponding income.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
It is an easy question. However, one needs to regress and cross check.
1 and 4 – Incorrect. 1 is not mentioned in the passage. 4 is not supported by the passage.
2 and 3 are close options. Option 2 is given in the penultimate paragraph.
Option 3 can be ruled out for two reasons – they may not be the 'only' such category and higher charge will be levied by the hospitals and not everyone.

FeedBack

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

In 1996, New York State governor George Pataki announced a plan to reduce the cost of care in the state's hospitals. The plan is in response to the state's perceived explosion in health care spending. The plan's savings come largely in the form of deregulating hospital's rates and reducing subsidies for hospitals' medical training. Under the plan, rate regulation for private insurance will be phased out, and will eventually be replaced by competitive bidding. Thus, insurance companies will be able to negotiate bulk rate discounts with individual hospitals. In addition, Medicaid subsidies for medical training at state hospitals will be reduced. This plan can be expected to save some money, particularly for New York State itself, through the reduction in Medicaid subsidies. It will probably save more than the current regulatory system, in which total New York State medical spending has outpaced national spending by 22% from 1980 to 1991. Unfortunately, it probably won't achieve a truly dramatic savings (aside from the Medicaid savings from the subsidy cut). In 1980-1991, New York's growth in hospital costs has only slightly exceeded that of most other states, which operate on a competitive system.

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Q.16

Which of the following can be inferred from the passage?

1 **The new plan will reduce Medicaid subsidies significantly and benefit the New York City.**

2 **The research involved in the development of new medical technologies is the major reason behind an increase in the cost of healthcare.**

3 **The new plan is likely to increase the profit margins of the insurance service providers.**

4 **The new plan will benefit the poor and the elderly by reducing the healthcare costs for these vulnerable sections.**

Solution:

Bookmark

Answer key/Solution

Correct Answer : 3

It is a moderately difficult question. One needs to be very careful in eliminating the logically incorrect options.

1- can be ruled out because the subsidies will be reduced but we cannot say that they will reduce significantly.

2- the new medical technologies are the reason behind the increase and it may or may not be caused by research.

3- can be inferred from the 3rd paragraph.

4- contradicts what is mentioned in the 5th paragraph of the passage.

FeedBack

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Q.17

Which of the following has been assumed by the proponents of the new plan in New York?

1 **Competitive bidding leads to lower insurance premium.**

2 **Reducing the cost of healthcare is imperative for the state.**

3 **The benefit of the reduced cost will not be transferred to the patient.**

4 **The uninsured may be denied treatment by the hospitals.**

Solution:
Correct Answer : 1
It is a difficult question. One needs to strictly follow the logic behind the concept of assumption in CR to be able to answer this question. Options 1 and 4 are very close.
1- is an assumption involved in the argument presented in the 1st paragraph of the passage.
2- can be ruled out as 'imperative' is not required in the argument by proponents.
3- It, in fact, disproves the argument of the proponents and therefore cannot be an assumption.
4- 4 could be an assumption of the author of the passage and not of the proponents of the new plan. So, this is the trap option in this question.

Bookmark

Answer key/Solution

FeedBack

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Q.18

What does the last paragraph of the passage do in the context of the passage?

1 **It disproves the effectiveness of the plan proposed by Pataki.**

2 **It suggests that the costs have risen quite a bit and therefore the plan will merely shift the burden from the state to some other entity.**

3 **It provides additional data to support the plan proposed by Pataki.**

4 **It mentions various factors that have contributed to an increase in the cost involved with healthcare.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
It is an easy to answer question if one adheres to the logic of main idea questions. The paragraph mentions various factors that have contributed to an increase in the cost involved with the healthcare to prove that the overall costs will not come down and the enhanced cost has to be borne by someone. Option 2 is the closest to this idea.

FeedBack

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

Despite a mostly solid run of job growth, 2017 ends pretty much where it began — with a two-speed economy where wage growth is funneling to one end while the other lags behind. Friday's nonfarm payrolls report brought with it news all too familiar to the post-crisis economy. The 228,000 jobs created formed a solid foundation, but the pedestrian 2.5 percent average hourly earnings growth left many scratching their heads wondering how a 4.1 percent unemployment rate, the lowest in 17 years, still wasn't producing fatter paychecks.

"The lack of wage growth at the aggregate level despite the declines in the unemployment rate and strong job gains remains a mystery," Joseph Song, U.S. economist at Bank of America Merrill Lynch, said in a note to clients." One possible explanation is that structural factors such as unfavorable demographics and industry-specific dynamics are playing a bigger role than the cyclical factors," he added. "However, we continue to believe that a falling unemployment rate will ultimately underpin wages."

The latter part of that statement represents the hopes and frustrations of economists everywhere from academia to Wall Street to the halls of the Federal Reserve in Washington, D.C. With another month of strong job gains and ho-hum wage growth under its belt, 2017 is now yielding toward predictions — again — that the year ahead will finally be the one where income catches up.

"Due to a lack of available workers and sustained improvement in aggregate demand we expect wage pressures to be the primary economic narrative during the year," said Joe Brusuelas, chief economist at RSM. "Our forecast implies that wage growth during final three months of next year should be at or near 4 percent." No less than Gary Cohn, director of the White House's National Economic Council, was banging the same drum Friday morning after the jobs report hit. "As the economy continues to grow and we bring more businesses back to America, we'll create more competition for labor so we'll continue to see more wage growth over the next cycle," Cohn said on CNBC's "Squawk on the Street."

It might not be that simple.

The Trump administration sees one of the answers to the wage puzzle as simply providing

more supply of business demand against a shrinking pool of workers. But American business is faced with a unique challenge in that employers are having a hard time finding the right workers for the positions they have open. That issue has been reflected in the periodic summaries the Fed releases of economic conditions across its districts, and is on the minds of those on the front lines trying to match skilled workers with open jobs.

"From a wage standpoint, skills are the new currency," said Chris Layden, vice president of Manpower North America, a workforce solution business that helps companies find suitable workers. "We're seeing the emergence of a skills revolution. Technology is transforming how work is getting done. "Those skills are seeing rising pay. Those that [don't have skills] are getting left behind." Training and internships have been stressed in recent years as a way to bridge the gap. But even those kinds of programs are falling short.

Layden said that until all sides synchronize in the fight against wage stagnation, the picture of the last several years likely will remain unchanged. "Where we see programs most effective are really where they are bringing all stakeholders to the table," he said. "Employers are leading this and are being very clear on the jobs they need. Training for training's sake doesn't work. We need training for a job."

Q.19

What is the main idea of the passage?

1 To comment on the fact that Trump administration has been unable to put wage growth rate back on track despite a strong growth in jobs

2 To understand the mystery behind the slow growth of wages

3 To discuss solutions which can be used to tackle the problem of lagging wage growth rate in the coming year

4 To analyze the views of various experts regarding the reasons behind stagnated wage growth and how this situation can be improved in future

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
GENRE: Economics / International Affairs
It is an easy main idea question. Just keep in mind the concept of broad and narrow options.
In the passage, he author is not just discussing the solutions; he is also trying to understand the reasons behind it. So, 4 is the correct option.
2 and 3 are only partially correct as compared to answer choice 4.
1 cannot be the answer as the focus is not on the Trump administration's role in all this.

FeedBack

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The Trump administration sees one of the answers to the wage puzzle as simply providing more supply of business demand against a shrinking pool of workers. But American business is faced with a unique challenge in that employers are having a hard time finding the right workers for the positions they have open. That issue has been reflected in the periodic summaries the Fed releases of economic conditions across its districts, and is on the minds of those on the front lines trying to match skilled workers with open jobs.

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Layden said that until all sides synchronize in the fight against wage stagnation, the picture

of the last several years likely will remain unchanged. "Where we see programs most effective are really where they are bringing all stakeholders to the table," he said. "Employers are leading this and are being very clear on the jobs they need. Training for training's sake doesn't work. We need training for a job."

Q.20

According to the passage, which of the following are the possible reasons behind the slow wage growth rate in the US?

A. More supply of business demand against a shrinking pool of workers
B. Unfavourable demographics and industry-specific dynamics
C. Falling unemployment rate which translates into more supply of workers is one of the reason due to which wage growth rate is slow.

1 **A & B**

2 **A & C**

3 **Only B**

4 **B & C**

Solution:
Correct Answer : 3
It is a factual question which requires an in-depth reading of the passage and the ability to eliminate incorrect options. So, it is a moderate level question.
A is clearly wrong. Trump administration has given this as a solution to the problem of slow wage growth. More supply of business demand against a shrinking pool of workers will lead to increase in wages. C is also wrong. "However, we continue to believe that a falling unemployment rate will ultimately underpin wages." This statement means that falling unemployment rate will support wages and push them upwards in future. Only B is correct. Refer to the line: One possible explanation is that structural factors such as unfavourable demographics and industry-specific dynamics are playing a bigger role than the cyclical factors," he added. Hence answer is 3.

Bookmark

Answer key/Solution

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Q.21

Which of the following is a key assumption made by the author?

1 **Strong job gains will always be accompanied with sharp wage growth.**

2 **Wage growth stagnation can end only if employees are trained and skilled to match the requirement of jobs.**

3 **Simply bringing more businesses to America and creating more competition among businesses for labour will not help to increase the wage growth.**

4 **Usually, there is a strong negative correlation between unemployment rate and wage growth rate.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
It is a tough question as the assumption is based on the entire passage. Focus on the main idea of the passage.
Throughout the passage, it has been assumed that decline in unemployment rate should ideally result in higher wages or wage growth rate. However, it is not so in case of the US for the given year. The author is looking for the possible reasons why this usual relationship does not hold true i.e. why wages have not grown despite the decrease in unemployment rate. Hence 4 is the correct answer choice. Option 3 has been stated clearly by the author. It is not a key assumption relevant for the entire passage. Option 2 also states a fact in a distorted manner. Usage of the words 'only if' makes it a wrong statement. Option 1 is a close option. Usage of the word 'always' makes it less logically compelling as compared to option 4 which uses 'usually'.

FeedBack

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

Humour is the tendency to look at things from the mirthful or incongruous side. It is the quality that makes something laughable or amusing. Humour is the ability to perceive, enjoy, or express what is amusing or comical. It is the source of laughter and the catalyst of smiles. Humour is the spark that lights our eyes as well as the cause of tears that never grows old. Humour is a state of mind.

Most of us have a tendency to regard a clever sense of humour as the distinction of a person who is good hearted and friendly, someone people feel at ease with. They are "life of the party" we always invite and the co-worker who always has a joke. Everyone has the jocular family member that they always look forward to seeing. We remember the kid in school that always made the class break into laughter. Humour is never forgotten when we reminisce and it is just as amusing as it was the first time.

Humour can be used like a sniper's gun, picking people off when they least expect it. When we use humour to hurt, we abuse the fundamental essence of this wonderful gift. We must teach our children the difference between what is funny and what is cruel. A joke is never humorous if it is at the expense of another.

Some people use humour to hide from their real emotions. Using humour to help get through the difficult times is a lot different than using humour to hide from them.

Hiding behind humour can be a serious problem; it cannot be the only way of expressing our emotions. Some of the greatest comedians have been secretly depressed. Using humour as a defence mechanism can be a serious mental health issue.

Those who use humour to its best advantage teach others by example. Instead of getting angry when something goes wrong, we should try to look for the humour in the situation. It eases tensions and keeps things in perspective. Humour can energize us when a task has become tedious. Humour can make even the worst of situations tolerable.

Q.22

Which of the following defines humour appropriately?

1 **It is a quality by which we can entertain others but often fail to change a grievous atmosphere into a jovial one.**

2 **Humour is that state of mind that can only be used to perceive and spread happiness and laughter.**

3 **Humour being a state of mind helps us to perceive situations with incongruousness and joviality.**

4 **Humour helps us to hide our real emotions; hence it acts as a shield against people who are insensitive to grave situations.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
GENRE: Psychology / Lifestyle Blogs
This passage is easy and straightforward in its explanation. So, the questions are also quite manageable. This is an easy question.
Refer to the opening and the concluding sentence of the 1st paragraph. 1 contradicts the tone of the given passage.
Option 2 is extreme because of 'only'.
Option 4 is a farfetched statement that may or may not be true.
Option 3 brings out the exact essence of the given passage.

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Q.23

All of the statements given below are false, except:

1 **Many often fail to inspire people to see things in a humorous way which might lighten grievous situations.**

2 **Difficult work load at work places can be dealt with ease with proper use of humour.**

3 **Situations may lose their seriousness because of applied humour in grave situations.**

4 **Humour can be used as an escape device by which one can transcend reality and become nonchalant.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
A very easy factual question. The options can be eliminated easily.
1 is out of the given context. Similarly, 3 is also incorrect.
Option 4 is also a farfetched statement that cannot be justified. "Humour can energize us when a task has become tedious. Humour can make even the worst of situations tolerable." This makes option 2 the correct answer.

FeedBack

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

Humour is the tendency to look at things from the mirthful or incongruous side. It is the quality that makes something laughable or amusing. Humour is the ability to perceive, enjoy, or express what is amusing or comical. It is the source of laughter and the catalyst of smiles. Humour is the spark that lights our eyes as well as the cause of tears that never grows old. Humour is a state of mind.

Most of us have a tendency to regard a clever sense of humour as the distinction of a person who is good hearted and friendly, someone people feel at ease with. They are "life of the party" we always invite and the co-worker who always has a joke. Everyone has the jocular family member that they always look forward to seeing. We remember the kid in school that always made the class break into laughter. Humour is never forgotten when we reminisce and it is just as amusing as it was the first time.

Humour can be used like a sniper's gun, picking people off when they least expect it. When we use humour to hurt, we abuse the fundamental essence of this wonderful gift. We must teach our children the difference between what is funny and what is cruel. A joke is never humorous if it is at the expense of another.

Some people use humour to hide from their real emotions. Using humour to help get through the difficult times is a lot different than using humour to hide from them.

Hiding behind humour can be a serious problem; it cannot be the only way of expressing our emotions. Some of the greatest comedians have been secretly depressed. Using humour as a defence mechanism can be a serious mental health issue.

Those who use humour to its best advantage teach others by example. Instead of getting angry when something goes wrong, we should try to look for the humour in the situation. It eases tensions and keeps things in perspective. Humour can energize us when a task has become tedious. Humour can make even the worst of situations tolerable.

Q.24

Which of the following cannot be inferred from the given passage?

1 **Humour can make a difficult situation bearable.**

2 **Healthy dose of humour in everyday life make a person less grumpy and more jovial especially in a corporate.**

3 **Most people feel at ease when accompanied with a humorous person.**

4 **Application of humour often reduces chances of mental illness and can used to treat introverts.**

Solution:
Correct Answer : 4
It is a moderate level question.
Except 4, all other options can be inferred from the given passage. Option 4 is a farfetched assumption which may or may not be correct. It cannot be justified with facts given in the passage.

FeedBack

Bookmark

Answer key/Solution

Q.25

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

In 1915, a team of American archaeologists excavating the ancient Egyptian necropolis of Deir el-Bersha blasted into a hidden tomb. Inside the cramped limestone chamber, they were greeted by a gruesome sight: a mummy's severed head perched on a cedar coffin.The archaeologists went on to recover painted coffins and wooden figurines that survived the raid and sent them to the Museum of Fine Arts, Boston in 1921. Most of the collection stayed in storage until 2009 when the museum exhibited them. Though the torso remained in Egypt, the decapitated head became the star of the showcase. With its painted-on eyebrows, somber expression and wavy brown hair peeking through its tattered bandages, the mummy's noggin brought viewers face-to-face with a mystery.

1. In an Egyptian tomb, a mummy's head, along with some coffins and wooden articles were discovered in 1915 by a team of archaeologists, which are now present at the Museum of Fine Arts in Boston.
2. A mummy's severed head, along with coffins and wooden figurines were found in 1915 by a team of American archaeologists from an Egyptian tomb, that were sent to Boston's Fine Arts Museum a few years later, and the mystery began.
3. In a tomb of an Egyptian necropolis Deir el-Bersha, a mummy's severed head along with coffins and wooden figurines were found in 1915, and till date there is a mystery that surrounds them which even the Museum of Fine Arts in Boston could not resolve.
4. The discovery of a mummy's severed head along with coffins and wooden figurines from the Egyptian tomb has been a matter of mystery from 1915 till the present date.

Solution:
Correct Answer : 2
The paragraph has a few important points- the date of discovery; who discovered them; where; their shifting in 1921 to Boston; and now the mystery surrounding them. Only option 2 captures the essence of the entire paragraph. All other options are either distorted or lack some significant information.

Bookmark

Answer key/Solution

FeedBack

Q.26

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

The cost of a coronary calcium scan (CCS), though still not covered by insurance, has come down significantly — to about $100, in some cases — and could be of great value for millions of aging Americans at risk of life-threatening heart disease. It is one of the two currently popular noninvasive X-ray techniques to assess cardiac risk and help determine who could benefit from treatments to ward off a crippling or fatal heart attack.

1. Now available at a lesser price, a CCS is widely used to assess American patients considered to be at risk of heart disease. 2. Now available at a lesser price, a CCS is widely used as the information obtained can help evaluate whether aging Americans are at a risk for heart attack.
3. Now available at a lesser price, a CCSis useful in imaging modality for cardiovascular risk assessment in moderate risk aging American patients.
4. Now available at a lesser price, aCCS is believed to have a superior role in predicting future cardiac events in American patients.

Solution:
Correct Answer : 2
The two main arguments that the paragraph is making are- reduced cost of CCS and its usefulness for aging Americans as it predicts the risk of heart disease. Moreover it is a 'popular' technique. Option 1 is incorrect as it mentions only 'Americans'. Option 3 is incorrect as- it does not mention the popularity of this technique; it uses 'imaging modality' and 'moderate risk'- which are not a part of the above paragraph. Option 4 compare CCS with something and calls CCS as superior, which again is not a part of the above argument. Option 2 alone is specific to the above paragraph.

Bookmark

Answer key/Solution

FeedBack

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.

Language comprehension blooms when it's paired with specific events or activities. Diapering, bathing, feeding, dressing, and play time are daily routines that give parents and caregivers abundant opportunities to expose children to meaningful language. Through varied experiences geared to children's development and repeated rituals — like bedtime reading — children rapidly acquire language. Only 24 months on the planet and most kids grasp language. It's a gift you'll never be sorry you gave them.

1. Understanding of language spurs when coupled with meaningful experiences.
2. Children develop language skills through experience.
3. Experiences during the first 2 years of life lay a foundation for language growth.
4. A child begins to decipher language during the first 2 year of his life.

Solution:
Correct Answer : 3
The two main arguments that the paragraph is making are- occurrence of different experience and language acquisition during the first 2 years. Both these aspects are mentioned only in option 3, making it the correct answer.

FeedBack

Bookmark

Answer key/Solution

Q.28

Directions for question 28: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. "There, the females that keep the cubs the extra year have the greatest advantage."
2. Mr. Swenson said: "A single female in Sweden is four times more likely to be shot as one with a cub."
3. While it would not normally be a good strategy from an evolutionary perspective, the female bears' increased survival chances largely counteracted the reduced birth rate.
4. The researchers found the unusual behavior was spreading through Swedish bear populations.
5. "This is especially true in areas of high hunting pressure," continued Mr. Swenson.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 24351
Statement 2 opens the paragraph as no other sentence can act as the opening sentence. 2 and 4 create a mandatory pair as "unusual behavior" in 4 is a reference to the quotation in 2. 3 follows next as it presents a contradiction and "it" used in 3 is a reference to "unusual behaviour". 4 and 5 are also a mandatory pair "there" in 1 is a reference to "areas of high hunting pressure" in 5.

FeedBack

Q.29

Directions for question 29: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. The findings add to a growing body of evidence that people travelled along a coastal route to move from Asia to North America at the time.
2. Measurements and enhanced photographs helped them identify the footprints of three different people, thought to be of two adults and a child, walking barefoot.
3. Footprints of people who lived 13,000 years ago have been discovered off the west coast of Canada, which scientists say could belong to the first North American settlers.
4. There at the end of the last ice age the sea level was two to three meters lower than it is today.
5. Researchers from the Hakai Institute and the University of Victoria in Canada excavated sites along the shoreline of Calvert Island in British Columbia.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 35421
Statement 3 opens the paragraph as it introduces the topic-finding of footprints of people who lived 13000 years ago. 5 follows 3 as 5 provides more details about the finding, that is where exactly where the footprints were found. 5 and 4 form a mandatory pair as 4 states "there" and "sea level", which is a reference to "Calvert Island in British Columbia". 2 follows 4 as 2 tells what happened post the excavation. 1 is the concluding sentence as it leaves no space for other sentences to appear after it.

FeedBack

Q.30

Directions for question 30: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. Since we started engineering polymers to make plastic on a mass scale in the 1950s, this byproduct of the petrochemical industry, which uses about 6% of all the oil we extract a year, has spread to myriad manufacturing processes.
2. When exposed to sunlight, oxygen or the action of waves, it doesn't biodegrade but simply fragments into smaller and smaller bits, until microscopic or nano-sized particles enter the food chain, the air, the soil and the water we drink.
3. We sleep on it, wear it, watch it, and are in direct bodily contact with it in one form or other all day and night.
4. Plastic is now ubiquitous, insidious and impossible to avoid.
5. It may have profound societal benefits, but this most successful of all manmade materials sticks around for centuries.

Solution:
Correct Answer : 14352
1 introduces the topic of the paragraph- the coming up of plastic and its spread. 4 follows next as the relationship of then and now is established in 1 and 4. 3 elaborates our present activities with respect to plastic. 5 and 2 create a mandatory. 5 presents a negative aspect of plastic and 2 justifies that.

Bookmark

Answer key/Solution

FeedBack

Q.31

Directions for question 31: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. Three of them dealt with the prince's decision to pretend to be mad in order to conceal his plans for revenge.
2. John Casson was looking through the British Library's copy of François de BelleforestsHistoiresTragiques, a 1576 French text thought to have been one of the sources for Shakespeare's tragedy.
3. Annotations in the margins of a 16th-century text that is believed to have been one of the sources for Hamlet could have been made by Shakespeare himself, according to an independent researcher.
4. Casson noticed that faded ink symbols had been made in the margins next to six passages.
5. It features the story of how a Danish prince, Amleth, avenges his father's murder by his uncle, the latter going on to marry his mother, Geruthe.

Solution:
Correct Answer : 32541
3 provides the topic of the paragraph- "source for Shakespeare's tragedy". 3 and 2 create a mandatory pair as John Casson is the name of "an independent researcher", written in 3. 5 follows next as it provides some details about the text and refers to it the text as "it". 4 and 1 create a mandatory pair as "three of them" used in 1 is a reference for "six passages" in 4.

Bookmark

Answer key/Solution

FeedBack

Q.32

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

1. Working in the Brazilian state of MatoGrosso, a team led by archaeologists at the University of Exeter unearthed hundreds of villages hidden in the depths of the rainforest.
2. The discovery supports the theory that millions of people lived in the Amazon prior to the arrival of Europeans.
3. These excavations included evidence of fortifications and mysterious earthworks called geoglyphs.
4. Researchers have traditionally assumed ancient Amazonian communities stuck close to the region's river systems.
5. They eradicated much of the indigenous population through a combination of disease and warfare.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
The correct sequence is 1325. 1 introduces the topic of the paragraph- unearthing hundreds of hidden villages. "These excavations" in 3 is a reference to the unearthing that took place. 2 is an extension of 3. "They" in 5 refers to "Europeans" mentioned in 2. 4 may be a part of the same passage, but here it cannot be related to any of the given sentences.

FeedBack

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. People's data has been collected to try and understand more about them and change how they vote.
2. Facebook has been engulfed in a growing scandal over the way it harvests data.
3. The problems began when it emerged that Cambridge Analytica, a political data company, had been using Facebook to gather information.
4. Amid the confusion, various claims have come from the companies involved and the activists and users who oppose them.
5. But it is quickly broadening out – casting a light on the way data is gathered on Facebook more generally, and how it is used to sway people not only to buy things but to change how they vote and who runs the world.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
The correct sequence is 2354. 2 introduces the topic of the paragraph- facebook involved in a scandal. 3 follows next as it provides a background to the scandal. 5 follows 3 as it explains how the scandal is broadening. 4 provides a conclusion to the preceding three sentences. 1 is not a part of the above paragraph as it merely repeats what is said in 5. 5 is added in the paragraph and not 1 because 5 mentions "facebook", whereas 1 does not", and hence it could be talking about some other thing.

FeedBack

Q.34

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

1. He issued a statement on social media en route, admitting such behaviour was a "stain on the game".
2. Having been handed a 12-month ban and been sent home from South Africa by Cricket Australia, a devastated Smith touched down in Sydney on Thursday night and faced the music shortly afterwards in a highly-charged airport press conference room.
3. Steve Smith, struggling to contain his emotions and at one point breaking down completely, faced the cameras for the first time since being stripped of the Australian cricket captaincy to issue a heartfelt apology for his role in the ball tampering affair that has rocked the sport.
4. He repeatedly stated how "deeply sorry" he was for his actions, a sentiment Cameron Bancroft had expressed earlier in the evening when he landed in Perth and fronted the media.
5. The scandal has hit the team in the pocket, with naming rights sponsor Magellan pulling out of a major deal as naming rights sponsor on Thursday.

Solution:
Correct Answer : 5
The correct sequence is 3241. 3 opens the paragraph by introducing Steve Smith. 2 follows next and provides details about Smith. Either 1 or 4 could follow next. 5 may be a part of the same passage, but here it cannot be related to any of the given sentences.

Bookmark

Answer key/Solution

FeedBack

Sec 2

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

Five countries –United States (US), United Kingdom (UK), Japan, Italy and Germany – had participated in an environment meet. There were four conferences organised in the meet, one on each of the four issues –Carbon Emission, Bio Hazards, Oil Spill and Radioactive. Each of the five countries has sent at least ten delegates to the meet. Also not more than five delegates from one country participated in one conference. Further it is known that:

(i) The total number of delegates from the countries Japan, Italy and UK were different and in an Arithmetic Progression.
(ii) In all the conferences except the one on Bio Hazards, number of delegates from US was more than that of any other country. But in conference on Bio Hazards, number of delegates from US was less than that of all other countries.
(iii) In conference on Oil Spill, the number of delegates from Italy was the least while in conference on Carbon Emission, the number of delegates from UK was the least.
(iv) Germany and Japan, each have sent 11 delegates and they didn't have the highest or the lowest delegates at any conference.
(v) From Germany equal number of delegates participated only in Carbon Emission and Oil Spill, while from Japan the same number of delegates participated only in Radioactive and Bio Hazards.
(vi) In the conference on Oil Spill and on Radioactive, the number of delegates participated from UK was equal.
(vii) From Italy, distinct number of delegates participated in the conference on Bio Hazards and Carbon Emission.
(viii) No delegate attends more than one conferences and no two countries had the same number of delegates at any conference.

Q.35
Which country has the highest number of delegates in the conference on Bio Hazards?

1 **US**

2 **UK**

3 **Germany**

4 **Italy**

Bookmark

Answer key/Solution

Solution:

Correct Answer : 4

• Using (viii) and the statement that not more than five delegates from a country can participate in a conference, it can be observed that every conference has a total of 15 delegates with numbers from each country be 1, 2, 3, 4 and 5.

• Using (ii) and (iii), we can say the number of delegates sent by US in Bio hazards conference are 1, and 5 each in all other three conferences.

• Using (iii), (iv) and (v), we can calculate the number of delegates in some of the conferences and can form the following table representing the same:

	Carbon	Oil Spill	dioact	BioHazards	Total
US	5	5	5	1	16
UK	1				12
Germany					11
Italy		1			10
Japan					11
Total	15	15	15	15	60

• Using (i), it can be calculated that the only possible number of delegates from Italy and UK are 10 and 12 respectively.

• Solving further, using all other statements, the final table is as follows

	Carbon	Oil Spill	Radioactive	BioHazards	Total
US	5	5	5	1	16
UK	1	4	4	3	12
Germany	2	2	3	4	11
Italy	3	1	1	5	10
Japan	4	3	2	2	11
Total	15	15	15	15	60

FeedBack

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

Five countries –United States (US), United Kingdom (UK), Japan, Italy and Germany – had participated in an environment meet. There were four conferences organised in the meet, one on each of the four issues –Carbon Emission, Bio Hazards, Oil Spill and Radioactive. Each of the five countries has sent at least ten delegates to the meet. Also not more than five delegates from one country participated in one conference. Further it is known that:

(i) The total number of delegates from the countries Japan, Italy and UK were different and in an Arithmetic Progression.
(ii) In all the conferences except the one on Bio Hazards, number of delegates from US was more than that of any other country. But in conference on Bio Hazards, number of delegates from US was less than that of all other countries.
(iii) In conference on Oil Spill, the number of delegates from Italy was the least while in conference on Carbon Emission, the number of delegates from UK was the least.
(iv) Germany and Japan, each have sent 11 delegates and they didn't have the highest or the lowest delegates at any conference.
(v) From Germany equal number of delegates participated only in Carbon Emission and Oil Spill, while from Japan the same number of delegates participated only in Radioactive and Bio Hazards.
(vi) In the conference on Oil Spill and on Radioactive, the number of delegates participated from UK was equal.
(vii) From Italy, distinct number of delegates participated in the conference on Bio Hazards and Carbon Emission.
(viii) No delegate attends more than one conferences and no two countries had the same number of delegates at any conference.

Q.36
Which country has the least number of delegates at the meet?

1 **US**

2 **UK**

3 **Germany**

4 **Italy**

Bookmark

Answer key/Solution

Solution:

Correct Answer : 4

• Using (viii) and the statement that not more than five delegates from a country can participate in a conference, it can be observed that every conference has a total of 15 delegates with numbers from each country be 1, 2, 3, 4 and 5.

• Using (ii) and (iii), we can say the number of delegates sent by US in Bio hazards conference are 1, and 5 each in all other three conferences.

• Using (iii), (iv) and (v), we can calculate the number of delegates in some of the conferences and can form the following table representing the same:

	Carbon	Oil Spill	dioact	BioHazards	Total
US	5	5	5	1	16
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Germany					11
Italy		1			10
Japan					11
Total	15	15	15	15	60

• Using (i), it can be calculated that the only possible number of delegates from Italy and UK are 10 and 12 respectively.

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	Carbon	Oil Spill	Radioactive	BioHazards	Total
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UK	1	4	4	3	12
Germany	2	2	3	4	11
Italy	3	1	1	5	10
Japan	4	3	2	2	11
Total	15	15	15	15	60

FeedBack

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

Five countries –United States (US), United Kingdom (UK), Japan, Italy and Germany – had participated in an environment meet. There were four conferences organised in the meet, one on each of the four issues –Carbon Emission, Bio Hazards, Oil Spill and Radioactive. Each of the five countries has sent at least ten delegates to the meet. Also not more than five delegates from one country participated in one conference. Further it is known that:

(i) The total number of delegates from the countries Japan, Italy and UK were different and in an Arithmetic Progression.
(ii) In all the conferences except the one on Bio Hazards, number of delegates from US was more than that of any other country. But in conference on Bio Hazards, number of delegates from US was less than that of all other countries.
(iii) In conference on Oil Spill, the number of delegates from Italy was the least while in conference on Carbon Emission, the number of delegates from UK was the least.
(iv) Germany and Japan, each have sent 11 delegates and they didn't have the highest or the lowest delegates at any conference.
(v) From Germany equal number of delegates participated only in Carbon Emission and Oil Spill, while from Japan the same number of delegates participated only in Radioactive and Bio Hazards.
(vi) In the conference on Oil Spill and on Radioactive, the number of delegates participated from UK was equal.
(vii) From Italy, distinct number of delegates participated in the conference on Bio Hazards and Carbon Emission.
(viii) No delegate attends more than one conferences and no two countries had the same number of delegates at any conference.

Q.37
Which country has the 3rd highest number of delegates for Radioactive conference?

1 **US**

2 **UK**

3 **Germany**

4 **Japan**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3

• Using (viii) and the statement that not more than five delegates from a country can participate in a conference, it can be observed that every conference has a total of 15 delegates with numbers from each country be 1, 2, 3, 4 and 5.

• Using (ii) and (iii), we can say the number of delegates sent by US in Bio hazards conference are 1, and 5 each in all other three conferences.

• Using (iii), (iv) and (v), we can calculate the number of delegates in some of the conferences and can form the following table representing the same:

	Carbon	Oil Spill	dioact	BioHazards	Total
US	5	5	5	1	16
UK	1				12
Germany					11
Italy		1			10
Japan					11
Total	15	15	15	15	60

• Using (i), it can be calculated that the only possible number of delegates from Italy and UK are 10 and 12 respectively.

• Solving further, using all other statements, the final table is as follows

	Carbon	Oil Spill	Radioactive	BioHazards	Total
US	5	5	5	1	16
UK	1	4	4	3	12
Germany	2	2	3	4	11
Italy	3	1	1	5	10
Japan	4	3	2	2	11
Total	15	15	15	15	60

FeedBack

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

Five countries –United States (US), United Kingdom (UK), Japan, Italy and Germany – had participated in an environment meet. There were four conferences organised in the meet, one on each of the four issues –Carbon Emission, Bio Hazards, Oil Spill and Radioactive. Each of the five countries has sent at least ten delegates to the meet. Also not more than five delegates from one country participated in one conference. Further it is known that:

(i) The total number of delegates from the countries Japan, Italy and UK were different and in an Arithmetic Progression.
(ii) In all the conferences except the one on Bio Hazards, number of delegates from US was more than that of any other country. But in conference on Bio Hazards, number of delegates from US was less than that of all other countries.
(iii) In conference on Oil Spill, the number of delegates from Italy was the least while in conference on Carbon Emission, the number of delegates from UK was the least.
(iv) Germany and Japan, each have sent 11 delegates and they didn't have the highest or the lowest delegates at any conference.
(v) From Germany equal number of delegates participated only in Carbon Emission and Oil Spill, while from Japan the same number of delegates participated only in Radioactive and Bio Hazards.
(vi) In the conference on Oil Spill and on Radioactive, the number of delegates participated from UK was equal.
(vii) From Italy, distinct number of delegates participated in the conference on Bio Hazards and Carbon Emission.
(viii) No delegate attends more than one conferences and no two countries had the same number of delegates at any conference.

Q.38

If Germany and Japan decided to join hands with each other, and hence be represented by the same delegates whose numbers are equivalent to the lower figure among their number of delegates sent to each conference, then how many total delegates would be there for the meet?

Bookmark

Answer key/Solution

Solution:
Correct Answer : 46

• Using (viii) and the statement that not more than five delegates from a country can participate in a conference, it can be observed that every conference has a total of 15 delegates with numbers from each country be 1, 2, 3, 4 and 5.

• Using (ii) and (iii), we can say the number of delegates sent by US in Bio hazards conference are 1, and 5 each in all other three conferences.

• Using (iii), (iv) and (v), we can calculate the number of delegates in some of the conferences and can form the following table representing the same:

	Carbon	Oil Spill	dioact	BioHazards	Total
US	5	5	5	1	16
UK	1				12
Germany					11
Italy		1			10
Japan					11
Total	15	15	15	15	60

• Using (i), it can be calculated that the only possible number of delegates from Italy and UK are 10 and 12 respectively.

• Solving further, using all other statements, the final table is as follows

	Carbon	Oil Spill	Radioactive	BioHazards	Total
US	5	5	5	1	16
UK	1	4	4	3	12
Germany	2	2	3	4	11
Italy	3	1	1	5	10
Japan	4	3	2	2	11
Total	15	15	15	15	60

All the conferences would be represented by 2 delegates for both the countries together. Hence the total number of delegates would be 46.

FeedBack

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

A confectionary store namely 'Railway Confectionary' at platform number 3 of New Delhi railway station sells ten types of appetizers –Juice, Water bottle, Snacks, Coffee, Milk Shake, Soda, Soft Drink, Burger, Patty and Cake. Store remains open from 8.00 a.m. to 8.00 p.m. everyday. The information about the cost price, selling price and the range of number of units that can be sold in a day is given below. Some cells of the table are left blank intentionally .

Name	Cost Price (in Rs.)	Selling Price (in Rs.)	Range of Sales per day (units)
Juice	12		20 – 50
Water bottle	11		30 – 50
Snacks	10		30 – 110
Coffee	8		20 – 50
Milk Shake	15		20 – 60
Soda	15	18	10 – 20
Soft Drink	18		10 – 50
Burger	18		30 – 100
Patty	9		20 – 100
Cake	14		10 – 50

Some other information is as follows:
(i) Selling price of any appetizer is not less than Rs. 8 but not more than Rs. 20. Also selling price of any appetizer is not less than its cost price.
(ii) The store purchases all its items in the starting of the month.
(iii) All transactions are in cash only.
(iv) A person buys milk shake only when he buys Snacks; a person buys soft drink only when he buys milk shake. Each person buy exactly one unit of any appetizer.
(v) A person purchasing any appetizer out of snacks, milk shake and soft drink is called good customer, and a customer purchasing all the three items is called as star customer.

Q.39

What could be the maximum profit (in Rs.) made by the store in a day from good customers, who are not star customers?

Solution:
Correct Answer : 1250

Bookmark

Answer key/Solution

Form the statement (iv), we can conclude that if a person is buying Soft Drink, he must have bought Milk Shake as well as Snacks, or we can say that there are at least 10 star customer. But we need to calculate profit from good customers, who are not star customers.
Now as we need to maximize profit, selling price of all the items should be Rs. 20
Maximum earning by selling Snacks and Milk shake = 100*20 + 50*20 = 3000
So maximum earning from good customers = Maximum earning by selling Milk shake and Snacks – cost of milk shake and snacks = 3000 - (100*10 +50*15) = 1250.

FeedBack

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

A confectionary store namely 'Railway Confectionary' at platform number 3 of New Delhi railway station sells ten types of appetizers –Juice, Water bottle, Snacks, Coffee, Milk Shake, Soda, Soft Drink, Burger, Patty and Cake. Store remains open from 8.00 a.m. to 8.00 p.m. everyday. The information about the cost price, selling price and the range of number of units that can be sold in a day is given below. Some cells of the table are left blank intentionally .

Name	Cost Price (in Rs.)	Selling Price (in Rs.)	Range of Sales per day (units)
Juice	12		20 – 50
Water bottle	11		30 – 50
Snacks	10		30 – 110
Coffee	8		20 – 50
Milk Shake	15		20 – 60
Soda	15	18	10 – 20
Soft Drink	18		10 – 50
Burger	18		30 – 100
Patty	9		20 – 100
Cake	14		10 – 50

Some other information is as follows:
(i) Selling price of any appetizer is not less than Rs. 8 but not more than Rs. 20. Also selling price of any appetizer is not less than its cost price.
(ii) The store purchases all its items in the starting of the month.
(iii) All transactions are in cash only.
(iv) A person buys milk shake only when he buys Snacks; a person buys soft drink only when he buys milk shake. Each person buy exactly one unit of any appetizer.
(v) A person purchasing any appetizer out of snacks, milk shake and soft drink is called good customer, and a customer purchasing all the three items is called as star customer.

Q.40

What could be the minimum percentage profit of the store for a day?

1 **0.375**

2 **0.405**

3 **1.27**

4 **0**

Solution:

Correct Answer : 1

Bookmark

Answer key/Solution

As selling price of all the appetizers except Soda is not given and store is not selling any item at loss. Minimum profit will be there when store sells all the items except Soda at cost price. Also, number of units sold should be maximum for the item sold at cost price and should be minimum for soda.

$$\text{Minimum profit} = \frac{30}{600+550+1100+400+900+150+800+1800+900+700} \times 100 = 0.375\%$$

FeedBack

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

A confectionary store namely 'Railway Confectionary' at platform number 3 of New Delhi railway station sells ten types of appetizers –Juice, Water bottle, Snacks, Coffee, Milk Shake, Soda, Soft Drink, Burger, Patty and Cake. Store remains open from 8.00 a.m. to 8.00 p.m. everyday. The information about the cost price, selling price and the range of number of units that can be sold in a day is given below. Some cells of the table are left blank intentionally .

Name	Cost Price (in Rs.)	Selling Price (in Rs.)	Range of Sales per day (units)
Juice	12		20 – 50
Water bottle	11		30 – 50
Snacks	10		30 – 110
Coffee	8		20 – 50
Milk Shake	15		20 – 60
Soda	15	18	10 – 20
Soft Drink	18		10 – 50
Burger	18		30 – 100
Patty	9		20 – 100
Cake	14		10 – 50

Some other information is as follows:
(i) Selling price of any appetizer is not less than Rs. 8 but not more than Rs. 20. Also selling price of any appetizer is not less than its cost price.
(ii) The store purchases all its items in the starting of the month.
(iii) All transactions are in cash only.
(iv) A person buys milk shake only when he buys Snacks; a person buys soft drink only when he buys milk shake. Each person buy exactly one unit of any appetizer.
(v) A person purchasing any appetizer out of snacks, milk shake and soft drink is called good customer, and a customer purchasing all the three items is called as star customer.

Q.41
If the selling price of every appetizer is same, what will be the approximate maximum percentage profit for a day?

1 **50**

2 **64**

3 **42**

4 **60**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

As selling price of all the appetizers is same and selling price of Soda is Rs. 18, selling price of all the appetizers should be Rs. 18.
For the maximum profit, number of units sold for Snacks, Coffee and Patty should be maximum as they are having the maximum profit/unit and should be minimum for all other items.

So, the required profit

$$= \frac{120+210+880+500+60+30+900+40}{240+330+1100+400+900+300+150+180+540+140} \times 100 = 64\%$$

FeedBack

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

A confectionary store namely 'Railway Confectionary' at platform number 3 of New Delhi railway station sells ten types of appetizers –Juice, Water bottle, Snacks, Coffee, Milk Shake, Soda, Soft Drink, Burger, Patty and Cake. Store remains open from 8.00 a.m. to 8.00 p.m. everyday. The information about the cost price, selling price and the range of number of units that can be sold in a day is given below. Some cells of the table are left blank intentionally .

Name	Cost Price (in Rs.)	Selling Price (in Rs.)	Range of Sales per day (units)
Juice	12		20 – 50
Water bottle	11		30 – 50
Snacks	10		30 – 110
Coffee	8		20 – 50
Milk Shake	15		20 – 60
Soda	15	18	10 – 20
Soft Drink	18		10 – 50
Burger	18		30 – 100
Patty	9		20 – 100
Cake	14		10 – 50

Some other information is as follows:
(i) Selling price of any appetizer is not less than Rs. 8 but not more than Rs. 20. Also selling price of any appetizer is not less than its cost price.
(ii) The store purchases all its items in the starting of the month.
(iii) All transactions are in cash only.
(iv) A person buys milk shake only when he buys Snacks; a person buys soft drink only when he buys milk shake. Each person buy exactly one unit of any appetizer.
(v) A person purchasing any appetizer out of snacks, milk shake and soft drink is called good customer, and a customer purchasing all the three items is called as star customer.

Q.42
Which of the following could be the total sales value for a day?

1 **Rs. 1600**

2 **Rs. 12800**

3 **Rs. 12900**

4 **Rs. 2650**

Solution:
Correct Answer : 4
The range of total sales value of a day for the shop is from Rs.2550 to Rs.12760. Hence only 2650, out of all the options, lies in that interval.

Bookmark

Answer key/Solution

FeedBack

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

A leading magazine conducted a survey of 4 B-Schools – S1, S2, S3 and S4 – based on the four different parameters – P1, P2, P3 and P4. In the survey, they awarded some points to the B-Schools on the different parameters. Sum of the points distributed to all the B-Schools in a parameter is equal for all the parameters. In every parameter, points got by the four B-Schools are in the form of four different Arithmetic Progressions . In any one of the four parameters, B-School getting highest point is ranked 1 and the one getting lowest point is ranked 4. It is also known that:

(i) In any parameter, all the B-Schools were awarded distinct points.
(ii) S3 was awarded 20 points in P1, and its rank is 3 in this parameter.
(iii) Points awarded to any B-School in any of the four parameters is non-negative integers.

Q.43
What could be the minimum total number of points got by a B–School?

Solution:
Correct Answer : 18
As a college is getting 20 marks in P1 and has rank 3 in this parameter, the maximum possible sum of marks distributed = 0 + 20 + 40 + 60 = 120.
Table given below represents 4 ways of distributing 120 marks so that every time college with rank 4 is getting minimum possible marks and college with rank 1 getting maximum possible marks.

Bookmark

Answer key/Solution

	Rank 1	Rank 2	Rank 3	Rank 4
P1	60	40	20	0
P2	57	39	21	3
P3	54	38	22	6
P4	51	37	23	9

Minimum sum = 0 + 3 + 6 + 9 = 18

FeedBack

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

A leading magazine conducted a survey of 4 B-Schools – S1, S2, S3 and S4 – based on the four different parameters – P1, P2, P3 and P4. In the survey, they awarded some points to the B-Schools on the different parameters. Sum of the points distributed to all the B-Schools in a parameter is equal for all the parameters. In every parameter, points got by the four B-Schools are in the form of four different Arithmetic Progressions . In any one of the four parameters, B-School getting highest point is ranked 1 and the one getting lowest point is ranked 4. It is also known that:

(i) In any parameter, all the B-Schools were awarded distinct points.
(ii) S3 was awarded 20 points in P1, and its rank is 3 in this parameter.
(iii) Points awarded to any B-School in any of the four parameters is non-negative integers.

Q.44
What could be the maximum total number of points got by a B–School?

Bookmark

Answer key/Solution

Solution:
Correct Answer : 222
As a college is getting 20 marks in P1 and has rank 3 in this parameter, the maximum possible sum of marks distributed = 0 + 20 + 40 + 60 = 120.
Table given below represents 4 ways of distributing 120 marks so that every time college with rank 4 is getting minimum possible marks and college with rank 1 getting maximum possible marks.

	Rank 1	Rank 2	Rank 3	Rank 4
P1	60	40	20	0
P2	57	39	21	3
P3	54	38	22	6
P4	51	37	23	9

Maximum sum = 51 + 54 + 57 + 60 = 222.

FeedBack

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

A leading magazine conducted a survey of 4 B-Schools – S1, S2, S3 and S4 – based on the four different parameters – P1, P2, P3 and P4. In the survey, they awarded some points to the B-Schools on the different parameters. Sum of the points distributed to all the B-Schools in a parameter is equal for all the parameters. In every parameter, points got by the four B-Schools are in the form of four different Arithmetic Progressions . In any one of the four parameters, B-School getting highest point is ranked 1 and the one getting lowest point is ranked 4. It is also known that:

(i) In any parameter, all the B-Schools were awarded distinct points.
(ii) S3 was awarded 20 points in P1, and its rank is 3 in this parameter.
(iii) Points awarded to any B-School in any of the four parameters is non-negative integers.

Q.45
If S4 got rank 4 in all the four parameters, then the total points awarded to S4 in all the four parameters put together cannot be more than

1 **18**

2 **58**

3 **72**

4 **82**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
As a college is getting 20 marks in P1 and has rank 3 in this parameter, the maximum possible sum of marks distributed = 0 + 20 + 40 + 60 = 120.
Table given below represents 4 ways of distributing 120 marks so that every time college with rank 4 is getting minimum possible marks and college with rank 1 getting maximum possible marks.

	Rank 1	Rank 2	Rank 3	Rank 4
P1	60	40	20	0
P2	57	39	21	3
P3	54	38	22	6
P4	51	37	23	9

While making the further possible cases of above table, we can see that the following AP are possible for S4 to have maximum sum:

	Rank 1	Rank 2	Rank 3	Rank 4
P1	60	40	20	0
P2	39	33	27	21
P3	36	32	28	24
P4	33	31	29	27

So, the maximum possible sum = 0 + 21 + 24 + 27 = 72

FeedBack

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

A leading magazine conducted a survey of 4 B-Schools – S1, S2, S3 and S4 – based on the four different parameters – P1, P2, P3 and P4. In the survey, they awarded some points to the B-Schools on the different parameters. Sum of the points distributed to all the B-Schools in a parameter is equal for all the parameters. In every parameter, points got by the four B-Schools are in the form of four different Arithmetic Progressions . In any one of the four parameters, B-School getting highest point is ranked 1 and the one getting lowest point is ranked 4. It is also known that:

(i) In any parameter, all the B-Schools were awarded distinct points.
(ii) S3 was awarded 20 points in P1, and its rank is 3 in this parameter.
(iii) Points awarded to any B-School in any of the four parameters is non-negative integers.

Q.46
If sum of the points distributed to all the B–Schools in a parameter is minimum possible, then total points got by a B–school in all parameters is 'a'. What could be the maximum value of 'a'?

1 **120**

2 **88**

3 **106**

4 **133**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
As a college is getting 20 marks in P1 and has rank 3 in this parameter, the maximum possible sum of marks distributed = 0 + 20 + 40 + 60 = 120.
Table given below represents 4 ways of distributing 120 marks so that every time college with rank 4 is getting minimum possible marks and college with rank 1 getting maximum possible marks.

	Rank 1	Rank 2	Rank 3	Rank 4
P1	60	40	20	0
P2	57	39	21	3
P3	54	38	22	6
P4	51	37	23	9

As a college is getting 20 marks in P1 with rank 3 in this parameter, minimum possible sum of marks distributed = 19 + 20 + 21 + 22 = 82.
Table given below represents 4 ways of distributing 82 marks so that every time college with rank 4 is getting minimum marks and college with rank 1 is getting maximum marks.

	Rank 1	Rank 2	Rank 3	Rank 4
P1	22	21	20	19
P2	34	25	16	7
P3	37	26	15	4
P4	40	27	14	1

Therefore, Maximum possible sum = 22 + 34 + 37 + 40 = 133

FeedBack

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

Five friends – A, B, C, D and E – were given certain number of packets of toffees by their parents. Each of them got different number of packets and each packet contains ten toffees. They all met under a tree and decided to exchange the toffees among themselves. Firstly A, B and D exchanged their packets amongst themselves so that no one of the three had their original number of toffees with them. Thereafter B, C and D exchanged their packets in the same manner (i.e. no one had their original number of toffees with them), and in the last C, D and E exchanged their packets in the same manner. Some additional information is given about the exchange.

1. Initially, E has the maximum number of toffees, which was not more than 60, but after all the exchange, E left with the minimum number of toffees, which was not less than 10.
2. Number of toffees with each of the friends after all exchanges was different from what they initially had.
3. Number of toffees with B and C after second exchange was 40 and 20 respectively.
4. After each exchange, no two friends have the same number of toffees.
5. Number of toffees with A, B and D after first exchange was 30, 10 and 20 respectively.
6. None of the friends has opened any packet before the final exchange.

Q.47
If number of toffees with B initially, after first exchange, after second exchange and after third exchange was a, b, c and d respectively, then which of the following can be the value of (a + b + c + d)?

1 **120**

2 **100**

3 **150**

4 **130**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

As each packet has 10 toffees and no packet is opened before the final exchange, number of toffees are in multiple of 10 with each friend. Also, using the given information we can form the following table representing the number of toffees with each friend at every stage:

	A	B	C	D	E
Initially	20/10	20/30	40	30/10	Max
After 1st exchange	30	10	40	20	Max
After 2nd exchange	30	40	20	10	Max
After 3rd exchange	30	40	Max	20	10

So, number of toffees with E can be 50 and 60 only.

Value of b, c and d is 10, 40 and 40 respectively and value a can be 20 or 30. Therefore possible sum can be either 110 or 120.

FeedBack

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

Five friends – A, B, C, D and E – were given certain number of packets of toffees by their parents. Each of them got different number of packets and each packet contains ten toffees. They all met under a tree and decided to exchange the toffees among themselves. Firstly A, B and D exchanged their packets amongst themselves so that no one of the three had their original number of toffees with them. Thereafter B, C and D exchanged their packets in the same manner (i.e. no one had their original number of toffees with them), and in the last C, D and E exchanged their packets in the same manner. Some additional information is given about the exchange.

1. Initially, E has the maximum number of toffees, which was not more than 60, but after all the exchange, E left with the minimum number of toffees, which was not less than 10.
2. Number of toffees with each of the friends after all exchanges was different from what they initially had.
3. Number of toffees with B and C after second exchange was 40 and 20 respectively.
4. After each exchange, no two friends have the same number of toffees.
5. Number of toffees with A, B and D after first exchange was 30, 10 and 20 respectively.
6. None of the friends has opened any packet before the final exchange.

Q.48
For how many persons, number of toffees with them after third exchange can be determined uniquely?

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

As each packet has 10 toffees and no packet is opened before the final exchange, number of toffees are in multiple of 10 with each friend. Also, using the given information we can form the following table representing the number of toffees with each friend at every stage:

	A	B	C	D	E
Initially	20/10	20/30	40	30/10	Max
After 1st exchange	30	10	40	20	Max
After 2nd exchange	30	40	20	10	Max
After 3rd exchange	30	40	Max	20	10

So, number of toffees with E can be 50 and 60 only.

Clearly toffees with four of the five friends can be determined uniquely, as the exact number of toffees that E initially had cannot be determined.

FeedBack

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

Five friends – A, B, C, D and E – were given certain number of packets of toffees by their parents. Each of them got different number of packets and each packet contains ten toffees. They all met under a tree and decided to exchange the toffees among themselves. Firstly A, B and D exchanged their packets amongst themselves so that no one of the three had their original number of toffees with them. Thereafter B, C and D exchanged their packets in the same manner (i.e. no one had their original number of toffees with them), and in the last C, D and E exchanged their packets in the same manner. Some additional information is given about the exchange.

1. Initially, E has the maximum number of toffees, which was not more than 60, but after all the exchange, E left with the minimum number of toffees, which was not less than 10.
2. Number of toffees with each of the friends after all exchanges was different from what they initially had.
3. Number of toffees with B and C after second exchange was 40 and 20 respectively.
4. After each exchange, no two friends have the same number of toffees.
5. Number of toffees with A, B and D after first exchange was 30, 10 and 20 respectively.
6. None of the friends has opened any packet before the final exchange.

Q.49
Which of the following is the number of toffees E initially had?

1 **50**

2 **60**

3 **40**

4 **either (1) or (2)**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

As each packet has 10 toffees and no packet is opened before the final exchange, number of toffees are in multiple of 10 with each friend. Also, using the given information we can form the following table representing the number of toffees with each friend at every stage:

	A	B	C	D	E
Initially	20/10	20/30	40	30/10	Max
After 1st exchange	30	10	40	20	Max
After 2nd exchange	30	40	20	10	Max
After 3rd exchange	30	40	Max	20	10

So, number of toffees with E can be 50 and 60 only.

E can have either 50 or 60 toffees with him initially.

FeedBack

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

Five friends – A, B, C, D and E – were given certain number of packets of toffees by their parents. Each of them got different number of packets and each packet contains ten toffees. They all met under a tree and decided to exchange the toffees among themselves. Firstly A, B and D exchanged their packets amongst themselves so that no one of the three had their original number of toffees with them. Thereafter B, C and D exchanged their packets in the same manner (i.e. no one had their original number of toffees with them), and in the last C, D and E exchanged their packets in the same manner. Some additional information is given about the exchange.

1. Initially, E has the maximum number of toffees, which was not more than 60, but after all the exchange, E left with the minimum number of toffees, which was not less than 10.
2. Number of toffees with each of the friends after all exchanges was different from what they initially had.
3. Number of toffees with B and C after second exchange was 40 and 20 respectively.
4. After each exchange, no two friends have the same number of toffees.
5. Number of toffees with A, B and D after first exchange was 30, 10 and 20 respectively.
6. None of the friends has opened any packet before the final exchange.

Q.50

Which of the following statements is sufficient to find out the number of toffees with each of the five friends initially, after first exchange, after second exchange and after third exchange?

1 **C initially had 40 toffees.**

2 **Initially difference between number of toffees with A and E was 40.**

3 **Initially difference between number of toffees with A and C was 30.**

4 **None of these**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

As each packet has 10 toffees and no packet is opened before the final exchange, number of toffees are in multiple of 10 with each friend. Also, using the given information we can form the following table representing the number of toffees with each friend at every stage:

	A	B	C	D	E
Initially	20/10	20/30	40	30/10	Max
After 1st exchange	30	10	40	20	Max
After 2nd exchange	30	40	20	10	Max
After 3rd exchange	30	40	Max	20	10

So, number of toffees with E can be 50 and 60 only.

None of the given options provide information about number of toffees that E initially had. Hence answer will become option (4).

FeedBack

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

There are five athletes - Raman, Tara, Harjinder, Karan and Vishal - who participated in a unique type of race of length 3km. In the race, they covered the distance in three ways i.e., by running, walking and jumping. They covered the distance by using all the three ways. Some additional information about the race is as follows:
1. Each of the five athletes took different time (in minutes) to cover the total distance.
2. Each of the five athletes spent equal time on each of the three ways to cover the distance. For example, If an athlete A spent x minutes on running, then the time spent by him on walking and jumping each is also x minutes.
3. Total time (in minutes) spent by each of the five athletes was an integral multiple of 3.
4. Race is finished when all the athletes covered the total distance of 3km.
5. Average speed (in meter per minute) for each of the five athletes was a positive integer.
6. Total time taken (in minutes) by each of the five athletes is a three digit number.

The following table provides us with the relative speed of the five athletes, where rank 1 being the fastest athlete and rank 5 being the slowest athlete.

Rank	1	2	3	4	5
Running	Harjinder	Raman	Karan	Tara	Vishal
Walking	Tara	Karan	Raman	Vishal	Harjinder
Jumping	Karan	Tara	Harjinder	Raman	Vishal

Q.51
Which of the following cannot be the value of sum of average speed of all the five athletes?

1 **72**

2 **68**

3 **52**

4 **47**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
As time taken to cover the distance by each of the five athletes must be a three digit number and must be a multiple of three, possible values for total time, say '3t', lie between 102 and 999 which are also multiple of 3.
But as the average speed was also given as a positive integer, total time has to be factor of 3000 also.
So, possible values for '3t' with all the required conditions are equivalent to possible values of 't' lying between 34 and 333, also being factors of 1000 , i.e. $2^3 \times 5^3$.

Possible Times (in minutes)	750	600	375	300	150	120
Average speed (in m/minutes)	4	5	8	10	20	25

From the table given above, maximum sum of average speed of the five athletes = 25 + 20 + 10 + 8 + 5 = 68, so 72 cannot be the sum of average speeds.

FeedBack

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

There are five athletes - Raman, Tara, Harjinder, Karan and Vishal - who participated in a unique type of race of length 3km. In the race, they covered the distance in three ways i.e., by running, walking and jumping. They covered the distance by using all the three ways. Some additional information about the race is as follows:
1. Each of the five athletes took different time (in minutes) to cover the total distance.
2. Each of the five athletes spent equal time on each of the three ways to cover the distance. For example, If an athlete A spent x minutes on running, then the time spent by him on walking and jumping each is also x minutes.
3. Total time (in minutes) spent by each of the five athletes was an integral multiple of 3.
4. Race is finished when all the athletes covered the total distance of 3km.
5. Average speed (in meter per minute) for each of the five athletes was a positive integer.
6. Total time taken (in minutes) by each of the five athletes is a three digit number.

The following table provides us with the relative speed of the five athletes, where rank 1 being the fastest athlete and rank 5 being the slowest athlete.

Rank	1	2	3	4	5
Running	Harjinder	Raman	Karan	Tara	Vishal
Walking	Tara	Karan	Raman	Vishal	Harjinder
Jumping	Karan	Tara	Harjinder	Raman	Vishal

Q.52
What can be the maximum time (in minutes) to finish the race?

1 **375**

2 **150**

3 **300**

4 **None of these**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
As time taken to cover the distance by each of the five athletes must be a three digit number and must be a multiple of three, possible values for total time, say '3t', lie between 102 and 999 which are also multiple of 3.
But as the average speed was also given as a positive integer, total time has to be factor of 3000 also.
So, possible values for '3t' with all the required conditions are equivalent to possible values of 't' lying between 34 and 333, also being factors of 1000 , i.e. $2^3 \times 5^3$.

Possible Times (in minutes)	750	600	375	300	150	120
Average speed (in m/minutes)	4	5	8	10	20	25

As race will be finished when all the five athletes cover the distance of 3km, maximum time to finish the race is 750 minutes.

FeedBack

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

There are five athletes - Raman, Tara, Harjinder, Karan and Vishal - who participated in a unique type of race of length 3km. In the race, they covered the distance in three ways i.e., by running, walking and jumping. They covered the distance by using all the three ways. Some additional information about the race is as follows:
1. Each of the five athletes took different time (in minutes) to cover the total distance.
2. Each of the five athletes spent equal time on each of the three ways to cover the distance. For example, If an athlete A spent x minutes on running, then the time spent by him on walking and jumping each is also x minutes.
3. Total time (in minutes) spent by each of the five athletes was an integral multiple of 3.
4. Race is finished when all the athletes covered the total distance of 3km.
5. Average speed (in meter per minute) for each of the five athletes was a positive integer.
6. Total time taken (in minutes) by each of the five athletes is a three digit number.

The following table provides us with the relative speed of the five athletes, where rank 1 being the fastest athlete and rank 5 being the slowest athlete.

Rank	1	2	3	4	5
Running	Harjinder	Raman	Karan	Tara	Vishal
Walking	Tara	Karan	Raman	Vishal	Harjinder
Jumping	Karan	Tara	Harjinder	Raman	Vishal

Q.53

If the time taken to finish the race is maximum possible, and the speed of all the five athletes was integer (in meter per minute) during all the three ways, find the maximum speed (in meter per minute), when running, of the player who finished last?

Bookmark

Answer key/Solution

Solution:
Correct Answer : 10
As time taken to cover the distance by each of the five athletes must be a three digit number and must be a multiple of three, possible values for total time, say '3t', lie between 102 and 999 which are also multiple of 3.
But as the average speed was also given as a positive integer, total time has to be factor of 3000 also.
So, possible values for '3t' with all the required conditions are equivalent to possible values of 't' lying between 34 and 333, also being factors of 1000 , i.e. $2^3 \times 5^3$.

Possible Times (in minutes)	750	600	375	300	150	120
Average speed (in m/minutes)	4	5	8	10	20	25

Maximum possible time taken to finish the race = 750 minutes.
So, average speed of the player who finished last = 3000/750 = 4m per minute.
For maximum speed while running, speed while walking and jumping must be minimum possible.
And minimum possible speed when walking and jumping can be 1m/minute.
Therefore maximum distance covered when running = 3000 – (250 × 1) - (250 × 1) = 3000 – 500 = 2500.
And hence maximum speed while running = 2500/250 = 10 m/minute.

FeedBack

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

There are five athletes - Raman, Tara, Harjinder, Karan and Vishal - who participated in a unique type of race of length 3km. In the race, they covered the distance in three ways i.e., by running, walking and jumping. They covered the distance by using all the three ways. Some additional information about the race is as follows:
1. Each of the five athletes took different time (in minutes) to cover the total distance.
2. Each of the five athletes spent equal time on each of the three ways to cover the distance. For example, If an athlete A spent x minutes on running, then the time spent by him on walking and jumping each is also x minutes.
3. Total time (in minutes) spent by each of the five athletes was an integral multiple of 3.
4. Race is finished when all the athletes covered the total distance of 3km.
5. Average speed (in meter per minute) for each of the five athletes was a positive integer.
6. Total time taken (in minutes) by each of the five athletes is a three digit number.

The following table provides us with the relative speed of the five athletes, where rank 1 being the fastest athlete and rank 5 being the slowest athlete.

Rank	1	2	3	4	5
Running	Harjinder	Raman	Karan	Tara	Vishal
Walking	Tara	Karan	Raman	Vishal	Harjinder
Jumping	Karan	Tara	Harjinder	Raman	Vishal

Q.54
The minimum time (in minutes) taken by the athlete who finished third is

1 **375**

2 **300**

3 **120**

4 **150**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
As time taken to cover the distance by each of the five athletes must be a three digit number and must be a multiple of three, possible values for total time, say '3t', lie between 102 and 999 which are also multiple of 3.
But as the average speed was also given as a positive integer, total time has to be factor of 3000 also.
So, possible values for '3t' with all the required conditions are equivalent to possible values of 't' lying between 34 and 333, also being factors of 1000 , i.e. $2^3 \times 5^3$.

Possible Times (in minutes)	750	600	375	300	150	120
Average speed (in m/minutes)	4	5	8	10	20	25

Minimum possible time taken to finish the race = 120 minutes
In this way, time taken by the five athletes are 600, 375, 300, 150 and 120 minutes.
Therefore time taken by the one who finished third = 300 minutes.

FeedBack

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

ABC school takes in a total of 200 students every year for admissions in class 3rd to 10th. Out of which, 60% are girls and rest are boys. Out of the 200 seats available in the school, 45% are reserved for the under privileged students, and 15% reserved for the children of defence families. From a family maximum 2 children can get admission in that school. If the applications are more than the intake, lottery will be done keeping in mind the above mentioned constraints. The following table provides the details of the applications submitted for the April' 2018 session:

Categories	Number of Families	Boys	Girls
Under privileged	100	74	52
Defence	40	18	34
Others	75	50	44

Even after knowing that maximum of only 2 children per family could get admission in the school, 20 families, who had 3 children, still submitted the application for all of them.

Q.55
What can be the minimum number of families with only a girl child who also got selected?

1 ○ **46**

2 **36**

3 **26**

4 **12**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Let the number of families with 1, 2 and 3 children be x, y and z respectively.
∴ x + 2y + 3z = 74 + 52 + 18 + 34 + 50 + 44 = 272 i.e, total applications submitted
and x + y + z = 215 i.e, total families applied
As z = 20, solving above two equations, we get
x = 178 and y = 17

Gender	Selected	Applied
Male	80	142
Female	120	130

Categories	No. of Families	Male	Female	Selected
Underprivileged	100	74	52	90
Defense	40	18	34	30
Others	75	50	44	80

Minimum number = 120 – 17 × 2 – 20 × 2 = 46

FeedBack

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

ABC school takes in a total of 200 students every year for admissions in class 3rd to 10th. Out of which, 60% are girls and rest are boys. Out of the 200 seats available in the school, 45% are reserved for the under privileged students, and 15% reserved for the children of defence families. From a family maximum 2 children can get admission in that school. If the applications are more than the intake, lottery will be done keeping in mind the above mentioned constraints. The following table provides the details of the applications submitted for the April' 2018 session:

Categories	Number of Families	Boys	Girls
Under privileged	100	74	52
Defence	40	18	34
Others	75	50	44

Even after knowing that maximum of only 2 children per family could get admission in the school, 20 families, who had 3 children, still submitted the application for all of them.

Q.56

What can be the maximum number of under privileged families with 2 children and both selected?

1 **10**

2 **13**

3 **16**

4 **5**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Let the number of families with 1, 2 and 3 children be x, y and z respectively.
∴ x + 2y + 3z = 74 + 52 + 18 + 34 + 50 + 44 = 272 i.e, total applications submitted
and x + y + z = 215 i.e, total families applied
As z = 20, solving above two equations, we get
x = 178 and y = 17

Gender	Selected	Applied
Male	80	142
Female	120	130

Categories	No. of Families	Male	Female	Selected
Underprivileged	100	74	52	90
Defense	40	18	34	30
Others	75	50	44	80

Let the number of underprivileged families with 1, 2 and 3 children be a, b and c respectively.
∴ a + b + c = 100
and a + 2b + 3c = 126
⇒ b + 2c = 26..... (i)
The same can be done for other categories as well.
We get the following table on using the above result

Categories	Maximum number of three children family	Maximum number of two children family
Underprivileged	13	26
Defense	6	12
Others	9	19

∴ Minimum number of possible underprivileged three children family = 20 – 6 – 9 = 5
⇒ Maximum number of two children family where both selected = 16 {from eq.(i)}

FeedBack

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

ABC school takes in a total of 200 students every year for admissions in class 3rd to 10th. Out of which, 60% are girls and rest are boys. Out of the 200 seats available in the school, 45% are reserved for the under privileged students, and 15% reserved for the children of defence families. From a family maximum 2 children can get admission in that school. If the applications are more than the intake, lottery will be done keeping in mind the above mentioned constraints. The following table provides the details of the applications submitted for the April' 2018 session:

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Under privileged	100	74	52
Defence	40	18	34
Others	75	50	44

Even after knowing that maximum of only 2 children per family could get admission in the school, 20 families, who had 3 children, still submitted the application for all of them.

Q.57

What is the maximum number of families with two children in 'others' category, out of which only 1 child was selected?

1 **7**

2 **11**

3 **13**

4 **5**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Let the number of families with 1, 2 and 3 children be x, y and z respectively.
∴ x + 2y + 3z = 74 + 52 + 18 + 34 + 50 + 44 = 272 i.e, total applications submitted
and x + y + z = 215 i.e, total families applied
As z = 20, solving above two equations, we get
x = 178 and y = 17

Gender	Selected	Applied
Male	80	142
Female	120	130

Categories	No. of Families	Male	Female	Selected
Underprivileged	100	74	52	90
Defense	40	18	34	30
Others	75	50	44	80

Minimum number of three children family for others = 1 (20 – 13 – 6)
Assume two children of these three children family are selected
⇒ Maximum possible value of two children family = 17
Now, let us assume that only 1 child of these 17 families is selected
Number of 1 child family in case of others = 75 – 17 – 1 = 57
Assume all 1 child family are selected
∴ Total children from others selected = 57 + 2 + 17 = 76
But the total should be 80 ∴ 4 families with two children must have both their kids selected.
∴ Maximum possible value = 17 – 4 = 13.

FeedBack

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

ABC school takes in a total of 200 students every year for admissions in class 3rd to 10th. Out of which, 60% are girls and rest are boys. Out of the 200 seats available in the school, 45% are reserved for the under privileged students, and 15% reserved for the children of defence families. From a family maximum 2 children can get admission in that school. If the applications are more than the intake, lottery will be done keeping in mind the above mentioned constraints. The following table provides the details of the applications submitted for the April' 2018 session:

Categories	Number of Families	Boys	Girls
Under privileged	100	74	52
Defence	40	18	34
Others	75	50	44

Even after knowing that maximum of only 2 children per family could get admission in the school, 20 families, who had 3 children, still submitted the application for all of them.

Q.58

What is the maximum possible number of male child selected from defence family?

1 **10**

2 **12**

3 **8**

4 **6**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Let the number of families with 1, 2 and 3 children be x, y and z respectively.
∴ x + 2y + 3z = 74 + 52 + 18 + 34 + 50 + 44 = 272 i.e, total applications submitted
and x + y + z = 215 i.e, total families applied
As z = 20, solving above two equations, we get
x = 178 and y = 17

Gender	Selected	Applied
Male	80	142
Female	120	130

Categories	No. of Families	Male	Female	Selected
Underprivileged	100	74	52	90
Defense	40	18	34	30
Others	75	50	44	80

Minimum possible female defense child = (120 – (52 + 44)) = 24
∴ Maximum possible defense male child selected = 30 – 24 = 6

FeedBack

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

The head of Swachh Bharat Mission, B. Chandraleka, set up a mission to make India a dumping yard free society. She picked up five scientists of various domains and origins to frame a master plan.

The scientists chosen by her were Rama, Bupa, Peter, Maku and Sayeed with their specialization in leachate reduction, afforestation, debugging, water science, and environment sustainability, not necessarily in the same order.
They purchased their experimental equipments from Denmark, California, Libya, Nigeria and Kenya of different colors from Black, Red, Yellow, White and Grey, in any order.
Some of them worked for NAMO and the remaining for RAGA.

Some additional information about them is also known.
(i) The one who specialised in environment sustainability purchased his equipment from Denmark.
(ii) Both, the afforestation scientist and the one whose equipments are white in color, worked for RAGA.
(iii) Peter is neither an afforestation scientist nor he purchased his equipments from Libya.
(iv) Maku, a leachate reduction scientist, worked for RAGA
(v) Bupa worked for NAMO.
(vi) All three persons - the one whose equipments are grey, the one who purchased his equipments from Libya and the one who purchased his equipments from Nigeria, worked for NAMO.
(vii) The afforestation scientist has yellow color equipments.
(viii) Rama's equipments are neither yellow nor grey.
(ix) Neither Bupa nor Rama is a water scientist.
(x) Sayeed's equipments are not from California.
(xi) The one whose specialization is in debugging don't have red equipments.

Q.59
Which of the following scientists worked for RAGA?

1 **Peter and Rama**

2 **Sayeed and Rama**

3 **Sayeed and Maku**

4 **Maku and Peter**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

As per the information given in the question about the scientists, we can form the following table:

Name	Working for	Specialization	Equipment's purchased from	Equipment's Color
Sayeed	RAGA	Afforestation	Kenya	Yello
Maku	RAGA	Lechate Reduction	California	White
Bupa	NAMO	Environment Sustainability	Denmark	Grey
Rama	NAMO	Debugging	Libya	Black
Peter	NAMO	Water Sciences	Nigeria	Red

Only Sayeed and Maku has worked for RAGA, and the other three for NAMO.

FeedBack

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

The head of Swachh Bharat Mission, B. Chandraleka, set up a mission to make India a dumping yard free society. She picked up five scientists of various domains and origins to frame a master plan.

The scientists chosen by her were Rama, Bupa, Peter, Maku and Sayeed with their specialization in leachate reduction, afforestation, debugging, water science, and environment sustainability, not necessarily in the same order.
They purchased their experimental equipments from Denmark, California, Libya, Nigeria and Kenya of different colors from Black, Red, Yellow, White and Grey, in any order.
Some of them worked for NAMO and the remaining for RAGA.

Some additional information about them is also known.
(i) The one who specialised in environment sustainability purchased his equipment from Denmark.
(ii) Both, the afforestation scientist and the one whose equipments are white in color, worked for RAGA.
(iii) Peter is neither an afforestation scientist nor he purchased his equipments from Libya.
(iv) Maku, a leachate reduction scientist, worked for RAGA
(v) Bupa worked for NAMO.
(vi) All three persons - the one whose equipments are grey, the one who purchased his equipments from Libya and the one who purchased his equipments from Nigeria, worked for NAMO.
(vii) The afforestation scientist has yellow color equipments.
(viii) Rama's equipments are neither yellow nor grey.
(ix) Neither Bupa nor Rama is a water scientist.
(x) Sayeed's equipments are not from California.
(xi) The one whose specialization is in debugging don't have red equipments.

Q.60
Who specialised in environment sustainability?

1 **Bupa**

2 **Rama**

3 **Peter**

4 **Cannot be determined**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

As per the information given in the question about the scientists, we can form the following table:

Name	Working for	Specialization	Equipment's purchased from	Equipment's Color
Sayeed	RAGA	Afforestation	Kenya	Yello
Maku	RAGA	Lechate Reduction	California	White
Bupa	NAMO	Environment Sustainability	Denmark	Grey
Rama	NAMO	Debugging	Libya	Black
Peter	NAMO	Water Sciences	Nigeria	Red

Bupa has his specialization in environment sustainability.

FeedBack

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

The head of Swachh Bharat Mission, B. Chandraleka, set up a mission to make India a dumping yard free society. She picked up five scientists of various domains and origins to frame a master plan.

The scientists chosen by her were Rama, Bupa, Peter, Maku and Sayeed with their specialization in leachate reduction, afforestation, debugging, water science, and environment sustainability, not necessarily in the same order.
They purchased their experimental equipments from Denmark, California, Libya, Nigeria and Kenya of different colors from Black, Red, Yellow, White and Grey, in any order.
Some of them worked for NAMO and the remaining for RAGA.

Some additional information about them is also known.
(i) The one who specialised in environment sustainability purchased his equipment from Denmark.
(ii) Both, the afforestation scientist and the one whose equipments are white in color, worked for RAGA.
(iii) Peter is neither an afforestation scientist nor he purchased his equipments from Libya.
(iv) Maku, a leachate reduction scientist, worked for RAGA
(v) Bupa worked for NAMO.
(vi) All three persons - the one whose equipments are grey, the one who purchased his equipments from Libya and the one who purchased his equipments from Nigeria, worked for NAMO.
(vii) The afforestation scientist has yellow color equipments.
(viii) Rama's equipments are neither yellow nor grey.
(ix) Neither Bupa nor Rama is a water scientist.
(x) Sayeed's equipments are not from California.
(xi) The one whose specialization is in debugging don't have red equipments.

Q.61
Which of the following combinations is correct?

1 **Bupa – Water – California**

2 **Bupa – Afforestation – Denmark**

3 **Peter – RAGA – Nigeria**

4 **Peter – NAMO – Nigeria**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

As per the information given in the question about the scientists, we can form the following table:

Name	Working for	Specialization	Equipment's purchased from	Equipment's Color
Sayeed	RAGA	Afforestation	Kenya	Yello
Maku	RAGA	Lechate Reduction	California	White
Bupa	NAMO	Environment Sustainability	Denmark	Grey
Rama	NAMO	Debugging	Libya	Black
Peter	NAMO	Water Sciences	Nigeria	Red

The combination which shows Peter, who purchased his equipments from Nigeria and worked for NAMO is the only correct combination.

FeedBack

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

The head of Swachh Bharat Mission, B. Chandraleka, set up a mission to make India a dumping yard free society. She picked up five scientists of various domains and origins to frame a master plan.

The scientists chosen by her were Rama, Bupa, Peter, Maku and Sayeed with their specialization in leachate reduction, afforestation, debugging, water science, and environment sustainability, not necessarily in the same order.
They purchased their experimental equipments from Denmark, California, Libya, Nigeria and Kenya of different colors from Black, Red, Yellow, White and Grey, in any order.
Some of them worked for NAMO and the remaining for RAGA.

Some additional information about them is also known.
(i) The one who specialised in environment sustainability purchased his equipment from Denmark.
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(iii) Peter is neither an afforestation scientist nor he purchased his equipments from Libya.
(iv) Maku, a leachate reduction scientist, worked for RAGA
(v) Bupa worked for NAMO.
(vi) All three persons - the one whose equipments are grey, the one who purchased his equipments from Libya and the one who purchased his equipments from Nigeria, worked for NAMO.
(vii) The afforestation scientist has yellow color equipments.
(viii) Rama's equipments are neither yellow nor grey.
(ix) Neither Bupa nor Rama is a water scientist.
(x) Sayeed's equipments are not from California.
(xi) The one whose specialization is in debugging don't have red equipments.

Q.62
The scientists who worked for NAMO have equipments of which color?

1 **Red, Black, Yellow**

2 **Grey, Red, Yellow**

3 **Grey, Black, Red**

4 **Yellow, White, Grey**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

As per the information given in the question about the scientists, we can form the following table:

Name	Working for	Specialization	Equipment's purchased from	Equipment's Color
Sayeed	RAGA	Afforestation	Kenya	Yello
Maku	RAGA	Lechate Reduction	California	White
Bupa	NAMO	Environment Sustainability	Denmark	Grey
Rama	NAMO	Debugging	Libya	Black
Peter	NAMO	Water Sciences	Nigeria	Red

As can be seen from the table above, scientists worked for NAMO have equipments of Grey, Black and Red color.

FeedBack

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

In a group of 300 people, 170 drink alcohol, 140 smoke, and 100 people chew tobacco. Everyone belongs to at least one of the 3 aforementioned categories. All those people who drink alcohol, also play Poker. All those people who smoke, also play Black Jack. All those people who chew tobacco, also play Roulette. Out of those group of 300 people, 210 play Poker, 170 play Black Jack and 220 play Roulette. No one play all the 3 games, and everyone plays at least one of the 3 games.

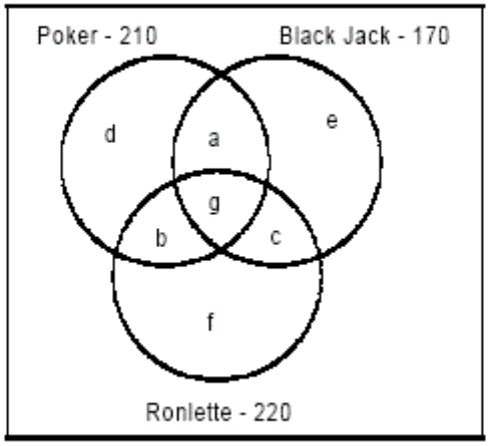
Q.63
What can be the maximum number of persons who drink alcohol and also play both Poker and Black Jack?

Solution:
Correct Answer : 80

Bookmark

Answer key/Solution

Let us form a venn-diagram for the people playing the three mentioned games.



Since no one plays all the three games, g = 0.
Now as per the numbers given in the question, we can form the following equations:
a + b + d = 210 ..... (i)
a + e + c = 170 ..... (ii)
b + c + f = 220 ..... (iii)
a + b + c + d + e + f = 300 .....(iv)
Adding (i), (ii), (iii), we get
2a + 2b + 2c + d + e + f =600 .....(v)
Solving (iv) and (v), we get
a + b + c =300
$\Rightarrow$ d = e = f = 0
This implies, every person plays exactly two games.
Also, putting d, e and f equals to 0 in the equations (i), (ii) and (iii), and solving it further we get a = 80, b = 130 and c = 90.
Note: Since there is no one who plays all 3 games, it implies there is no one doing all 3 i.e. drink, smoke as well as chew tobacco.

Since there are maximum 80 persons who can play both Black jack and Poker, so we can have maximum those 80 persons only who drink and play Black Jack as well as Poker.

FeedBack

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

In a group of 300 people, 170 drink alcohol, 140 smoke, and 100 people chew tobacco. Everyone belongs to at least one of the 3 aforementioned categories. All those people who drink alcohol, also play Poker. All those people who smoke, also play Black Jack. All those people who chew tobacco, also play Roulette. Out of those group of 300 people, 210 play Poker, 170 play Black Jack and 220 play Roulette. No one play all the 3 games, and everyone plays at least one of the 3 games.

Q.64
What can be the maximum number of persons who smoke and also play Poker?

1 **170**

2 **140**

3 **210**

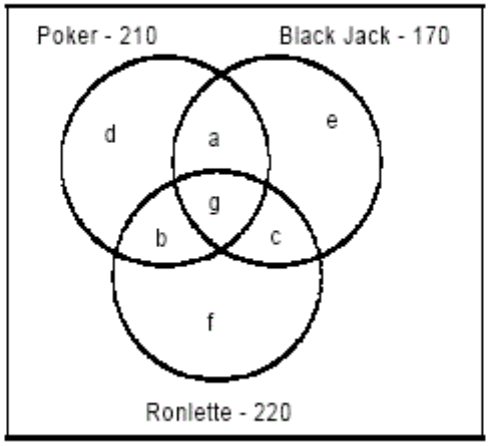
4 **80**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Let us form a venn-diagram for the people playing the three mentioned games.



Since no one plays all the three games, g = 0.
Now as per the numbers given in the question, we can form the following equations:
a + b + d = 210 ..... (i)
a + e + c = 170 ..... (ii)
b + c + f = 220 ..... (iii)
a + b + c + d + e + f = 300 .....(iv)
Adding (i), (ii), (iii), we get
2a + 2b + 2c + d + e + f =600 .....(v)
Solving (iv) and (v), we get
a + b + c =300
$\Rightarrow$ d = e = f = 0
This implies, every person plays exactly two games.
Also, putting d, e and f equals to 0 in the equations (i), (ii) and (iii), and solving it further
we get a = 80, b = 130 and c = 90.
Note: Since there is no one who plays all 3 games, it implies there is no one doing all 3 i.e. drink, smoke as well as chew tobacco.

We known all smokers play black jack and there are only 80 persons who play both black Jack as well as Poker, so maximum number of persons who smoke and play poker is 80.

FeedBack

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

In a group of 300 people, 170 drink alcohol, 140 smoke, and 100 people chew tobacco. Everyone belongs to at least one of the 3 aforementioned categories. All those people who drink alcohol, also play Poker. All those people who smoke, also play Black Jack. All those people who chew tobacco, also play Roulette. Out of those group of 300 people, 210 play Poker, 170 play Black Jack and 220 play Roulette. No one play all the 3 games, and everyone plays at least one of the 3 games.

Q.65

What can be the maximum number of persons who drink as well as smoke, and also play Roulette?

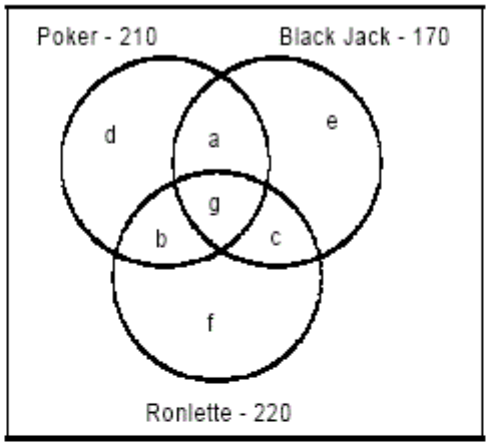
Solution:

Correct Answer : 0

Bookmark

Answer key/Solution

Let us form a venn-diagram for the people playing the three mentioned games.



Since no one plays all the three games, g = 0.
Now as per the numbers given in the question, we can form the following equations:
a + b + d = 210 ..... (i)
a + e + c = 170 ..... (ii)
b + c + f = 220 ..... (iii)
a + b + c + d + e + f = 300 .....(iv)
Adding (i), (ii), (iii), we get
2a + 2b + 2c + d + e + f =600 .....(v)
Solving (iv) and (v), we get
a + b + c =300
$\Rightarrow$ d = e = f = 0
This implies, every person plays exactly two games.
Also, putting d, e and f equals to 0 in the equations (i), (ii) and (iii), and solving it further we get a = 80, b = 130 and c = 90.
Note: Since there is no one who plays all 3 games, it implies there is no one doing all 3 i.e. drink, smoke as well as chew tobacco.

All drinker play Poker, and smokers play Black Jack. So, those who are drinkers and smokers play poker and Black Jack both. Now, if they play Roulette also it means they are playing all 3 games which is not possible.

FeedBack

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

In a group of 300 people, 170 drink alcohol, 140 smoke, and 100 people chew tobacco. Everyone belongs to at least one of the 3 aforementioned categories. All those people who drink alcohol, also play Poker. All those people who smoke, also play Black Jack. All those people who chew tobacco, also play Roulette. Out of those group of 300 people, 210 play Poker, 170 play Black Jack and 220 play Roulette. No one play all the 3 games, and everyone plays at least one of the 3 games.

Q.66
What can be the minimum number of persons who smoke but do not play Roulette?

1 **90**

2 **50**

3 **140**

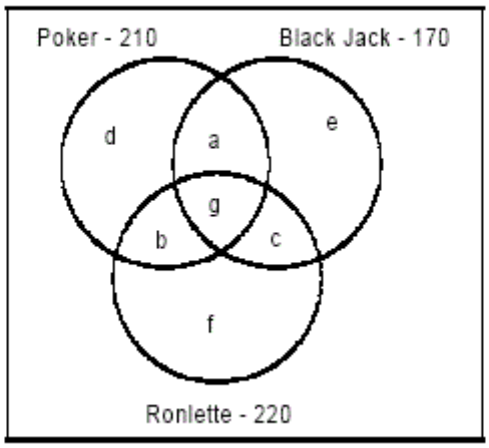
4 **80**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Let us form a venn-diagram for the people playing the three mentioned games.



Since no one plays all the three games, g = 0.
Now as per the numbers given in the question, we can form the following equations:
a + b + d = 210 ..... (i)
a + e + c = 170 ..... (ii)
b + c + f = 220 ..... (iii)
a + b + c + d + e + f = 300 .....(iv)
Adding (i), (ii), (iii), we get
2a + 2b + 2c + d + e + f =600 .....(v)
Solving (iv) and (v), we get
a + b + c =300
$\Rightarrow$ d = e = f = 0
This implies, every person plays exactly two games.
Also, putting d, e and f equals to 0 in the equations (i), (ii) and (iii), and solving it further we get a = 80, b = 130 and c = 90.
Note: Since there is no one who plays all 3 games, it implies there is no one doing all 3 i.e. drink, smoke as well as chew tobacco.

Maximum people who smoke and play Roulette is 90. So, minimum 140 - 90 = 50 people are smokers who do not play Roulette.

FeedBack

Sec 3

Q.67

In how many ways can 575 be written as sum of five terms of an Arithmetic Progression (AP), such that all the five terms of the AP are positive integers?

1 **57**

2 **77**

3 **58**

4 **Cannot be determined**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Let the first term of the A.P. be 'a' and the common difference be 'd'.

$S_n = \frac{n}{2}[2a + (n-1)d] \Rightarrow 575 = \frac{5}{2}(2a + 4d) \Rightarrow a + 2d = 115$

There are 58 positive integral solution of the equation which are as follows:
If 'd' = 0, then 'a' = 115
If 'd' = 1, then 'a' = 113
If 'd' = 2, then 'a' = 111
.....
.....
If 'd' = 57, then 'a' = 1

FeedBack

Q.68

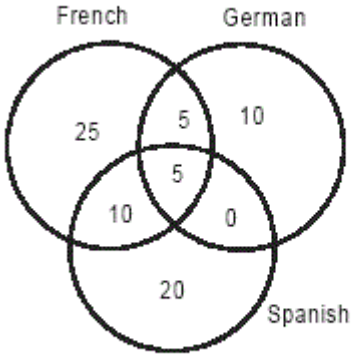
45 students of a class took French, 35 took Spanish and 20 took German language. 5 students took all three languages. 15 took both French and Spanish, 10 took both French and German, and 5 took both German and Spanish. Find the total number of students in the class, if each student of the class took at least one of the languages.

Solution:
Correct Answer : 75

Bookmark

Answer key/Solution

Constructing a venn diagram out of the given information



Hence the total number of students in the class can be found by adding up the figures from the diagram
= 25 + 10 + 5 + 5 + 10 + 20 = 75

FeedBack

Q.69

If $x^4 - 119x^2 + 1 = 0$, where 'x' is a positive real number, then find the value of $x^3 + \frac{1}{x^3}$.

Solution:

Correct Answer : 1298

Given $x^4 - 119x^2 + 1 = 0$

$\Rightarrow x^2 - 119 + \frac{1}{x^2} = 0 \Rightarrow x^2 + \frac{1}{x^2} = 119$

$\Rightarrow x^2 + \frac{1}{x^2} + 2 = 121 \Rightarrow \left(x + \frac{1}{x}\right)^2 = 121$

$\Rightarrow \left(x + \frac{1}{x}\right) = 11$ (because x is given as positive real number)

$\Rightarrow x^3 + \frac{1}{x^3} = \left(x + \frac{1}{x}\right)\left(x^2 + \frac{1}{x^2} - 1\right)$

$\Rightarrow x^3 + \frac{1}{x^3} = 11(119 - 1) = 11 \times 118 = 1298.$

FeedBack

Bookmark

Answer key/Solution

Q.70

If two vertices of a rhombus are (3,0) and (4,5), and the third vertex lies on the point of intersection of x + y = 3 and x − 5y = −21, then find the fourth vertex.

1 **(−1, 3)**

2 **(−2, −4)**

3 **(−1, −3)**

4 **(−2, −1)**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

First solving for the third vertex,
$x + y = 3$ and $x - 5y = -21$
We get, $x = -1$ and $y = 4$; $(-1, 4)$
Let A (3, 0), B (4, 5) and C (–1, 4)
Calculating the distance between the all three vertices to find out which two are opposite to each other,
We get, AB = $\sqrt{26}$, BC = $\sqrt{26}$, and AC = $\sqrt{32}$.
So AC is one of the diagonal.
We need to find co-ordinates of D.
Since It is a rhombus opposite pair of sides are parallel and hence D will be the point of intersection of line CD and AD.
CD will pass through C and parallel to AB, hence has its slope = $\frac{5-0}{4-3}$.
So the equation of CD is $5x - y + 9 = 0$.
Similarly AD will pass through A and parallel to BC having slope $\frac{5-4}{4+1}$
So the equation of AD is $5y - x + 3 = 0$.
Solving the two equations, we get $x = -2$, $y = -1$.
So, the required coordinates of the fourth vertex i.e, D is (-2, -1).

FeedBack

Q.71

If a real valued function is defined as $f(x) = 2^{(x^2-3)^3+27}$, then find the maximum possible value of $\frac{16}{f(x)}$.

Solution:
Correct Answer : 16

Bookmark

Answer key/Solution

$\frac{16}{f(x)}$ is maximum when f(x) is minimum, and f(x) is minimum when $(x^2 - 3)^3 + 27$ is minimum.
Since x^2 is positive, minimum value of $x^2 - 3$ will be at $x = 0$.
So, minimum value of $(x^2 - 3)^3 + 27$ for $x = 0$ will be $(0 - 3)^3 + 27 = -27 + 27 = 0$.
Therefore, min $\{f(x)\} = 2^0 = 1$

So, maximum value of $\frac{16}{f(x)} = \frac{16}{1} = 16$

FeedBack

Q.72

In a deck of 52 cards, Ace is considered as the highest valued card. Two players play a game in which each player picks a card, and the player with the higher value card wins. If both the players have the same value card it will be considered as a tie. If the first player picks a 10, then what is the probability that the other player will not lose the game?

1 **4/13**

2 **16/51**

3 **19/52**

4 **19/51**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Player 2 can avoid his defeat by getting any of the 3 10's, or any out of the four Jacks, Queens, Kings and Aces.
This can be done in 19 ways.

So, the required probability = $\frac{19}{51}$

FeedBack

Q.73

If $x = \sqrt{x+3\sqrt{x+3\sqrt{x+3\sqrt{4x}}}}$, then find the value of x.

1 **1**

2 **4**

3 **9**

4 **36**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Seeing that all options are integers, the square roots must be applied on perfect squares.
The smallest square root is the root of 4x, for this to be a perfect square the only possible value from the options is 4.
Solving using x = 4, we get

$$\sqrt{[4 + 3\sqrt{\{4 + 3\sqrt{(4 + 3\sqrt{4 \times 4})\}}]} = \sqrt{[4 + 3\sqrt{\{4 + 3\sqrt{(4 + 3 \times 4)\}}]}}$$

$$= \sqrt{[4 + 3\sqrt{\{4 + 3 \times 4\}}]} = \sqrt{[4 + 3 \times 4]} = \sqrt{16} = 4$$

FeedBack

Q.74

There is a city named as Pearl City. It is mainly divided into fifty sectors numbered from 1 to 50 for which bus services having bus numbered from 1 to 50 are available for the public transport. Route of a bus is dependent upon the number of the bus, as a bus visits all the sectors whose number is the factor of bus number. For example, Bus number 30 visits sectors numbered 1, 2, 3, 5, 6, 10, 15 and 30. Minimum how many buses are required for providing transportation to all the sectors?

Solution:
Correct Answer : 25
All buses numbered from 26 to 50 have to make available for providing services, as bus numbered from 26 to 50 will provide services to the remaining 25 sectors also.

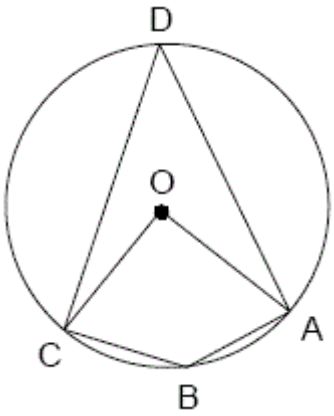
Bookmark

Answer key/Solution

FeedBack

Q.75

In the figure given below, O is the centre of the circle. If ∠OCD = 25° and ∠OAD is 30°, then find the value of ∠ABC (in degrees).

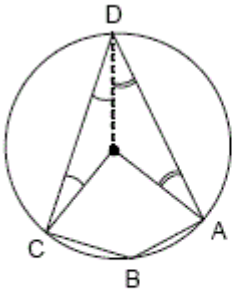


Solution:
Correct Answer : 125

Bookmark

Answer key/Solution

Joining O and D we get two isosceles triangles, as the two sides formed by the radii will be equal.



So, $\angle OCD = \angle ODC = 25°$ and $\angle OAD = \angle ODA = 30°$.
Hence, $\angle ADC = 55°$
$\angle ADC + \angle ABC = 180°$ (ABCD is a cyclic quadrilateral)
$\angle ABC = 180° - 55° = 125°$.

FeedBack

Q.76
The longest diagonal of a cube is approx what percentage of the diagonal of any of its face?

1 **81**

2 **131**

3 **122.5**

4 **114**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Let the cube be of side 'a' units.
The diagonal of any face of the cube is $\sqrt{2}$ a.
And the longest diagonal of the cube is its body diagonal which is $\sqrt{3}$ a.

So, the required percentage = $\left(\frac{\sqrt{3}}{\sqrt{2}}\right) \times 100 = \frac{1.732}{1.414} \times 100 = 122.5\%$ approx.

FeedBack

Q.77

Ashok, Kiran and Vignesh are set out to do some work. Ashok can do the work in as much time as Kiran and Vignesh can do while working together. Kiran can do the work alone in 12 days more than the days in which Ashok would do the work alone, while Vignesh can work twice as fast as Kiran. If Shirin joins the work on the second day and the work is finished on that day itself, find out how many days would Shirin take to complete the whole work by herself?

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

As per the information given in the question, efficiency of Vignesh and Kiran is in ratio 2 : 1. So the time taken by them will be in ratio 1 : 2.
Let x days be the time taken by Vignesh to complete the work. Hence Kiran can take 2x days to complete the same work.
Also Ashok can take 2x-12 days.

Now from the given data, $\frac{1}{2x}+\frac{1}{x}=\frac{1}{2x-12}$

Solving we get, x = 9
So time taken by Ashok, Kiran and Vignesh to complete the work alone is 6, 18 and 9 days respectively.

Now in 1 day they can finish $\frac{1}{6}+\frac{1}{9}+\frac{1}{18}=\frac{6}{18}=\frac{1}{3}$

Since the work is finished in 2 days they'll finish $\frac{2}{3}$ of the work on second day with the help of Shirin.

So Shirin finishes $\frac{1}{3}$ of the work in one day.

Hence, she alone can finish the work in 3 days.

FeedBack

Q.78

Which of the following statements is false?

[Note: Here inscribed means all the vertices of the inscribed figure lie on the sides of the other figure.]

1 **A triangle can be inscribed in any rectangle**

2 **A square can be inscribed in any trapezium**

3 **An octagon can be inscribed in any triangle**

4 **A pentagon can be inscribed in any hexagon**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Any polygon can be inscribed in another polygon having more sides than the former polygon.
This polygon can be simply formed by coinciding the vertices and by joining the sides so formed by the smaller sides polygon so as to eliminate the extra number of sides.
For eg. In a rectangle if we place three vertices of the triangle on any three vertices of the rectangle, then the triangle is formed with 2 common sides of the rectangle and the third side formed by the line joining the opposite ends of the other two sides.
Note in the problem they haven't mentioned that each vertex of the polygon must lie on a different side hence a square can be inscribed in a trapezium with two vertices each on opposite parallel sides of the trapezium.
The only instance when a polygon can't be inscribed in another polygon is when the number of vertices is greater than twice the number of vertices the polygon is being inscribed in.
Hence an octagon can't be inscribed in any triangle.

FeedBack

Q.79

Abhijit bought 100 HCC's shares at Rs. 157 each, 10 Reliance' shares at Rs.1000 each, 20 State Bank of India's shares at Rs. 1560 each, and 5 Jindal Steel's shares at Rs. 3350 each. If he sold all these shares for Rs.161, Rs.957, Rs.1559 and Rs.3800 per share respectively, then his approximate percentage of profit or loss is

1 **3% Loss**

2 **5% Profit**

3 **3% Profit**

4 **5% Loss**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Total amount invested = 100 × 157 + 10 × 1000 + 20 × 1560 + 5 × 3350
= 15700 + 10000 + 31200 + 16750 = 73650

Total Profit/Loss = 100 × (161 – 157) + 10 × (957 – 1000) + 20 × (1559 – 1560) + 5 × (3800 – 3350)
= 400 – 430 – 20 + 2250 = 2200

Therefore, Profit percentage $= \frac{2200}{73650} \times 100 = 2.98\%$

Hence, Abhijit had a profit of approx 3% in the whole transaction.

FeedBack

Q.80

(0.55555……..)a + (0.55555……..)b = (0.44444……..)c, where a, b, c are natural numbers, and also c is an even multiple of 125. Find the possible number of ordered triplets (a, b, c), when value of 'c' is minimum.

Solution:
Correct Answer : 199

Bookmark

Answer key/Solution

(.55555……..)a + (.5555……..)b = (.44444……..)c

$\frac{5}{9}a + \frac{5}{9}b = \frac{4}{9}c$

$a + b = \frac{4}{5}c$

c is an even number and a multiple of 125, so it is a multiple of 250. Hence minimum value of c is 250.
As a + b is 80% of c and c is a multiple of 250, and a + b = 200.
So total possibilities for (a, b) be 199, as they are natural numbers.
Hence, the number of required triplets is also 199.

FeedBack

Q.81

The sum of the digits of a 3-digit number is 14. These three digits are in Geometric Progression. Also when you subtract the original number from the number obtained by reversing the digits of the original number, you get 594. Find the original number.

Solution:
Correct Answer : 248

Bookmark

Answer key/Solution

Let a, b and c be the three digits of the number. Hence we get a + b + c = 14.

Also since a, b and c are in Geometric Progression, $\frac{b}{a} = \frac{c}{b}$ or $b^2 = ac$.

As all the three digits are single digit numbers, the possible combinations for the second equation are
1, 2, 4; 1, 3, 9; 2, 4, 8; and 4, 6, 9 only.
[Note: All the possible variations where all three digits are the same are also in Geometric Progression with a common ratio 1, but since the number obtained by reversing the digits will be the same as original number, it'll make the difference between the two numbers zero which goes against the given condition.]
Out of the four sets of numbers the sum of only the third one is 14.
Now to find the arrangement of the digits we need to check which combination will offer a difference of 594 with the number obtained by reversing the digits.
As 842 – 248 = 594, the required number is 248.

FeedBack

Q.82

How many real solutions will the following system of equations have:
$(X-3)^2 + (Y-4)^2 = 16$;
$X + Y + 2 = 0$

1 **1**

2 **2**

3 **More than 2 solutions**

4 **No solutions**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

$(x-3)^2 + (y-4)^2 = 16$
$x = y - 2$
$(-y-2-3)^2 + (y-4)^2 = 16$
$\Rightarrow (y+5)^2 + (y-4)^2 = 16$
$\Rightarrow 2y^2 + 2y + 25 = 0$

$$y = \frac{-2 \pm \sqrt{4 - 4 \times 25 \times 2}}{2 \times 2}$$

But $\sqrt{4-200} = \sqrt{-196} < 0$. Therefore, no real solutions.

FeedBack

Q.83

From a fraction $\left(\frac{X}{Y}\right)$ two new fractions are formed, one by adding 2 to the numerator and subtracting 1 from the denominator, and the other one by subtracting 1 from the numerator and adding 2 to the denominator. Product of the resultant two fractions is $\frac{5}{27}$. Also, if the fraction $\left(\frac{X}{Y}\right)$ is added to its reciprocal the result is $\frac{58}{21}$. Find $\left(\frac{X}{Y}\right)$.

1 **1/7**

2 **2/7**

3 **3/7**

4 **4/7**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

The best way to approach such problems is by evaluating each option for the given data.

For $\frac{2}{7}$, from the given data we get the two fractions as $\frac{2}{3}$ and $\frac{1}{9}$. The product of which is $\frac{2}{27}$. Here we don't need to check for the second condition.

For $\frac{2}{5}$, we get the two fractions as 1 and $\frac{1}{7}$. The product of which is $\frac{1}{7}$. Hence cannot be the answer.

For $\frac{3}{7}$, we get the two fractions as $\frac{5}{6}$ and $\frac{2}{9}$. The product of which is $\frac{5}{27}$. Checking for the second condition, we get $\frac{3}{7} + \frac{7}{13} = \frac{58}{21}$. As it is satisfying all the conditions, it can be our answer.

For $\frac{4}{7}$, we get the two fractions as 1 and $\frac{3}{9}$. The product of which is $\frac{3}{9}$. Hence cannot be the answer.

FeedBack

Q.84

A cylindrical tank gets filled at 88 cubic cm per hour. The level of water in the tank rises at the rate of 7 cm per hour. Find the radius (in cm) of the tank.

1 **1.414**

2 **2**

3 **4**

4 **8**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

As the volume of a cylinder is $\pi \times r^2 \times h$, in an hour the volume and height of the cylinder is increased by 88 cm^3 and 7 cm respectively.

So, $\frac{22}{7} \times r^2 \times 7 = 88 \Rightarrow r^2 = 4 \Rightarrow r = 2$ cm

FeedBack

Q.85

A retail outlet owner plans to offer an 'End of Season Sale' on articles of same cost price. To fool the consumers, he marked the prices of all the garments as 25% above their cost price and then offers a discount of 10%. If 10% of his articles get destroyed, find out how much percentage profit or loss did he make during the sale.

1 **2.5% loss**

2 **1.25% loss**

3 **2.5% profit**

4 **1.25% profit**

Solution:

Correct Answer : 4

Let x be the original cost price of a unit.
His new selling price = $x \times 1.25 \times 0.9$
$= 1.125x$
Let y be the number of articles in the shop.
Total revenue = $0.9y \times 1.125x$
$= 1.0125xy$
Total cost = xy

$$\text{Profit} = \frac{1.0125xy - xy}{xy} \times 100 = 1.25\%$$

FeedBack

Bookmark

Answer key/Solution

Q.86

Find the sum of the three largest prime factors of $(5^{12} - 4^{12})$.

Solution:

Correct Answer : 139

$5^{12} - 4^{12} = (5^6 + 4^6)(5^6 - 4^6)$
$= ((5^2)^3 + (4^2)^3)\ ((5^3)^2 - (4^3)^2)$
$= (5^2 + 4^2)\ (5^4 - 5^2 4^2 + 4^4)\ (5^3 - 4^3)(5^3 + 4^3)$
$= 41(625 + 256 - 400)\ (5 - 4)\ (5^2 + 20 + 4^2)\ (5 + 4)\ (25 - 20 + 16)$
$= 41(481)\ (1)\ (61)\ (9)\ (21) = 3^3 . 7 . 13 . 37 . 41 . 61$
Therefore, sum of three largest prime factors of $(5^{12} - 4^{12}) = 37 + 41 + 61 = 139$.

FeedBack

Bookmark

Answer key/Solution

Q.87

A "prime time" is defined as a digital display which indicates time only when both hours and minutes are a prime number, on a twelve hour clock. Which of the following is the number of minutes in a day on which the "prime time" has shown the time?

1 **85**

2 **144**

3 **170**

4 **25**

Solution:
Correct Answer : 3
The prime hours are 2, 3, 5, 7, and 11 which is equal to 10 numbers (counted for both morning and evening in a day). The prime minutes are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53 and 59. There are 17 such minute values. The total duration of 17 minutes in each of 10 hours gives us 170 minutes. So, for 170 minutes in a day the clock has shown the correct time.

Bookmark

Answer key/Solution

FeedBack

Q.88
P, Q and R are the roots of the equation $x^3 + bx^2 + cx + d = 0$, and are positive integers. If $P^2 + Q^2 = 221$ and $Q^2 + R^2 = 125$, then which of the following can be the value of 'c'?

1 **-152**

2 **215**

3 **550**

4 **-26**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

$\frac{c}{a} = (PQ + QR + PR)$

As P, Q, R are the integers and $P^2 + Q^2 = 221$,
So possible values of P and Q are (10, 11) or (14, 5) in any orders.
Similarly, $Q^2 + R^2 = 125$, so the possible values of Q and R are (11, 2) and (10, 5).
Now possible combinations of PQR satisfying all the conditions are (10, 11, 2) or (11, 10, 5) or (14, 5, 10).
So possible value of c = PQ + QR + PR are
$10 \times 11 + 10 \times 2 + 11 \times 2 = 152$;
or $11 \times 10 + 10 \times 5 + 5 \times 11 = 215$;
or $14 \times 5 + 5 \times 10 + 14 \times 10 = 260$.

FeedBack

Q.89

Find the percentage increase in the number of factors of A = a^b, when A is multiplied by c^d and e^f, where a, c and e are prime numbers.

1 **(d + 1)(f + 1) × 100**

2 **[(d + 1)(f + 1) - 1] × 100**

3 **(d + f) × 100**

4 **(d + f – 1) × 100**

Solution:

Correct Answer : 2

Number of factors of A initially = b + 1
After multiplication of c^d and e^f, number of factors become (b + 1)(d + 1)(f+ 1).
Therefore increase = [(d + 1)(f + 1) - 1] × 100%
Alternative method:
We can also check it by taking different values of a, b, c, d, e and f.

FeedBack

Bookmark

Answer key/Solution

Q.90

If $\log_5(x^2 + 2x + 10) = 2$, then the values of x are

1 **–2, 5**

2 **3, –5**

3 **–2, –3**

4 **–3, 5**

Solution:

Correct Answer : 2

From the property of log, we can say $x^2 + 2x + 10 = 5^2$
$\Rightarrow x^2 + 2x + 10 = 25$
$\Rightarrow x^2 + 2x - 15 = 0$
$\Rightarrow x = 3, x = -5.$

FeedBack

Bookmark

Answer key/Solution

Q.91

A wooden sphere and an iron cone are put on the two sides of a weighing balance machine. The wooden sphere has a radius of 21 cm whereas the iron cone has its radius and height as 28 cm and 30 cm respectively. Density of iron is 1.7 g/cm^3 while that of wood is 1.1 g/cm^3. If the weighing balance pointer tilts 1 degree towards the heavier side for every 50 grams difference , then find to what extent and towards which side will the weighing balance pointer tilt.

1 **14 degree towards iron**

2 **16 degree towards iron**

3 **14 degree towards wood**

4 **16 degree towards wood**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Volume of the wooden sphere = $\frac{4}{3} \times \pi r^3 = \frac{4}{3} \times \frac{22}{7} \times 21 \times 21 \times 21 = 88 \times 441 = 38808$ cm³

So, weight of wooden sphere = Density × Volume.
$= 1.1 \times 38808 = 42688.8$ g

Volume of Iron cone = $\frac{1}{3} \times \pi r^2 h = \frac{1}{3} \times \frac{22}{7} \times 28 \times 28 \times 30 = 24640$ cm³

So, weight of iron cone = Density × Volume
$= 1.7 \times 24640 = 41888$ g

As wooden sphere is heavier than the iron cone, the pointer tilts towards wooden sphere.
Now, difference in the two weights = 42688.8 – 41888 = 800.8 g

Tilt of the pointer = $\frac{800.8}{50} \approx 16$ degrees towards Wooden Sphere.

FeedBack

Q.92

N is a natural number such that N/7 is a perfect square and N/11 is a perfect cube. Which of the following can be the number of factors of N?

1 **66**

2 **120**

3 **140**

4 **80**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

$N/7 = m^2$, $N = 7m^2$

$\frac{N}{11} = p^3$, $N = 11p^3$

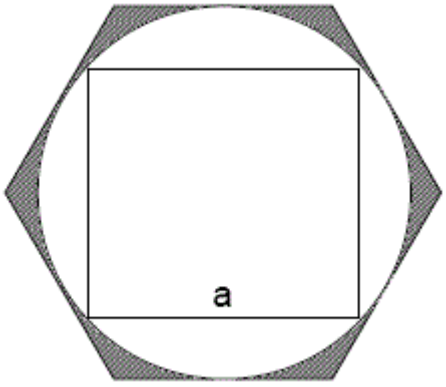
$7m^2 = 11p^3$, $m = \sqrt{\frac{11}{7}p^3}$

Minimum value of $p = 7 \times 11$
Therefore minimum value of $N = 7^3 \times 11^4$
So minimum number of factors $= 4 \times 5 = 20$
Now N should have any other multiple having a power as a multiple of 6 as it should be a perfect square as well as perfect cube.
So number of minimum possible factors is 140.

FeedBack

Q.93

A circle is inscribed in a regular hexagon and further a square of side 'a' is inscribed inside that circle as shown in the figure below. Find the area of the shaded region.



1 $a\left(\sqrt{3}-\frac{\pi}{2}\right)$

2 $a\left(\sqrt{3}-\pi\right)$

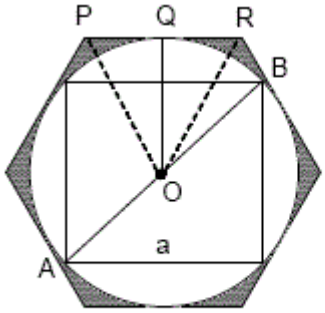
3 $a^2\left(\sqrt{3}-\pi\right)$

4 $a^2\left(\sqrt{3}-\frac{\pi}{2}\right)$

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution



Diameter of circle = $a\sqrt{2}$

So, area of circle = $\pi\left[\frac{a\sqrt{2}}{2}\right]^2 = a^2\frac{\pi}{2}$

Now, ΔPOR is an equilateral triangle

So, OR = $a\sqrt{\frac{2}{3}}$

And area of hexagon = $6\times\frac{\sqrt{3}}{4}\times a^2\times\frac{2}{3} = a^2\sqrt{3}$

So, the required area = $a^2\sqrt{3} - \frac{a^2}{2}\pi = a^2\left[\sqrt{3} - \frac{\pi}{2}\right]$

FeedBack

Q.94

There are two equations, $x^2 + bx + c = 0$ and $x^2 + cx + b = 0$, where $b \neq 0$ and $c \neq 0$. If both the equations have real roots, then what can be said about the value of 'c'?

1 **Minimum possible value of 'c' is 2.**

2 **There is only one value of 'c' at which it is equal to 'b'.**

3 **'c' can only be an integer.**

4 **None of these**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Firstly, $b^2 - 4c \geq 0$ and $c^2 - 4b \geq 0$
Or, $b^2 \geq 4c$ and $c^2 \geq 4b$.

From here, we can conclude that $2\sqrt{b} \leq c \leq \frac{b^2}{4}$

Hence only for b = 4, b and c can be equal.

FeedBack

Q.95

Aroop leaves from Mumbai towards Goa, having a distance of 600 km, by his car. He travels at a speed of 50 km/hr for the first 6 hours and completes the remaining journey at a speed of 100 km/ hr. If he returns from Goa to Mumbai at an average speed of 80 km/hr, then time taken by him during the return journey is how much more/less than that of his journey from Mumbai to Goa?

1 **1 hr more**

2 **1.5 hr more**

3 **1.5 hr less**

4 **1 hr less**

Solution:
Correct Answer : 3
Journey from Mumbai to Goa takes 9 hours.
As during first 6 hr at 50km/hr he covers 300km, and so the remaining 300 km at 100 km/hr in 3hrs.
Hence total time taken = 9 hours.
The return journey at average speed of 80 km/hr takes 7.5 hours.

Hence, the return journey takes 1.5 hr less.

FeedBack

Bookmark

Answer key/Solution

Q.96

A football stadium pitch, which is rectangular in shape having its dimensions as 120 × 40 square yards, is being converted into a circular cricket pitch using its soil only. The football pitch is 2 yards deep but due to the relatively less wear and tear of cricket pitches, the cricket pitch needs to be just 1 yard deep. Also about 40 × 10 square yards section of the football pitch is considered as unfit for the transformation and is discarded completely along with the soil below it. Find the maximum possible radius (in yards) of the cricket pitch.

1 **11**

2 **$20\sqrt{7}$**

3 **$13\sqrt{2}$**

4 **27**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

The total soil in the football pitch = Area of rectangle x depth = 120 × 40 × 2 = 9600 cubic yards
The discarded soil = Discarded area × depth = 40 × 10 × 2 = 800 cubic yards.
Hence, total soil available for the cricket pitch = 9600 – 800 = 8800 cubic yards.
Let, 'r' be the maximum possible radius of the cricket pitch that can be developed from the football pitch.

The total soil requirement for the cricket pitch = Depth × π × r^2 = 1 × $\frac{22}{7}$ × r^2

Hence, 8800 = $\frac{22}{7}$ x r^2

$r = \sqrt{2800} = 20\sqrt{7}$ yards.

FeedBack

Q.97

Mihir has decided to launch a monthly music magazine titled as "The BIG M". To reduce the costs, he has loaned a printing press for Rs. 5000. The printing ink and the labour, cost him Rs. 14 per magazine. The article writers and distributors add another Rs. 10000 to his costs. If he prints and sells 5000 magazines at Rs. 10 per magazine, and wants to make a total profit of 20%, then what amount (in Rs.) should he earn from advertisements?

Solution:
Correct Answer : 52000

Bookmark

Answer key/Solution

Fixed costs = 5000 + 10000
Variable costs = 5000 × 14 = 70000
So, total cost = 70000 + 15000 = 85000
As he wants to make a profit of 20% on the total cost, his revenue generated should be = 85000 × 1.2 = 102000
But revenue through sale = 5000 × 10 = 50000
So, the remaining 102000 – 50000 = 52000 he should earn through advertisements.

FeedBack

Q.98

What is the remainder when $3^{84} + 3^{63} + 3^{42} + 3^{21} + 1$ is divided by $3^{20} + 1$?

1 **3**

2 **1**

3 **63**

4 **61**

Solution:
Correct Answer : 4

Using Division algorithm,
$3^{84} + 3^{63} + 3^{42} + 3^{21} + 1 = (320 + 1)(3^{64} - 2.3^{43} + 7.3^{22} - 20.3) + 61$
So, the remainder is 61.

FeedBack

Bookmark

Answer key/Solution

Q.99

Lee cooper gives two successive discounts of 40% and 30% on List Price (LP) of a shirt and earns a profit of 5%. At what price should he sell the shirt to earn a profit of 50%?

1 **sell at LP**

2 **sell at 40% discount on LP**

3 **sell at 20% discount on LP**

4 **sell at 30% discount on LP**

Solution:
Correct Answer : 2

Let the cost price of item be x.
As per the condition, equation becomes

$$x\left(1+\frac{5}{100}\right)\times\frac{100}{100-40}\times\frac{100}{100-30}=\text{L.P.}$$

$$x\times\frac{21}{20}\times\frac{5}{3}\times\frac{10}{7}=\frac{5x}{2}$$

For profit of 50%

$$\text{S.P.}=x\times\left(1+\frac{50}{100}\right)=x\times\frac{3}{2}=\frac{3x}{2}$$

∴ By selling at 40% discount on list price, he will earn a profit of 50%.

FeedBack

Bookmark

Answer key/Solution

Q.100

Mohan's present salary is 120% of Sushant's salary. If next year Sushant's salary will be appraised by 120% and Mohan's salary will be appraised by 20%, then Sushant's salary will be what percent of Mohan's salary after appraisal?

1 **152.78%**

2 **140%**

3 **247%**

4 **366.08%**

Solution:

Correct Answer : 1

Let Sushant's present salary = Rs.100
∴ Mohan's present salary = Rs.120
After appraisal,

$$\text{Sushant's salary} = 100 + 100 \times \frac{120}{100} = \text{Rs.}220$$

$$\text{Mohan's salary} = 120 + 120 \times \frac{20}{100} = \text{Rs.}144$$

$$\text{So, the required percentage} = \frac{220}{144} \times 100 = 152.78\%$$

FeedBack

Bookmark

Answer key/Solution