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VARC

LRDI

QA

Sec 1

Direction for questions (1-4): Read the given passage and answer the questions that follow.

A game of strategy, as currently conceived in game theory, is a situation in which two or more players make choices among available alternatives (moves). The totality of choices determines the outcomes of the game, and it is assumed that the rank order of preferences for the outcomes is different for different players. Thus, the interests of the players are generally in conflict. Whether these interests are diametrically opposed or only partially opposed depends on the type of game.

Psychologically, most interesting situations arise when the interests of the players are partly coincident and partly opposed, because then one can postulate not only a conflict among the players but also inner conflicts within the players. Each is torn between a tendency to cooperate, so as to promote the common interests, and a tendency to compete, so as to enhance his own individual interests.

Internal conflicts are always psychologically interesting. What we vaguely call interesting psychology is in very great measure the psychology of inner conflict. Inner conflict is also held to be an important component of serious literature as distinguished from less serious genres. The classical tragedy, as well as the serious novel, reveals the inner conflict of central figures. The superficial adventure story, on the other hand, depicts only external conflict; that is, the threats to the person with whom the reader (or viewer) identifies stem in these stories exclusively from external obstacles and from the adversaries who create them. On the most primitive level this sort of external conflict is psychologically empty. In the fisticuffs between the protagonists of good and evil, no psychological problems are involved, or, at any rate, none are depicted in juvenile representations of conflict.

The detective story, the adult analogue of a juvenile adventure tale, has at times been described as a glorification of intellectualized conflict. However, a great deal of the interest in the plots of these stories is sustained by withholding the unraveling of a solution to a problem. The effort of solving the problem is in itself not a conflict if the adversary (the unknown criminal) remains passive, like Nature, whose secrets the scientist supposedly unravels by deduction. If the adversary actively puts obstacles in the detective's path toward the solution, there is genuine conflict. But the conflict is psychologically interesting only to the extent that it contains irrational components such as a tactical error on the criminal's part or the detective's insight into some psychological quirk of the criminal or something of this sort. Conflict conducted in a perfectly rational manner is psychologically no more interesting than a standard Western. For example, Tic-tac-toe, played perfectly by both players, is completely devoid of psychological interest. Chess may be psychologically interesting but only to the extent that it is played not quite rationally. Played completely rationally, chess would not be different from Tic-tac-toe.

In short, a pure conflict of interest (what is called a zero-sum game) although it offers a wealth of interesting conceptual problems, is not interesting psychologically, except to the extent that its conduct departs from rational norms.

Q.1 [11594329]

According to the passage, which of the following options about the enhanced application of game theory to an inner psychological conflict is NOT true?

1 ○ Not assuming that the interests of the competing parties are in complete disagreement.

2 ○ Accepting that the interests of competing players are often in conflict to each other.

3 ○ Assuming that the rank order of favourite preferences for options is different for different players.

4 ○ Assuming that the game is based on the premise of rational behaviour of the competing parties.

✔

Answer key/Solution

Solution:
Correct Answer : 4
Your Answer : 4
As given in the passage, in game theory, participants have to rank options in order of preference. These preferences will not be completely alike nor completely distinct for different participants. So, a participant will debate whether to maximise his/her own interests or the group's interest. This is the inner conflict. Therefore, all the first three options mentioned are features of game theory which lead to inner conflict. Option 4 mentions rational behaviour whereas the passage states that, in case of perfectly rational behaviour, the prospect for psychological evaluation of inner conflicts will be very limited. Hence (4).

Bookmark FeedBack

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Q.2 [11594329]

From the passage, which of the following can be assumed as the reason for the problem-solving process of a scientist being different from that of a detective?

1 ○ Scientists study phenomena that are not actively altered, while detectives deal with phenomena that have been deliberately influenced to mislead.

2 ○ Scientists study known objects, while detectives have to deal with the unknown.

3 ○ Scientists study psychologically interesting phenomena, while detectives deal with adult analogues of juvenile adventure tales.

4 ○ Scientists study inanimate objects, while detectives deal with living criminals or law offenders.

✔

Answer key/Solution

Solution:
Correct Answer : 1
Your Answer : 1
The passage only talks about the detectives' problem-solving process as highlighted by the fact that they get clues in the form of tactical errors or psychological quirks on the part of the criminal but otherwise the rational conflict is devoid of psychological interest. In the case of scientists, they have to solve a problem by identifying various situations, trying different experiments and identifying possible responses to these situations. There is a conflict as there is no rationality to the response, they have to always evaluate different alternatives. The given situations are not altered to give clues to the solution. It's a new exploration and therefore the human element, the psychological factor comes into play. Option 2 is completely irrelevant as nothing about known or unknown objects is mentioned. Option 3 gives an example of what detectives are likely to do without explaining the concept. Option 4 mentions animated objects which has not been mentioned in the passage. Hence (1).

Bookmark FeedBack

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Q.3 [11594329]

According to the passage, internal conflicts are psychologically more interesting than external conflicts because:

1 ○ In situations of internal conflict, individuals experience a dilemma in resolving their own preferences for different outcomes.

2 ○ Internal conflicts, rather than external conflicts, form an important component of serious literature as distinguished from less serious genres.

3 ○ There are no threats to the reader (or viewer) in case of external conflicts.

4 ○ Only juveniles or very few adults actually experience external conflict, while internal conflict is more widely prevalent in society.

Answer key/Solution

Solution:
Correct Answer : 1
Option 2 has been mentioned as an example and not as a reason. Option 3 is not relevant. Option 4 may be true, but it cannot be the reason for inner conflict being more interesting to psychologists.
As given in the passage:
"Psychologically, most interesting situations arise when the interests of the players are partly coincident and partly opposed, because then one can postulate not only a conflict among the players but also inner conflicts within the players. Each is torn between a tendency to cooperate, so as to promote the common interests, and a tendency to compete, so as to enhance his own individual interests. Internal conflicts are always psychologically interesting." Hence (1).

Bookmark FeedBack

Direction for questions (1-4): Read the given passage and answer the questions that follow.

A game of strategy, as currently conceived in game theory, is a situation in which two or more players make choices among available alternatives (moves). The totality of choices determines the outcomes of the game, and it is assumed that the rank order of preferences for the outcomes is different for different players. Thus, the interests of the players are generally in conflict. Whether these interests are diametrically opposed or only partially opposed depends on the type of game.

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Q.4 [11594329]

Which of the following is the biggest reason why the author may not consider detective stories as the perfect example of "glorification of intellectualized conflict"?

1 ○ The fact that these stories are an external conflict between a protagonist and an adversary who respectively represent absolute good and evil and lack psychological dynamism and subtlety.

2 ○ The fact that these stories show the final solution as the denouement without exhibiting and transparently analyzing the detailed process of problem solving; only piquing and sustaining the audience's interest by not revealing important pieces of information.

3 ○ The fact that these stories allow the protagonist to take advantage of the mistakes of the opponents or possess some additional information to which others are not privy.

4 ○ All of the above

✔

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 2
The main reason is that these stories don't show how the mystery was gradually unravelled. As mentioned in the passage: "However, a great deal of the interest in the plots of these stories is sustained by withholding the unraveling of a solution to a problem."
Therefore option 2 captures the reason most effectively.
Option 1 reads like the correct option, but we have to consider the context of the question. Option 3 is a feature of detective stories and not the reason for the author's non acceptance of them as glorified intellectual conflict. Hence (2).

Bookmark FeedBack

Direction for questions (5-8): Read the given passage and answer the questions that follow.

The Cochinim (as the Jews from Cochin are called in Israel) was/is the tiniest and most ancient of Jewish communities in the Diaspora. They trace their history on the lush, monsoon-swept Malabar coast in south-western India to 2000 years ago, landing there as sailors in King Solomon's fleets to purchase spices, animals, and precious metals. Their songs and traditions tell of settlements in places like Paloor and Cranganore after the destruction of the Second Temple in 70 BCE, although recorded history begins from 1000 CE.

The community lives on in Israel today and still adheres to its famed Cochini cuisine, songs, the Judeo-Malayalam language and other cultural facets. There are flourishing Cochini moshavim (settlements) – Nevatim and Shahar in the south, Aviezer, Mesilat Zion and Taoz near Jerusalem and Kfar Yuval in the far north. Sizeable numbers of Cochinis live in Binyamina, Petah Tikva, Rishon Le Zion, Ashdod, Jerusalem, and Haifa.

Food is a major part of the Cochin Jewish story. Ruby Daniels and Dr. Barbara Johnson mention names of some early 20th century Cochini dishes in their book *Ruby of Cochin: A Jewish Woman Remembers.* Dr. Nathan Katz and Ellen Goldberg, who wrote the definitive anthropological book *The Last Jews of Cochin: Identity in a Hindu India,* included some recipes collected in Cochin in the 1980s.

Kerala cuisine, shaped by its maritime history, is different from what is considered fine Indian cuisine, mainly the creamy curries and vigorous breads of north India. The Malabar spice trade was for many centuries controlled by the Jews and they incorporated the spices into their cuisine. These included pepper, cardamom, cinnamon, ginger, turmeric, asafoetida, red and green chillies, coriander, fenugreek, nutmeg and mace. The dishes were infused with the magic of curry leaves, tamarind pulp and coconut, creating a piquant cooking style. A long coastline teeming with some of the finest edible fishes in the world contributed to great seafood medleys. Many of the items were common among the Jews, Hindus, Christians, and Muslims who lived in proximity for centuries in the Kingdom of Cochin.

The staple food of Cochinis remains unpolished/parboiled rice, which takes on many incarnations throughout the day. Items like the *dosa, idli, appam and puttu* continue to be eaten with relish in Cochini households/restaurants throughout Israel as it is done in homes across Kerala. One of the distinctive rice delicacies is the Cochin Jewish coconut rice. It is prepared by adding thinly shredded coconut flesh and spices to cooked rice or cooking the rice in coconut milk and then adding spices to unleash a delightful aroma and an unforgettable flavour. In Cochin, the Jewish housewife found that coconut milk was the ideal alternative to milk to use with meat. Gelatin was never used; instead, food starch and tapioca became binding agents.

After the mass immigration in the early 1950s, the Cochinis got their first-ever food shock. Israel was reeling under an austerity program and food was rationed. Immigrants received Ashkenazi staples that the Cochinis hated. Rachel Sopher from Moshav Taoz recalls how her parents hated black olives. "They had never seen it. They called it sheep droppings..!" There was also margarine, unknown to the Cochinis, and other strange items.

Q.5 [11594329]

Out of the following options, which one captures the essence of the passage?

1 ○ An insight into the Cochini Jewish community

2 ○ The cultural contours of the Jewish community

3 ○ An insight into Middle eastern cuisine

4 ○ An insight into the Cochini Jewish cuisine

✔

Solution:
Correct Answer : 4
Your Answer : 4
The passage talks about the culinary practices of the Cochini Jewish community.
Hence, option 4 is the most appropriate. The remaining options are too generic in scope.

Answer key/Solution

Bookmark FeedBack

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Q.6 [11594329]

Out of the following statements, all the statements are false except:

1 ○ The Cochinis were treated as a marginalized community within the mainstream Jewish community in Israel.

2 ○ The Cochinis were lured by the booming economy of Israel when they migrated to the country in the early 1950s.

3 ○ The Cochinis who immigrated to Israel towards the beginning of the second half of the previous century received a cultural trauma.

4 ○ The Cochinis had a cultural affinity with the cuisine of the whole of south India.

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Solution:
Correct Answer : 3
Your Answer : 3
Option 3 can be verified from the last paragraph of the passage. The remaining options are false and cannot be verified in the light of the passage.

Answer key/Solution

Bookmark FeedBack

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Q.7 [11594329]

In the light of the passage, it can be inferred that:

1 ○ The region of Cochin often witnessed religious disturbances because of the presence of various religious faiths.

2 ○ Cochin was once one of the busiest ports in India.

3 ○ The new generation of the Cochini community is not taking any interest in the culinary practices of the previous generations.

4 ○ The region of Cochin was a mosaic of different religious practices.

✔

Answer key/Solution

Solution:
Correct Answer : 4
Your Answer : 4
Refer to the sentence beginning with, “Many of the items were common among the Jews, Hindus, Christians, and Muslims who lived in proximity for centuries in the Kingdom of Cochin.

Bookmark FeedBack

Direction for questions (5-8): Read the given passage and answer the questions that follow.

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Q.8 [11594329]

Why does the author think that the Kerala cuisine reflects a "piquant cooking style"?

1 ○ Because Kerala cuisine is peppery and tangy.

2 ○ Because Kerala cuisine is bland.

3 ○ Because Kerala cuisine is unimaginative.

4 ○ Because Kerala cuisine is the spiciest of all Indian cuisines.

✔

Solution:
Correct Answer : 1
Your Answer : 1
'Piquant' refers to something spicy. Kerala cuisine, according to the passage, often uses spices such as pepper, cardamom, cinnamon, ginger, turmeric and curry leaves, coconut, etc. Hence, the author refers to the cuisine as piquant.

Answer key/Solution

Bookmark FeedBack

Direction for questions (9-13): Read the given passage and answer the questions that follow.

It is well known that youth unemployment in some parts of Europe has hit alarming levels. From about 15 per cent in 2007, it went up to 22 per cent in 2012. The situation is grave.

Interestingly, it appears that the primary causes of this distressing trend cannot be blamed on the economic crisis alone. That is only part of the story.

In 2012, youth unemployment rates varied from less than 10 per cent in countries such as Austria, Germany, Sweden, Denmark, and the Netherlands, to close to 50 per cent in Greece, Italy, Portugal and Spain. So, what is the reason for this huge difference? The answer is: education.

Empirical analysis across Europe reveals that education and skills development play a key role preparing young people for the labour market. In general, countries that have a strong vocational education sector show lower youth unemployment rates than countries with a predominantly general education system. In countries with a strong apprenticeship system such as in Germany, Austria or the Netherlands, skilled young people make a smooth transition from school to work.

One reason is that apprenticeship systems are resourceful in turning over helpful information about the apprentice's skills and aptitude to employers. The collaboration between business and education makes sure that vocational education in turn imparts skills that beautifully match employers' needs.

In flourishing European economies, it is all about learning the right skills. In an environment where technology is quickly displacing medium-skilled workers in manufacturing and back offices, the employment share of routine task jobs is rapidly diminishing. Jobs for high-skilled as well as low-skilled workers involving non-routine tasks have been increasing.

Another important aspect in some highly successful and innovative European economies is the expenditure on education — training and lifelong learning — which is well above the world average for developed countries. Institutions of higher education and research enjoy great autonomy in education, research and innovation, recruitment methods, and to draw on alternative sources of funding.

Most important, education and training curricula focus on equipping people with the capacity to learn and

develop additional, unfettered competency such as decisive thinking, problem solving, innovation and inventiveness, teamwork, and intercultural and communication skills.

Some European countries also have the highest world share of R&D spending as percentage of GDP. This is backed up by a complex set-up involving all relevant stakeholders, such as industry, regional and local authorities, parliaments and citizens. The object is to trigger off an innovation culture and build mutual trust between science and society.

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Q.9 [11594329]

Which of the following has not been mentioned as one of the reasons for comparatively high employment rates in some of the European countries?

1 ○ Vocational education preparing the students for a career.

2 ○ An apprenticeship system which allows businesses to identify the resources early.

3 ○ Higher expenditure on education and more autonomy to institutions of higher learning.

4 ○ All of the above have been mentioned

✔

Answer key/Solution

Solution:
Correct Answer : 4
Your Answer : 4
1st and 2nd options are mentioned in the 4th paragraph:
"In general, countries that have a strong vocational education sector show lower youth unemployment rates than countries with a predominantly general education system. In countries with a strong apprenticeship system such as in Germany, Austria or the Netherlands, skilled young people make a smooth transition from school to work."
3rd option is mentioned in the 7th paragraph:
"Another important aspect in some highly successful and innovative European economies is the expenditure on education — training and lifelong learning — which is well above the world average for developed countries. Institutions of higher education and research enjoy great autonomy in education, research and innovation, recruitment methods, and to draw on alternative sources of funding." Hence (4).

Bookmark FeedBack

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Q.10 [11594329]

Which of the following are the major changes that have taken place in recent times as mentioned by the author?

1 ○ Technology has replaced most of the routine jobs, mostly in the service sector and office management roles.

2 ○ Less specialisation and innovation is required in both high skill as well as low skill jobs, where the technology has made a smaller dent and therefore skill enhancement is not a priority.

3 ○ Education system is more oriented towards employability, less focussed on vocational skills and selective usage of the apprentice system to promote industry powered education.

4 ○ None of the above

✔

Solution:

Correct Answer : 4

Your Answer : 4

Answer key/Solution

In 1st option, instead of manufacturing sector and back office job, services sector and office management are mentioned, therefore it is incorrect. In 2nd option: it should be more specialization and innovation in high skill and low skill jobs, as per the passage.

In 3rd option: it should have been, more focused on vocational education, less selective use of apprenticeship… etc. Hence (4).

Bookmark FeedBack

Direction for questions (15-19): Read the given passage and answer the questions that follow.

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Q.11 [11594329]

Which of the following would be an appropriate title of the passage?

1 ○ Learn to earn

2 ○ The art of business

3 ○ An education with a purpose

4 ○ 2 Es: employment and education

✔

Answer key/Solution

Solution:
Correct Answer : 4
Your Answer : 4
Since the passage is about employment and the impact of education on employment, the 4th option best captures the essence of the passage. 2nd option is completely unrelated. 3rd option can be a little misleading as the passage discusses more about the changing landscape of employment opportunities. 1st option is too pithy and not representative of the core message of the passage. Hence (4)

Bookmark FeedBack

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Q.12 [11594329]

Which of the following best describes the structure of the passage?

1 ○ Author quotes data which leads to a question that he goes on to answer, proposing a theory which he supports with examples and incidents.

2 ○ Author mentions a fact which forms the basis of a hypothesis, and then he explains it in detail, with its various implications in spatial terms.

3 ○ Author presents questionable statistics to introduce a theory which he bolsters by quoting data that he is unable to substantiate.

4 ○ Author introduces a theory and then presents evidence to support the theory as well as facts to disclaim the reservations of the opponents of the theory.

Solution:

Answer key/Solution

Correct Answer : 1

In the passage, the author starts off by mentioning data, which leads him to ask the question "So, what is the reason for this huge difference?". He goes on answer the question: "The answer is: education." Then he explains his answer with different instances. Hence (1).

Bookmark FeedBack

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Q.13 [11594329]

Which of the following captures the main essence of the passage?

1 ○ Education must be oriented towards the changing business dynamics to ensure that people who pass out of colleges land a job easily.

2 ○ Employment level is also a function of education system in European countries and evidence shows that vocational education, apprentice system and investment in educational sector leads to positive results.

3 ○ To increase employment levels in a country a government needs to invest in the education sector, particularly in the higher education and R & D domains.

4 ○ In the present scenario, with the advent of technological innovations only those who are well trained have any chance of getting a job.

✔

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 2
The passage mostly compares and evaluates the different approach of the education system of European countries, in the backdrop of rapid technological advances that are altering the fundamental structure of employment. Option 1 does not discuss the intertwining of education and employment as lucidly described in the passage. Option 3 mentions a small, ancillary point which was only mentioned as an additional premise to support the original argument. The 4th option postulates an alarmist theory which hasn't been proposed by the author. The 2nd option captures the key points mentioned by the author. Hence (2).

Bookmark FeedBack

Direction for questions (14-18): Read the given passage and answer the questions that follow.

What causes a helix in nature to appear with either a dextral ("right-handed," or clockwise) twist or a sinistral ("left-handed;' or counterclockwise) twist is one of the most intriguing puzzles in the science of form. Most spiral-shaped snail species are predominantly dextral. But at one time, handedness (twist direction of the shell) was equally distributed within some snail species that have become predominantly dextral or, in a few species, predominantly sinistral. What mechanisms control handedness and keep left-handedness rare?

It would seem unlikely that evolution should discriminate against sinistral snails if sinistral and dextral snails are exact mirror images, for any disadvantage that a sinistral twist in itself could confer on its possessor is almost inconceivable. But left- and right-handed snails are not actually true mirror images of one another. Their shapes are noticeably different. Sinistral rarity might, then, be a consequence of possible disadvantages conferred by these other concomitant structural features.

In addition, perhaps left- and right-handed snails cannot mate with each other, having incompatible twist directions. Presumably an individual of the rarer form would have relative difficulty in finding a mate of the same hand, thus keeping the rare fonn rare or creating geographically separated right- and left-handed populations.

But this evolutionary mechanism combining dissymmetry, anatomy, and chance does not provide an adequate explanation of why right-handedness should have become predominant. It does not explain, for example, why the infrequent unions between snails of opposing hands produce fewer offspring of the rarer than the commoner form in species where each parent contributes equally to handedness. Nor does it explain why, in a species where one parent determines handedness, a brood is not exclusively right- or left-handed when the offspring would have the same genetic predisposition. In the European pond snail *Lymnaea peregra,* a predominantly dextral species whose handedness is maternally determined, a brood might be expected to be exclusively right- or left-handed-and this often occurs. However, some broods possess a few snails of the opposing hand, and in predominantly sinistral broods, the incidence of dextrality is surprisingly high.

Here, the evolutionary theory must defer to a theory based on an explicit developmental mechanism that can favor either right- or left-handedness. In the case of *Lymnaea peregra,* studies indicate that a dextral gene is expressed during egg formation; i.e., before egg fertilization, the gene produces a protein, found in the cytoplasm of the egg, that controls the pattern of cell division and thus handedness. In experiments, an injection of cytoplasm from dextral eggs changes the pattern of sinistral eggs, but an injection from sinistral eggs does not influence dextral eggs. One explanation for the differing effects is that all *Lymnaea peregra* eggs begin -left-handed but most switch to being right-handed. Thus, the path to a solution to the puzzle of handedness in all snails appears to be as twisted as the helix itself.

Q.14 [11594329]

Which of the following would serve as an example of "concomitant structural features" that might disadvantage a snail of the rarer form?

1 ○ A shell and body that are an exact mirror image of a snail of the commoner form

2 ○ A smaller population of the snails of the rarer form

3 ○ A chip or fracture in the shell caused by an object falling on it

4 ○ A smaller shell opening that restricts mobility and ingestion relative to that of a snail of the commoner form

Answer key/Solution

Solution:

Correct Answer : 4

Option 1 is incorrect because it is said in the passage that left- and right-handed snails are not actually true mirror images of one another. Option 2 is also incorrect because smaller population cannot be a part of structural features. Option 3 is incorrect as well because a chip or fracture in the shell caused by an object falling on it cannot be “structural feature” of a snail shell. Option 4 is correct because restricted mobility and ingestion due to smaller shell opening can be a great disadvantage.

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In addition, perhaps left- and right-handed snails cannot mate with each other, having incompatible twist directions. Presumably an individual of the rarer form would have relative difficulty in finding a mate of the same hand, thus keeping the rare fonn rare or creating geographically separated right- and left-handed populations.

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Q.15 [11594329]

The second paragraph of the passage is primarily concerned with offering possible reasons why

1 ○ it is unlikely that evolutionary mechanisms could discriminate against sinistral snails

2 ○ sinistrality is relatively uncommon among snail species

3 ○ dextral and sinistral populations of a snail species tend to intermingle

4 ○ a theory based on a developmental mechanism inadequately accounts for the predominance of dextrality across snail species

Answer key/Solution

Solution:

Correct Answer : 2

The last sentence of the first paragraph ends with a question about what mechanisms control handedness and keep left-handedness rare. The second paragraph refers to it and attempts to answer this question and offers a reason for sinistral rarity. Option 1 is incorrect as the second paragraph is not primarily concerned with offering a reason that it is unlikely that evolutionary mechanisms could discriminate against sinistral snails. Option 3 is not mentioned in the given paragraph. Option 4 is also incorrect because the paragraph does not provide any theory on developmental mechanism that inadequately accounts for the predominance of dextrality across snail species.

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Q.16 [11594329]

In describing the "evolutionary mechanism", the author mentions which of the following?

1 ○ The favorable conditions for nurturing new offspring

2 ○ The variable environmental conditions that affect survival of adult snails

3 ○ The availability of potential mates for breeding

4 ○ The structural identity of offspring to parents of the same hand

Answer key/Solution

Solution:
Correct Answer : 3
Option 1 is incorrect because the paragraph does not talk about the conditions favourable for nurturing new offspring. Option 2 is also incorrect because it is not mentioned in the paragraph. Option 3 is correct because the "evolutionary mechanism" refers and includes the preceding paragraph "…relative difficulty in finding a mate of the same hand…' Option 4 is incorrect because the evolutionary mechanism does not explain the structural identity of offspring to parents of the same hand.

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In addition, perhaps left- and right-handed snails cannot mate with each other, having incompatible twist directions. Presumably an individual of the rarer form would have relative difficulty in finding a mate of the same hand, thus keeping the rare fonn rare or creating geographically separated right- and left-handed populations.

But this evolutionary mechanism combining dissymmetry, anatomy, and chance does not provide an adequate explanation of why right-handedness should have become predominant. It does not explain, for example, why the infrequent unions between snails of opposing hands produce fewer offspring of the rarer than the commoner form in species where each parent contributes equally to handedness. Nor does it explain why, in a species where one parent determines handedness, a brood is not exclusively right- or left-handed when the offspring would have the same genetic predisposition. In the European pond snail *Lymnaea peregra,* a predominantly dextral species whose handedness is maternally determined, a brood might be expected to be exclusively right- or left-handed-and this often occurs. However, some broods possess a few snails of the opposing hand, and in predominantly sinistral broods, the incidence of dextrality is surprisingly high.

Here, the evolutionary theory must defer to a theory based on an explicit developmental mechanism that can favor either right- or left-handedness. In the case of *Lymnaea peregra,* studies indicate that a dextral gene is expressed during egg formation; i.e., before egg fertilization, the gene produces a protein, found in the cytoplasm of the egg, that controls the pattern of cell division and thus handedness. In experiments, an injection of cytoplasm from dextral eggs changes the pattern of sinistral eggs, but an injection from sinistral eggs does not influence dextral eggs. One explanation for the differing effects is that all *Lymnaea peregra* eggs begin -left-handed but most switch to being right-handed. Thus, the path to a solution to the puzzle of handedness in all snails appears to be as twisted as the helix itself.

Q.17 [11594329]

According to the passage, which of the following is true of *Lymnaea peregra*?

1 ○ Handedness within the species was at one time equally distributed between left and right.

2 ○ Under laboratory conditions, dextral eggs from *Lymnaea peregra*can be artificially induced to develop into sinistral snails.

3 ○ Broods of *Lymnaea peregra* are, without variation, exclusively sinistral or dextral.

4 ○ Handedness in *Lymnaea peregra*offspring is determined by only one of the parents.

Answer key/Solution

Solution:
Correct Answer : 4
Option 1 is incorrect because it is not mentioned. Option 2 is false because it is said that an injection from sinistral eggs does not influence dextral eggs. Option 3 is also false because it said that some broods of Lymnaea peregra possess a few snails of the opposing hand. Option 4 is correct because it is said that handedness is maternally determined.

Bookmark FeedBack

Direction for questions (14-18): Read the given passage and answer the questions that follow.

What causes a helix in nature to appear with either a dextral ("right-handed," or clockwise) twist or a sinistral ("left-handed;' or counterclockwise) twist is one of the most intriguing puzzles in the science of form. Most spiral-shaped snail species are predominantly dextral. But at one time, handedness (twist direction of the shell) was equally distributed within some snail species that have become predominantly dextral or, in a few species, predominantly sinistral. What mechanisms control handedness and keep left-handedness rare?

It would seem unlikely that evolution should discriminate against sinistral snails if sinistral and dextral snails are exact mirror images, for any disadvantage that a sinistral twist in itself could confer on its possessor is almost inconceivable. But left- and right-handed snails are not actually true mirror images of one another. Their shapes are noticeably different. Sinistral rarity might, then, be a consequence of possible disadvantages conferred by these other concomitant structural features.

In addition, perhaps left- and right-handed snails cannot mate with each other, having incompatible twist directions. Presumably an individual of the rarer form would have relative difficulty in finding a mate of the same hand, thus keeping the rare fonn rare or creating geographically separated right- and left-handed populations.

But this evolutionary mechanism combining dissymmetry, anatomy, and chance does not provide an adequate explanation of why right-handedness should have become predominant. It does not explain, for example, why the infrequent unions between snails of opposing hands produce fewer offspring of the rarer than the commoner form in species where each parent contributes equally to handedness. Nor does it explain why, in a species where one parent determines handedness, a brood is not exclusively right- or left-handed when the offspring would have the same genetic predisposition. In the European pond snail *Lymnaea peregra,* a predominantly dextral species whose handedness is maternally determined, a brood might be expected to be exclusively right- or left-handed-and this often occurs. However, some broods possess a few snails of the opposing hand, and in predominantly sinistral broods, the incidence of dextrality is surprisingly high.

Here, the evolutionary theory must defer to a theory based on an explicit developmental mechanism that can favor either right- or left-handedness. In the case of *Lymnaea peregra,* studies indicate that a dextral gene is expressed during egg formation; i.e., before egg fertilization, the gene produces a protein, found in the cytoplasm of the egg, that controls the pattern of cell division and thus handedness. In experiments, an injection of cytoplasm from dextral eggs changes the pattern of sinistral eggs, but an injection from sinistral eggs does not influence dextral eggs. One explanation for the differing effects is that all *Lymnaea peregra* eggs begin -left-handed but most switch to being right-handed. Thus, the path to a solution to the puzzle of handedness in all snails appears to be as twisted as the helix itself.

Q.18 [11594329]

The passage implies that in *Lymnaea peregra*, there will generally be

1 ○ more offspring of the nondominant hand in broods where handedness is determined after, rather than before, fertilization

2 ○ a sinistral gene that produces a protein in the cytoplasm of the egg cell

3 ○ fewer sinistral offspring in dextral broods than dextral offspring in sinistral broods

4 ○ equal numbers of exclusively left- and righthanded broods

Answer key/Solution

Solution:
Correct Answer : 3
Option 1 is incorrect because handedness is determined before egg fertilisation. Option 2 is also incorrect because it is the dextral gene that produces a protein in the cytoplasm of the egg cell. Option 3 is correct because it is said that Lymnaea peregra is a predominantly dextral species and in predominantly sinistral broods, the incidence of dextrality is surprisingly high. Also refer to "One explanation for the differing effects is that all Lymnaea peregra eggs begin -left-handed but most switch to being right-handed." Option 4 cannot be inferred.

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Q.19 [11594329]

Directions for question (19): The four sentences (labelled 1,2,3,4) given below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequence of the order of the sentences and key in the sequence of the four numbers as your answer.

1. We reached out to one of our esteemed image manipulators and asked her to help our audience channel their Darth.
2. Everyone wants to be a Jedi Master or Sith Lord or, if you're a Trekkie, an alien space magician or whatever.
3. (When you're ruling the planet, don't forget about us!)
4. Well, we're here to help with that.

✖

Answer key/Solution

Solution:
Correct Answer : 2413
Your Answer : 3241
The above paragraph advertises the fact that people want to adopt different personas. Hence it starts with (2) where it illustrates all the choices, introducing the idea of the paragraph. Then it moves on to (4) to assure the reader that the advertiser can help you achieve this dream. They, then elaborate on (4) by giving an example of how they have gone about fulfilling their promise, so that the audience believes in them (1).Hence, 2413.

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Q.20 [11594329]

Directions for question (20): The four sentences (labelled 1,2,3,4) given below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequence of the order of the sentences and key in the sequence of the four numbers as your answer.

1. Here, in hopes that a bit of foreknowledge may make a dent in the death rate, are the top 10 reasons small businesses fail.
2. And, no matter the cause, it's never funny.
3. Apologies to that expiring thespian, but watching a small business die is never easy, if for no other reason that it can happen in so many different ways.
4. An English actor on his deathbed once muttered: "Dying is easy. Comedy is hard.

✖

Answer key/Solution

Solution:
Correct Answer : 4321
Your Answer : 4132
The above paragraph is an introductory extract from a passage which describes the top 10 reasons for the failure of small businesses. It focuses on the death of a business, So, it starts by challenging the statement of an English actor who said "Dying is easy"(4) But the author doesn't agree to that as he believes that watching a small business die isn't painless or trouble-free(3). Also, the reference to the actor (the thespian) makes it a logical corollary to sentence (4). Sentence (2) which starts with 'And" must be an extension of an earlier mentioned idea. When we read it along with sentence (3), it is obvious that it is a second counter to the actor's quote. The first counter was sentence (3) that it isn't easy, and the second counter is that its isn't funny. Finally, hoping that people will gather relevant knowledge before starting a business that will reduce the rate of business downfalls, the author moves on to list the 10 reasons for small business failures. (1). Hence 4321.

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Q.21 [11594329]

Directions for question (21): 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. Insane conditions have this advantage, that they isolate special factors of the mental life, and enable us to inspect them unmasked by their more usual surroundings.
2. They play the part in mental anatomy which the scalpel and the microscope play in the anatomy of the body.
3. The study of hallucinations has in this way been for psychologists the key to their comprehension of normal sensation, that of illusions has been the key to the right comprehension of perception.
4. Take the trance-like states of insight into truth which all religious mystics report.
5. To understand a thing rightly we need to see it both out of its environment and in it, and to have acquaintance with the whole range of its variations.

Answer key/Solution

Solution:
Correct Answer : 4
The correct sequence is 1253. 4 is the odd one out. The author is discussing about insane conditions. “They” in sentence 2 refers to those insane conditions mentioned in 1. Another pair is 53. The hint is “in this way” in sentence 3.

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Q.22 [11594329]

Directions for question (22): 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. She: Me? You bought that deluxe CD set for your sister!
2. He: Did you really spend $200 on Dad's cashmere sweater?
3. The Visa bill has landed and those holiday spending blunders have come back to haunt you like the Ghost of Christmas Past.
4. Always a healthy choice.
5. So, you take it out on each other.

✔

Answer key/Solution

Solution:
Correct Answer : 4
Your Answer : 4
The above paragraph mockingly describes the blame game between couples, which starts after receiving the Visa bill. The author shows the conversation (2) followed by (1) which takes place after the couple is hit by a huge credit card bill (3). As an after effect, the couple loses their temper on each other (5). Therefore, the correct order is 2135. Hence (4) is the odd one out.

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Q.23 [11594329]

Directions for question (23): The passage given below is followed by four summaries. Choose the option that best captures the author’s position.

Scott Adams, seeing a different flaw in the Peter Principle, proposed the Dilbert Principle: that companies tend to systematically promote their least-competent employees to middle management to limit the damage they can do. This again is untrue. The Gervais principle predicts the exact opposite: that the most competent ones will be promoted to middle management. Michael Scott was a star salesman before he become a Clueless middle manager. The least competent employees (but not all of them — only certain enlightened incompetents) will be promoted not to middle management but fast-tracked through to senior management. To the Sociopath level. And in case you are wondering, the unenlightened under-performers get fired.

1 ○ As opposed to Dilbert Principle, the Gervais Principle says that the incompetent will be promoted to the middle management, but some enlightened incompetent performers will be promoted to the senior management level while others will be fired.

2 ○ As opposed to Dilbert Principle, the Gervais Principle says that the incompetent will be fired but the competent will be promoted to the middle management and eventually to the senior management level.

3 ○ As opposed to Dilbert Principle, the Gervais Principle says that the competent will be promoted to the middle management, but some incompetent will be promoted to senior management level while others will be fired.

4 ○ As per Scott Adams, as opposed to the Dilbert Principle, the Gervais Principle says that the incompetent will be promoted to the middle management and subsequently to Sociopath level, but some incompetent enlightened will also be promoted to the middle management level while others will be fired.

✔

Solution:
Correct Answer : 3
Your Answer : 3

Answer key/Solution

The above-mentioned passage talks about 2 contradicting principles – Dilbert's and Gervais', which tell us about how the competent and incompetents get promoted and what happens to the unenlightened under-performers.
Option (1) is incorrect as the passage says that as per the Gervaise Principle, the competent will get promoted to *'middle management'*. Option (2) is also incorrect as the passage does not mention anything about the competent getting promoted to the senior management. Option (3) captures the main points of the passage. Option (4) is incorrect because it mentions that as per the Gervais Principle the incompetent will get promoted to middle management which is factually incorrect as per the passage. Hence (3)

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Q.24 [11594329]

Directions for question (24): 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. Herzl understood that his political goal needed an organization.
2. So, in 1897 he gathered about 250 followers at the first Zionist Congress.
3. It opened in Basel, Switzerland on August 29, 1897, and launched the World Zionist Organization.
4. Now, in 2017, we have the privilege to witness how Herzl's vision became a reality.
5. Herzl judged the first Zionist Congress a success, as evidenced in his diary entry the day the Congress closed, September 3rd, 1897.

✔

Solution:
Correct Answer : 4
Your Answer : 4

Answer key/Solution

The above-mentioned paragraph talks about the launch of the World Zionist organisation by Herzl and its success. He realized that he needed to form an organisation to reach his political goal (1). So, he collected about 250 followers at the 1st Zionist Congress called the World Zionist Organisation in 1897 (2), which opened in Basel, Switzerland on 29th August of the same year (3). According to Herzl, the Congress was a success, as was obvious by his diary entry on the day the Congress closed on the 3rd of September 1897 (5). Therefore, the correct order is 1235. Hence, (4) that comments on the current perceptions regarding the congress becomes the odd one out.

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Q.25 [11594329]

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

Sometimes I'll glimpse my reflection in a window and feel astonished by what I see. Jet-black hair. Slanted eyes. A pancake-flat surface of yellow-and-green-toned skin. An expression that is nearly reptilian in its impassivity. I've contrived to think of this face as the equal in beauty to any other. But what I feel in these moments is its strangeness to me. It's my face. I can't disclaim it. But what does it have to do with me? You could say that I am, in the gently derisive parlance of Asian-Americans, a banana or a Twinkie (yellow on the outside, white on the inside). But while I don't believe our roots necessarily define us, I do believe there are racially inflected assumptions wired into our neural circuitry that we use to sort through the sea of faces we confront. And although I am in most respects devoid of Asian characteristics, I do have an Asian face.

1 ○ The author is describing her face to highlight the dissonance between her appearance and her personality and infers that we are all bound by the presuppositions and prejudices ingrained in us.

2 ○ The passage is about a person pondering on the incongruity of her facial contours with respect to her innate personality which inspires her to infer that we are programmed to identify and assess people in terms of their apparent racial identity.

3 ○ The passage expresses the dilemma of an immigrant - that even though they want to assimilate and integrate with the dominant majority culture, yet they cannot escape the racial bracketing due to their face and appearance.

4 ○ The author is dwelling on the identity crisis of an Asian-American; as they are neither fully accepted by the native Americans, nor considered as one of their own by the ethnic Asians.

Answer key/Solution

Solution:
Correct Answer : 2
The author believes that though everyone is equal, there is a preconceived belief hardwired in every person which makes them aware of racial differences apparent from their physical appearance. Hence option (2) is correct. Option (1) is a gross exaggeration and not the critical idea of the passage. The author is not necessarily emphasizing on prejudices and biases. She is just mentioning a natural human trait. Option (3) is incorrect as the author isn't uncertain about the existence of racial bracketing, so there is no question of any dilemma. Option (4) is just focusing on a narrow concept, since the larger picture is the comparison of ethnic background of different races. Hence (2).

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Sec 2

Directions for questions 26 - 27: Answer the questions on the basis of the information given below.

In an ELDECO County Society, 90 families buy their goods from Amazon, 80 families from Flipkart and 50 families from Snapdeal. 25 families buy goods from both Amazon and Snapdeal. 10 families buy goods from both Snapdeal and Flipkart but not Amazon. The number of families who buy from both Amazon and Flipkart but not Snapdeal is 20 less than the number of families who buy goods from all three.

Q.26 [11594329]
What could be the total number of families living in the Society assuming that each family buys goods from at least one of the sites?

1 ○ 130

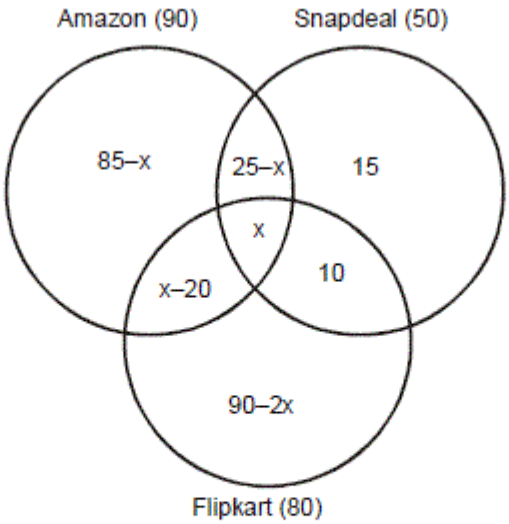
2 ○ 157

3 ○ 162

4 ○ Either (2) or (3)

Solution:
Correct Answer : 2

Answer key/Solution



Let us assume the number of families who buy products from all three sites is x. As every region in the above venn-diagram represents the number of families so it must not be negative. Thus,

- $90 - 2x \geq 0$, so $x \leq 45$
- $85 - x \geq 0$, so $x \leq 85$
- $25 - x \geq 0$, so $x \leq 25$
- $x - 20 \geq 0$, so $x \geq 20$

If we add up the above figure we get 205 – 2x, this represents the total number of families who buy goods from at least one of these sites. Now as the minimum value of x is 20 and the maximum value is 25, we get the minimum value of total number of families as 155 and maximum value as 165. So we get a range from 155 to 165 both inclusive. Now both options (2) and (3) lie in our range but the answer has to be an odd value. (205 is odd and 2x is even.)

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Directions for questions 26 - 27: Answer the questions on the basis of the information given below.

In an ELDECO County Society, 90 families buy their goods from Amazon, 80 families from Flipkart and 50 families from Snapdeal. 25 families buy goods from both Amazon and Snapdeal. 10 families buy goods from both Snapdeal and Flipkart but not Amazon. The number of families who buy from both Amazon and Flipkart but not Snapdeal is 20 less than the number of families who buy goods from all three.

Q.27 [11594329]
If the number of families who buy from both Amazon and Snapdeal but not from Flipkart is more than the number of families who buy from both Amazon and Flipkart but not from Snapdeal, then what could be the number of families who buy from only Flipkart?

1 ○ 48

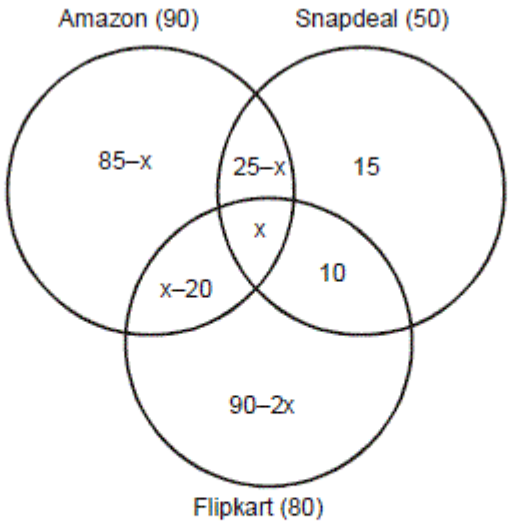
2 ○ 47

3 ○ 37

4 ○ Either (1) or (2)

Solution:
Correct Answer : 1

Answer key/Solution



Let us assume the number of families who buy products from all three sites is x. As every region in the above venn-diagram represents the number of families so it must not be negative. Thus,

- $90 - 2x \geq 0$, so $x \leq 45$
- $85 - x \geq 0$, so $x \leq 85$
- $25 - x \geq 0$, so $x \leq 25$
- $x - 20 \geq 0$, so $x \geq 20$

Now in this $25 - x > x - 20$, so $x < 22.5$. Thus for this case the minimum value of x will be 20 and maximum value willbe 22. Now we require the number of families who buy only from Flipkart which is $90 - 2x$. So, for $x = 20$, we get 50and for $x = 22$, we get 46. So the number of families who buy only from Flipkart can be from 46 to 50 both inclusive.In the options both (1) and (2) are satisfying the range but answer has to be an even value. (90 is even and 2x is even.)

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Directions for questions 28 - 29: Answer the questions on the basis of the information given below.

Seven friends - Adam, David, Graham, John, Kim, Roger, and Steven – had to collect two different types of flowers – Rose, Lily, Orchid, and Tulip - for their holiday homework. So, they went to a park and decided to go into the different directions and collected two flowers each such that each of them found out one flower that they needed for themselves and another flower which one of the others would require and gave it to them. It is also known that:

(i) John found a lily for himself and gave another flower to Steven, who found a Rose for Adam.
(ii) After the exchange, each one of them had a different pair of flowers, except David and Roger and both of them neither wanted a Tulip nor they found it.
(iii) Kim traded Lily with Graham in order to get a flower from him.
(iv) Adam found the same flower for himself which David found for John.
(v) Exactly two friends, including Roger, found rose for themselves.

Q.28 [11594329]

What flower did Adam find for himself?

1 ○ Rose

2 ○ Lily

3 ○ Orchid

4 ○ Tulip

Solution:
Correct Answer : 3

Answer key/Solution

From statement (i) and (iii), we can form an initial table.

Friends	Flower found for themeselves	Friend who found other flower	Flower Found
Adam		Steven	Rose
David			
Graham		Kim	Lily
John	Lily		
Kim		Graham	
Roger			
Steven		John	

From statement (iv), we know Adam found the same flower for himself which David found for John. Now, David has to give John an orchid, because John already has a Lily and Adam already had a Rose, so he won't find himself one (statement (ii))

Therefore, Roger find a flower for David and Adam finds a flower from Roger.

Friends	Flower found for themeselves	Friend who found other flower	Flower Found
Adam	Orchid	Steven	Rose
David		Roger	
Graham		Kim	Lily
John	Lily	David	Orchid
Kim		Graham	
Roger		Adam	
Steven		John	

From statement (v), Roger finds a Rose for himself and other flower for David, which cannot be Rose or Tulip (statement (iii)), but since David has the same pair of flowers as Roger, after the exchange, therefore, David must have found Rose for himself. Also, Adam must have found Lily for Roger (since Orchid, Tulip, and Rose are not possible) and so Roger must have found Lily for David.

Since all of them had different pair of flowers. All possible pairs will be (Rose, Lily), (Rose, Orchid), (Rose, Tulip), (Lily, Tulip), (Lily, Orchid) and (Orchid, Tulip).

Thus final table will be:

Friends	Flower found for themeselves	Friend who found other flower	Flower Found
Adam	Orchid	Steven	Rose
David	Rose	Roger	Lily
Graham	Tulip	Kim	Lily
John	Lily	David	Orchid
Kim	Tulip	Graham	Rose/Orchid
Roger	Rose	Adam	Lily
Steven	Tulip/Orchid	John	Rose/Tulip/Orchid

Adam finds Orchid for himself.

Bookmark FeedBack

Directions for questions 28 - 29: Answer the questions on the basis of the information given below.

Seven friends - Adam, David, Graham, John, Kim, Roger, and Steven – had to collect two different types of flowers – Rose, Lily, Orchid, and Tulip - for their holiday homework. So, they went to a park and decided to go into the different directions and collected two flowers each such that each of them found out one flower that they needed for themselves and another flower which one of the others would require and gave it to them. It is also known that:

(i) John found a lily for himself and gave another flower to Steven, who found a Rose for Adam.
(ii) After the exchange, each one of them had a different pair of flowers, except David and Roger and both of them neither wanted a Tulip nor they found it.
(iii) Kim traded Lily with Graham in order to get a flower from him.
(iv) Adam found the same flower for himself which David found for John.
(v) Exactly two friends, including Roger, found rose for themselves.

Q.29 [11594329]
Adam found the other flower for _____.

1 ○ David

2 ○ Roger

3 ○ John

4 ○ Graham

Solution:
Correct Answer : 2

Answer key/Solution

From statement (i) and (iii), we can form an initial table.

Friends	Flower found for themeselves	Friend who found other flower	Flower Found
Adam		Steven	Rose
David			
Graham		Kim	Lily
John	Lily		
Kim		Graham	
Roger			
Steven		John	

From statement (iv), we know Adam found the same flower for himself which David found for John. Now, David has to give John an orchid, because John already has a Lily and Adam already had a Rose, so he won't find himself one (statement (ii))

Therefore, Roger find a flower for David and Adam finds a flower from Roger.

Friends	Flower found for themeselves	Friend who found other flower	Flower Found
Adam	Orchid	Steven	Rose
David		Roger	
Graham		Kim	Lily
John	Lily	David	Orchid
Kim		Graham	
Roger		Adam	
Steven		John	

From statement (v), Roger finds a Rose for himself and other flower for David, which cannot be Rose or Tulip (statement (iii)), but since David has the same pair of flowers as Roger, after the exchange, therefore, David must have found Rose for himself. Also, Adam must have found Lily for Roger (since Orchid, Tulip, and Rose are not possible) and so Roger must have found Lily for David.

Since all of them had different pair of flowers. All possible pairs will be (Rose, Lily), (Rose, Orchid), (Rose, Tulip), (Lily, Tulip), (Lily, Orchid) and (Orchid, Tulip).

Thus final table will be:

Friends	Flower found for themeselves	Friend who found other flower	Flower Found
Adam	Orchid	Steven	Rose
David	Rose	Roger	Lily
Graham	Tulip	Kim	Lily
John	Lily	David	Orchid
Kim	Tulip	Graham	Rose/Orchid
Roger	Rose	Adam	Lily
Steven	Tulip/Orchid	John	Rose/Tulip/Orchid

Adam found the other flower for Roger.

Bookmark FeedBack

Directions for questions 30 to 33 : Answer the questions on the basis of the information given below.

Ten students – A, B, C, D, E, F, G, H, I, and J– appeared for an exam. Each student was given a sheet and each sheet contained the same four questions – Q1, Q2, Q3, and Q4. Each of them answered each of the four questions correctly or incorrectly. At the end, it was found that no one has answered all the four questions correctly and also none of the questions was correctly answered by all of them. It is also found that:

(i) All the students who answered Q1 correctly also answered Q2 correctly.
(ii) There was one question which was answered incorrectly by only A, C, and D, and another question was answered incorrectly by only B and E.
(iii) There was total 11 incorrect answers in the sheet put together.
(iv) Only J answered Q2 incorrectly.

Q.30 [11594329]
How many students answered Q3 correctly?

1 ○ 9

2 ○ 8

3 ○ 7

4 ○ Either (2) or (3)

✔

Solution:

Correct Answer : 4

Your Answer : 4

Answer key/Solution

- Out of 10 students, none answered all the 4 questions correctly.
- From statement (i), there was one question which was answered incorrectly by only A, C, and D, and another question was answered incorrectly by only B and E, therefore, the pair of number of incorrect and correct responses for any of two of the questions will be (3, 7) and (2, 8). From statement (iv), incorrect and correct responses of Q2 will be (1, 9), where only J answered Q2 incorrectly.
- Since there were total 11 incorrect responses, therefore, for a questions pair of correct and incorrect responses will be (5, 5).
- Consider that the questions answered incorrectly by only A, C, and D is Q1. Then by statement (i), J must have answered Q1 correctly, and therefore, must have answered Q2 correctly, which is not true. So, A, C, and D must have answered either Q3 or Q4 correctly. Same is true for B and E.

Considering all the statements and conclusions, following cases can be deduced:

Case 1: Only A, C, and D answered Q3 incorrectly and only B and E answered Q4 incorrectly.

- Q1 was correctly answered by A, B, C, D, and E.
- Q2 was correctly answered by A, B, C, D, E, F, G, H, and I.
- Q3 was correctly answered by B, E, F, G, H, I, and J.
- Q4 was correctly answered by A, C, D, F, G, H, I, and J.

Case 2: Only A, C, and D answered Q4 incorrectly and only B and E answered Q3 incorrectly.

- Q1 was correctly answered by A, B, C, D, and E.
- Q2 was correctly answered by A, B, C, D, E, F, G, H, and I.
- Q3 was correctly answered by A, C, D, F, G, H, I, and J.
- Q4 was correctly answered by B, E, F, G, H, I, and J.

Either 7 or 8 students answered Q3 correctly.

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Directions for questions 30 to 33 : Answer the questions on the basis of the information given below.

Ten students – A, B, C, D, E, F, G, H, I, and J– appeared for an exam. Each student was given a sheet and each sheet contained the same four questions – Q1, Q2, Q3, and Q4. Each of them answered each of the four questions correctly or incorrectly. At the end, it was found that no one has answered all the four questions correctly and also none of the questions was correctly answered by all of them. It is also found that:

(i) All the students who answered Q1 correctly also answered Q2 correctly.
(ii) There was one question which was answered incorrectly by only A, C, and D, and another question was answered incorrectly by only B and E.
(iii) There was total 11 incorrect answers in the sheet put together.
(iv) Only J answered Q2 incorrectly.

Q.31 [11594329]

Who among the following definitely answered Q3 and Q1 correctly?

1 ○ B

2 ○ E

3 ○ C

4 ○ No one

✔

Solution:
Correct Answer : 4
Your Answer : 4

Answer key/Solution

- Out of 10 students, none answered all the 4 questions correctly.
- From statement (i), there was one question which was answered incorrectly by only A, C, and D, and another question was answered incorrectly by only B and E, therefore, the pair of number of incorrect and correct responses for any of two of the questions will be (3, 7) and (2, 8). From statement (iv), incorrect and correct responses of Q2 will be (1, 9), where only J answered Q2 incorrectly.
- Since there were total 11 incorrect responses, therefore, for a questions pair of correct and incorrect responses will be (5, 5).
- Consider that the questions answered incorrectly by only A, C, and D is Q1. Then by statement (i), J must have answered Q1 correctly, and therefore, must have answered Q2 correctly, which is not true. So, A, C, and D must have answered either Q3 or Q4 correctly. Same is true for B and E.

Considering all the statements and conclusions, following cases can be deduced:
Case 1: Only A, C, and D answered Q3 incorrectly and only B and E answered Q4 incorrectly.
- Q1 was correctly answered by A, B, C, D, and E.
- Q2 was correctly answered by A, B, C, D, E, F, G, H, and I.
- Q3 was correctly answered by B, E, F, G, H, I, and J.
- Q4 was correctly answered by A, C, D, F, G, H, I, and J.

Case 2: Only A, C, and D answered Q4 incorrectly and only B and E answered Q3 incorrectly.
- Q1 was correctly answered by A, B, C, D, and E.
- Q2 was correctly answered by A, B, C, D, E, F, G, H, and I.
- Q3 was correctly answered by A, C, D, F, G, H, I, and J.
- Q4 was correctly answered by B, E, F, G, H, I, and J.

No one among the following options answered both Q3 and Q1 correctly.

Bookmark FeedBack

Directions for questions 30 to 33 : Answer the questions on the basis of the information given below.

Ten students – A, B, C, D, E, F, G, H, I, and J– appeared for an exam. Each student was given a sheet and each sheet contained the same four questions – Q1, Q2, Q3, and Q4. Each of them answered each of the four questions correctly or incorrectly. At the end, it was found that no one has answered all the four questions correctly and also none of the questions was correctly answered by all of them. It is also found that:

(i) All the students who answered Q1 correctly also answered Q2 correctly.
(ii) There was one question which was answered incorrectly by only A, C, and D, and another question was answered incorrectly by only B and E.
(iii) There was total 11 incorrect answers in the sheet put together.
(iv) Only J answered Q2 incorrectly.

Q.32 [11594329]
Who among the following did not answer Q1 correctly?

1 ○ I, J, E, C

2 ○ F, G, H, J, E

3 ○ F, G, H, I, J

4 ○ F, H, G, C

✔

Solution:
Correct Answer : 3
Your Answer : 3

Answer key/Solution

- Out of 10 students, none answered all the 4 questions correctly.
- From statement (i), there was one question which was answered incorrectly by only A, C, and D, and another question was answered incorrectly by only B and E, therefore, the pair of number of incorrect and correct responses for any of two of the questions will be (3, 7) and (2, 8). From statement (iv), incorrect and correct responses of Q2 will be (1, 9), where only J answered Q2 incorrectly.
- Since there were total 11 incorrect responses, therefore, for a questions pair of correct and incorrect responses will be (5, 5).
- Consider that the questions answered incorrectly by only A, C, and D is Q1. Then by statement (i), J must have answered Q1 correctly, and therefore, must have answered Q2 correctly, which is not true. So, A, C, and D must have answered either Q3 or Q4 correctly. Same is true for B and E.

Considering all the statements and conclusions, following cases can be deduced:
Case 1: Only A, C, and D answered Q3 incorrectly and only B and E answered Q4 incorrectly.

- Q1 was correctly answered by A, B, C, D, and E.
- Q2 was correctly answered by A, B, C, D, E, F, G, H, and I.
- Q3 was correctly answered by B, E, F, G, H, I, and J.
- Q4 was correctly answered by A, C, D, F, G, H, I, and J.

Case 2: Only A, C, and D answered Q4 incorrectly and only B and E answered Q3 incorrectly.

- Q1 was correctly answered by A, B, C, D, and E.
- Q2 was correctly answered by A, B, C, D, E, F, G, H, and I.
- Q3 was correctly answered by A, C, D, F, G, H, I, and J.
- Q4 was correctly answered by B, E, F, G, H, I, and J.

F, G, H, I, J did not answer Q1 correctly.

Bookmark FeedBack

Directions for questions 30 to 33 : Answer the questions on the basis of the information given below.

Ten students – A, B, C, D, E, F, G, H, I, and J– appeared for an exam. Each student was given a sheet and each sheet contained the same four questions – Q1, Q2, Q3, and Q4. Each of them answered each of the four questions correctly or incorrectly. At the end, it was found that no one has answered all the four questions correctly and also none of the questions was correctly answered by all of them. It is also found that:

(i) All the students who answered Q1 correctly also answered Q2 correctly.
(ii) There was one question which was answered incorrectly by only A, C, and D, and another question was answered incorrectly by only B and E.
(iii) There was total 11 incorrect answers in the sheet put together.
(iv) Only J answered Q2 incorrectly.

Q.33 [11594329]

For how many students can we uniquely determine that they have answered Q4 correctly?

✔

Solution:

Correct Answer : 5

Your Answer : 5

Answer key/Solution

- Out of 10 students, none answered all the 4 questions correctly.
- From statement (i), there was one question which was answered incorrectly by only A, C, and D, and another question was answered incorrectly by only B and E, therefore, the pair of number of incorrect and correct responses for any of two of the questions will be (3, 7) and (2, 8). From statement (iv), incorrect and correct responses of Q2 will be (1, 9), where only J answered Q2 incorrectly.
- Since there were total 11 incorrect responses, therefore, for a questions pair of correct and incorrect responses will be (5, 5).
- Consider that the questions answered incorrectly by only A, C, and D is Q1. Then by statement (i), J must have answered Q1 correctly, and therefore, must have answered Q2 correctly, which is not true. So, A, C, and D must have answered either Q3 or Q4 correctly. Same is true for B and E.

Considering all the statements and conclusions, following cases can be deduced:

Case 1: Only A, C, and D answered Q3 incorrectly and only B and E answered Q4 incorrectly.

- Q1 was correctly answered by A, B, C, D, and E.
- Q2 was correctly answered by A, B, C, D, E, F, G, H, and I.
- Q3 was correctly answered by B, E, F, G, H, I, and J.
- Q4 was correctly answered by A, C, D, F, G, H, I, and J.

Case 2: Only A, C, and D answered Q4 incorrectly and only B and E answered Q3 incorrectly.

- Q1 was correctly answered by A, B, C, D, and E.
- Q2 was correctly answered by A, B, C, D, E, F, G, H, and I.
- Q3 was correctly answered by A, C, D, F, G, H, I, and J.
- Q4 was correctly answered by B, E, F, G, H, I, and J.

For 5 students we can uniquely determine that they have answered Q4 correctly.

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Directions for questions 34 to 37: Answer the questions on the basis of the information given below.

In a year, some children and adults join a famous swimming club "Pacific" to learn swimming. The head of this club then decides to make three teams - Team 1, Team 2, and Team 3 - out of the total members who has joined this club such that each team has both swimmers and non-swimmers. A total of 600 people are members of this club. The number of members of Team 2 is equal to that of Team 3.The number of members of Team 1 is equal to the sum of the number of members of Team 2 and Team 3 put together. In order to find out how many children and adults are there in each team and out of them who can swim, he decides to make a table, given below, for better understanding, which shows the percentage of adults and the percentage of members who can swim in each team.

	Percentage of Adults	Percentage of members who can swim
Team 1		30
Team 2	60	20
Team 3	50	
Total	45	30

Q.34 [11594329]
Find the number of adult members of Team 1.

✔

Solution:
Correct Answer : 105
Your Answer : 105

Answer key/Solution

The total number of members of the club is 600.
It is known that Team 2 and 3 have equal number of members, the sum of which is equal to that of Team 1.
If the number of members of Team 2 and Team 3 is individually x, then that of Team 1 will be 2x.
$\therefore 2x + x + x = 600$
$\therefore 4x = 600$
$\therefore x = 150$
Thus, 150 people are the members of Team 2 and Team 3 each, and 300 people are the members of Team 1.
Total number of adults = $0.45 \times 600 = 270$
Total number of adults on Team 2 = $0.6 \times 150 = 90$
Total number of adults on Team 3 = $0.5 \times 150 = 75$
$\therefore$ Total number of adults on Team 1 = $270 - (90 + 75) = 105$.

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Directions for questions 34 to 37: Answer the questions on the basis of the information given below.

In a year, some children and adults join a famous swimming club "Pacific" to learn swimming. The head of this club then decides to make three teams - Team 1, Team 2, and Team 3 - out of the total members who has joined this club such that each team has both swimmers and non-swimmers. A total of 600 people are members of this club. The number of members of Team 2 is equal to that of Team 3.The number of members of Team 1 is equal to the sum of the number of members of Team 2 and Team 3 put together. In order to find out how many children and adults are there in each team and out of them who can swim, he decides to make a table, given below, for better understanding, which shows the percentage of adults and the percentage of members who can swim in each team.

	Percentage of Adults	Percentage of members who can swim
Team 1		30
Team 2	60	20
Team 3	50	
Total	45	30

Q.35 [11594329]

If 20% of adults of Team 3 can swim, then what is the absolute difference between the number of children who can swim and that of adults who cannot swim of Team 3?

✔

Solution:

Correct Answer : 15

Your Answer : 15

Answer key/Solution

Number of adults on Team 3 = 75
Total number of members on Team 3 = 150.
∴ Total number of children on Team 3 = 150 – 75 = 75
Now, 20% of adults on Team 3 are swimmers.
∴ Number of adult swimmers on Team 3 = 0.2 × 75 = 15
So, number of adult non-swimmers on Team 3 = 75 - 15 = 60 ... (i)
Now, total number of swimmers = 0.3 × 600 = 180
Total number of swimmers on Team 1 = 0.3 × 300 = 90
Total number of swimmers on Team 2 = 0.2 × 150 = 30
∴ Total number of swimmers on Team 3 = 180 – (90 + 30) = 60
Of these 60 swimmers on Team 3, 15 are males.
∴ Number of child swimmers on Team 3 = 60 – 15 = 45 ...(ii)
Hence, the difference between the number of adult non-swimmers and child swimmers on Team 3 = 60 – 45 = 15.

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Directions for questions 34 to 37: Answer the questions on the basis of the information given below.

In a year, some children and adults join a famous swimming club “Pacific” to learn swimming. The head of this club then decides to make three teams - Team 1, Team 2, and Team 3 - out of the total members who has joined this club such that each team has both swimmers and non-swimmers. A total of 600 people are members of this club. The number of members of Team 2 is equal to that of Team 3.The number of members of Team 1 is equal to the sum of the number of members of Team 2 and Team 3 put together. In order to find out how many children and adults are there in each team and out of them who can swim, he decides to make a table, given below, for better understanding, which shows the percentage of adults and the percentage of members who can swim in each team.

	Percentage of Adults	Percentage of members who can swim
Team 1		30
Team 2	60	20
Team 3	50	
Total	45	30

Q.36 [11594329]

If at least 3/5th of the number of adults of Team 2 and Team 3 put together cannot swim, then what is the maximum number of children, of Team 2 and Team 3 put together, who cannot swim?

1 ○ 111

2 ○ 97

3 ○ 103

4 ○ None of these

✔

Solution:
Correct Answer : 1
Your Answer : 1

Answer key/Solution

Total number of people in the group when Team 2 and 3 are combined = 150 + 150 = 300
Total number of adults in the group = 165
Total children in the group = 135
Total swimmers in the group formed when Team 2 and 3 are combined = 30 + 60 = 90

Now, atleast $\frac{3}{5}^{th}$ of adults in this group are non-swimmers.
So, minimum number of adult non-swimmers in this group = 35 × 165 = 99
∴ Maximum number of adult swimmers in the group = 165 – 99 = 66
To find the maximum number of children in the group who cannot swim, consider the maximum number of adults in that group who can swim.
Thus, if 66 swimmers are adult, number of swimmers who are children = 90 – 66 = 24.
∴ Maximum number of children in the group who cannot swim = 135 – 24 = 111.

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Directions for questions 34 to 37: Answer the questions on the basis of the information given below.

In a year, some children and adults join a famous swimming club "Pacific" to learn swimming. The head of this club then decides to make three teams - Team 1, Team 2, and Team 3 - out of the total members who has joined this club such that each team has both swimmers and non-swimmers. A total of 600 people are members of this club. The number of members of Team 2 is equal to that of Team 3.The number of members of Team 1 is equal to the sum of the number of members of Team 2 and Team 3 put together. In order to find out how many children and adults are there in each team and out of them who can swim, he decides to make a table, given below, for better understanding, which shows the percentage of adults and the percentage of members who can swim in each team.

	Percentage of Adults	Percentage of members who can swim
Team 1		30
Team 2	60	20
Team 3	50	
Total	45	30

Q.37 [11594329]
Which of the following is true?

1 ○ Number of children of Team 2, who can swim is more than that of Team 3.

2 ○ Number of children of Team 1 is equal to number of members who cannot swim on Team 1.

3 ○ Number of adults of Team 1 is equal to number of members who cannot swim of Team 1.

4 ○ Number of members of Team 3, who cannot swim is equal to number of members of Team 1 who can swim.

✔

Solution:
Correct Answer : 4
Your Answer : 4

Answer key/Solution

From the information given, we can build the table in following manner:

	Adults	Children	Swimmers	Non-Swimmers	Total
Team 1	105	195	90	210	300
Team 2	90	60	30	120	150
Team 3	75	75	60	90	150
Total	270	330	180	420	600

From the table, we can see that option (4) is true.

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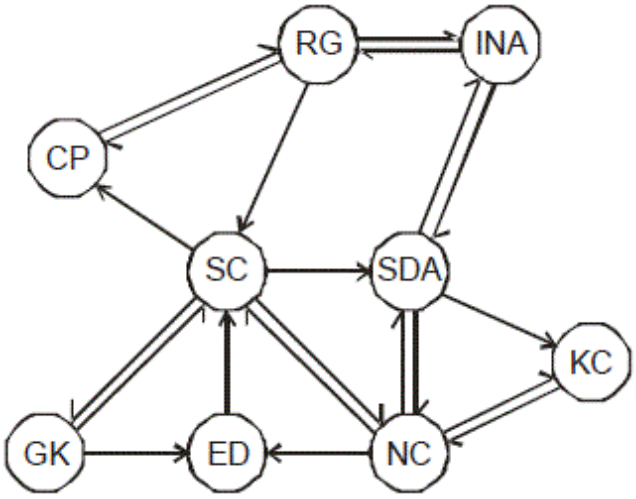
Directions for questions 38 to 41: Answer the questions on the basis of the information given below.

In a residency, nine localities – RG, INA, CP, SDA, SC, NC, KC, GK, and ED are connected by a certain two-way and one-way roads as shown below:



→ One way road; for example → one can go from SC to SDA directly, but not from SDA to SC directly;
⇌ Two way road; for example: one can go to and fro from SC to GK directly.

Q.38 [11594329]
In how many ways can a person travel from GK to KC, without passing through any locality twice?

Solution:

Correct Answer : 12

Answer key/Solution

Following are the ways of going from GK to KC:

GK → SC → CP → RG → INA → SDA → KC

GK → SC → CP → RG → INA → SDA → NC → KC

GK → SC → SDA → NC → KC

GK → SC → SDA → KC

GK → SC → NC → SDA → KC

GK → SC → NC → KC

and there are these many ways if we follow:

GK → ED → SC

Hence, a total of 12 ways.

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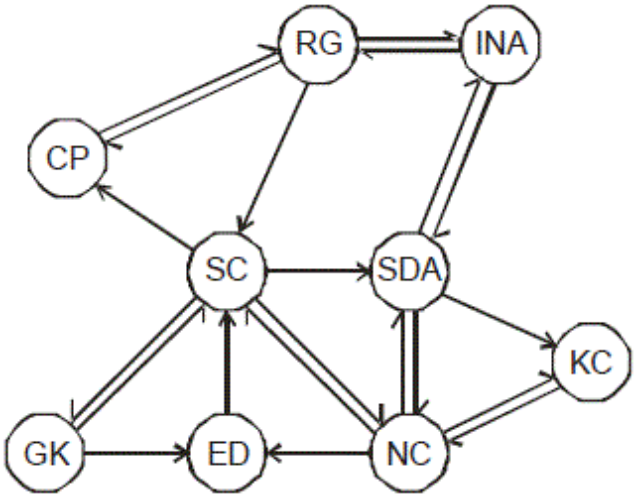
Directions for questions 38 to 41: Answer the questions on the basis of the information given below.

In a residency, nine localities – RG, INA, CP, SDA, SC, NC, KC, GK, and ED are connected by a certain two-way and one-way roads as shown below:



→ One way road; for example → one can go from SC to SDA directly, but not from SDA to SC directly;

⇌ Two way road; for example: one can go to and fro from SC to GK directly.

Q.39 [11594329]

How many pair of localities are there such that one locality can be reached from the other locality, by passing through two-way roads only, that is., without passing through any one-way road and without passing through any locality twice?

Solution:
Correct Answer : 28

Answer key/Solution

Following are such pair:

7 pairs
- SC → GK
- SC → NC
- SC → SDA (i.e., SC → NC → SDA)
- SC → KC (i.e., SC → NC → KC)
- SC → INA (i.e., SC → NC → SDA → INA)
- SC → RG (i.e., SC → NC → SDA → INA → RG)
- SC → CP (i.e., SC → NC → SDA → INA → RG → CP)

Similarly, with GK, there will be 6 pairs (i.e., via SC and GK → SC is already counted)
Similarly, with NC there are 5 pairs (i.e., NC – SC & NC – GK are already taken.)
And so on with others i.e., with SDA → 4 pairs; with KC → 3 pairs; with INA → 2 pairs; with RG → 1 pair.
Hence, a total of 28 pairs.

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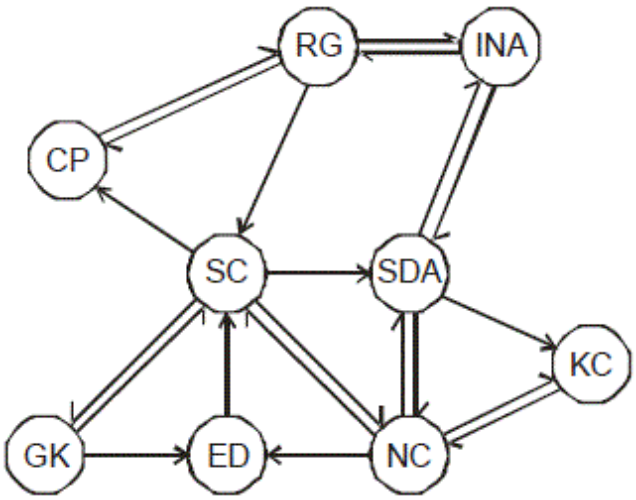
Directions for questions 38 to 41: Answer the questions on the basis of the information given below.

In a residency, nine localities – RG, INA, CP, SDA, SC, NC, KC, GK, and ED are connected by a certain two-way and one-way roads as shown below:



→ One way road; for example → one can go from SC to SDA directly, but not from SDA to SC directly;
⇌ Two way road; for example: one can go to and fro from SC to GK directly.

Q.40 [11594329]
A person started from one locality, passed through exactly two other localities, without passing through any locality twice, and reached the destination locality. For which of the following locality he started from, would the number of destination localities be maximum?

1 ○ INA or SDA

2 ○ KC or SC

3 ○ INA or NC or GK

4 ○ SC or SDA or NC

Solution:
Correct Answer : 3

Answer key/Solution

With INA, following are the number of different localities that can be reached, passing through exactly 2 other localities.

INA → SDA → NC → ED
INA → SDA → NC → KC
INA → SDA → NC → SC
INA → RG → SC → SDA
INA → RG → SC → CP
INA → RG → SC → GK
INA → RG → SC → NC
} 7 localities

with NC.

NC → SC → GK → ED
NC → SC → SDA → KC
NC → SC → CP → RG
NC → SC → SDA → INA
NC → ED → SC → SDA
NC → ED → SC → CP
NC → ED → SC → GK
} 7 localities

with GK,

GK → ED → SC → NC
GK → ED → SC → SDA
GK → ED → SC → CP
GK → SC → CP → RG
GK → SC → SDA → INA
GK → SC → SDA → KC
SK → SC → NC → ED
} 7 localities

From all other localities, following are the number of different localities that can be reached, passing through exactly 2 other localities:

with CP → 3; with RG → 5; with SDA → 4
with KC → 5; with ED → 5; with SC → 5

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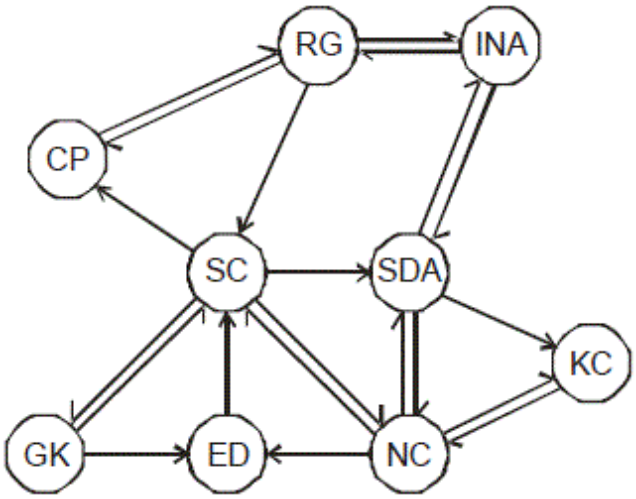
Directions for questions 38 to 41: Answer the questions on the basis of the information given below.

In a residency, nine localities – RG, INA, CP, SDA, SC, NC, KC, GK, and ED are connected by a certain two-way and one-way roads as shown below:



→ One way road; for example → one can go from SC to SDA directly, but not from SDA to SC directly;
⇌ Two way road; for example: one can go to and fro from SC to GK directly.

Q.41 [11594329]

Starting from SC which locality can be reached by the maximum number of persons without passing through any locality twice, such that, no two persons pass through the same road?

1 ○ NC or GK

2 ○ SDA

3 ○ NC or KC

4 ○ NC or SDA

Solution:
Correct Answer : 4

Answer key/Solution

There are 3 incoming roads to each of SDA and NC while other localities have lesser such roads. Hence, need to check for SDA and NC only.

Bookmark FeedBack

Directions for questions 42 - 43: Answer the questions on the basis of the information given below.

Shasha, a dealer of cricket balls, has two children– a girl named Sansa and a boy named Jon. One day, he brought home 'n' identical looking cricket balls numbered 1 to n, with each ball having a different weight. He weighed all the balls, using a weighing balance. He placed the ball numbered 1 on one side of the balance and the ball numbered 2 on the other side. If the ball numbered 1 was lighter than the ball numbered 2, he gave the ball numbered 1 to his daughter and if the ball numbered 1 was heavier than the ball numbered 2, he gave the ball numbered 1 to his son. He then weighed the ball numbered 2 against the ball numbered 3 and did the same i.e., if the ball numbered 2 was lighter than the ball numbered 3, he gave it to Sansa otherwise he gave it to Jon. In this way, after each weighing, he gave the lower numbered ball, if lighter, to his daughter and if heavier to his son, until he was left with only one ball i.e., the ball numbered 'n'.

Q.42 [11594329]

If n = 9 and the balls numbered 3, 5 and 7 are the only balls Shasha gave to his daughter, how many of the nine balls could be the heaviest of all?

1 ○ 3

2 ○ 5

3 ○ 4

4 ○ 6

Solution:
Correct Answer : 3

Answer key/Solution

Since the balls numbered 3, 5 and 7 are the only balls he gave to his daughter, therefore the balls numbered 1, 2, 4, 6 and 8 are the balls given by him to his son.
(Nothing is given about what he does with the last ball i.e., ball numbered 9 in this case)
This implies that ball numbered:
(i) $1 > 2 > 3$
and (ii) $4 > 3$ and $4 > 5$
and (iii) $6 > 5$ and $6 > 7$
and (iv) $8 > 7$ and $8 > 9$
where (>) indicates 'heavier than'.
Therefore any ball out of the balls numbered 1, 4, 6 and 8 could be the heaviest of all 9 balls.

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Directions for questions 42 - 43: Answer the questions on the basis of the information given below.

Shasha, a dealer of cricket balls, has two children– a girl named Sansa and a boy named Jon. One day, he brought home 'n' identical looking cricket balls numbered 1 to n, with each ball having a different weight. He weighed all the balls, using a weighing balance. He placed the ball numbered 1 on one side of the balance and the ball numbered 2 on the other side. If the ball numbered 1 was lighter than the ball numbered 2, he gave the ball numbered 1 to his daughter and if the ball numbered 1 was heavier than the ball numbered 2, he gave the ball numbered 1 to his son. He then weighed the ball numbered 2 against the ball numbered 3 and did the same i.e., if the ball numbered 2 was lighter than the ball numbered 3, he gave it to Sansa otherwise he gave it to Jon. In this way, after each weighing, he gave the lower numbered ball, if lighter, to his daughter and if heavier to his son, until he was left with only one ball i.e., the ball numbered 'n'.

Q.43 [11594329]

If n = 5 and the balls numbered 3 and 4 are the only balls Shasha gave to his daughter, which ball is the lightest of all?

1 ○ Ball numbered 3

2 ○ Ball numbered 4

3 ○ Ball numbered 5

4 ○ Either ball numbered 3 or ball numbered 4

Solution:
Correct Answer : 1

Answer key/Solution

n = 5 and balls with daughter → balls numbered 3 and 4 and balls with son → balls numbered 1 and 2;
This implies that the ball numbered:
(i) 1 > 2 > 3
(ii) 4 > 3 and 5 > 4
Hence, ball numbered 3 is the lightest.

Bookmark FeedBack

Sec 3

Q.44 [11594329]

When Ross and Rachael got married 10 years ago, their ages were in the ratio of 5 : 4. Today Ross's age is one-sixth more than Rachael's age. After marriage they had six children including a triplet and twins. The ages of one of the triplets, one of the twins and the sixth child are in the ratio of 3 : 2 : 1. What is the largest possible value (in years) of the present total age of the family if all the family members have integral ages?

1 ○ 79

2 ○ 93

3 ○ 101

4 ○ 107

Solution:

Correct Answer : 4

Answer key/Solution

10 years ago, let the age of Ross and Rachael be 5x and 4x, respectively,
Present age of Ross = 5x + 10
Present age of Rachael = 4x + 10

Thus, $5x + 10 = \frac{7}{6}(4x + 10)$

$\Rightarrow x = 5$
Ross's present age = 35 years and Rachael's = 30 years
Ratio of ages of one of triplets, one of twins and single child = 3 : 2 : 1
Age of each of triplets = 3y, Each of twins = 2y, Single = y
Let y = 1 Single child age = 1
Twins age = 2
Triplets age = 3
y = 2 Single child age = 2
Twins age = 4
Triplets age = 6
y = 3 Single child age = 3
Twins age = 6
Triplets age = 9
For 3rd case
Total family age (in years) = 65 + 3 × 9 + 2 × 6 + 3 = 107.

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Q.45 [11594329]

Delhi and Prayagraj are 600 km apart. Train 1 and train 2, both travel from Delhi to Prayagraj, but train 2 starts from Delhi when train 1 is 120 km away from Delhi. Each train travels at a speed of 160 kmph for the first 200 km, at 100 kmph for the next 200 km, and at 50 kmph for the last 200 km. The distance between train 2 and Prayagraj when train 1 reaches Prayagraj is _____ (in km)

1 ○ 120

2 ○ 75

3 ○ 62.5

4 ○ 37.5

Solution:
Correct Answer : 4

Answer key/Solution

Time taken by Train 1 to reach Prayagraj from the point when Train 2 starts:

First 200 – 120 = 80 km: $\frac{80}{160}$ = 30 minutes

Second 200 km: $\frac{200}{100}$ = 2 hours

Third 200 km: $\frac{200}{50}$ = 4 hours

Therefore, total time = 6 hours 30 minutes
In 6 hours 30 minutes, the distance covered by Train 2 will be:

First 200 km: $\frac{200}{160}$ = 1 hour 15 minutes

Second 200 km: $\frac{200}{100}$ = 2 hours

Therefore, in remaining time of (6 hours 30 minutes – 3 hours 15 minutes) = 3 hours 15 minutes i.e., $\frac{13}{4}$ hours, the distance covered by Train 2 = $50 \times \frac{13}{4}$ = 162.5 km

Hence, required distance = 200 – 162.5 = 37.5 km.

Bookmark FeedBack

Q.46 [11594329]

Given that $|x^2 - 20| = 9x$. If x is a real number, how many values can x take?

1 ○ 0

2 ○ 1

3 ○ 2

4 ○ 4

✖

Solution:
Correct Answer : 3
Your Answer : 1

Answer key/Solution

$|x^2 - 20| = 9x$
Case I: $x^2 - 20 = 9x$
$\Rightarrow x^2 - 9x - 20 = 0$

$$\Rightarrow x_{1,2} = \frac{9 \pm \sqrt{9^2 - 4(-20)}}{2} = \frac{9 \pm \sqrt{161}}{2}$$

Now, $|x^2 - 20|$ is a either (+)ive or zero, therefore, 9x also should either be (+)ive or zero.

Therefore, only $\left(\frac{9+\sqrt{161}}{2}\right)$ is the acceptable value of x, out of the two.

Case II: $x^2 - 20 = -9x$
$\Rightarrow x^2 + 9x - 20 = 0$

$$\Rightarrow x_{1,2} = \frac{-9 \pm \sqrt{161}}{2}$$

Similarly, again $|x^2 - 20|$ can be either positive or zero, therefore, 9x also should either be positive or zero.

Therefore, only $\left(\frac{-9+\sqrt{161}}{2}\right)$ is the acceptable value of x, out of the two.

Hence, from both cases, x can take two values.

Bookmark FeedBack

Q.47 [11594329]

Each of the five friends, A, B, C, D and E has an amount of money, such that 20% of the amount with A, 50% of that with B, 25% of that with C, 37.5% of that with D, and 75% of that with E are all equal. If the amount with each of them is a whole number, then what is the minimum possible total amount with them? (in Rs)

✖

Solution:
Correct Answer : 45
Your Answer : 33

Answer key/Solution

Let the amount with five friends.
A, B, C, D, and E be a, b, c, d, and e respectively.
Now, $0.2a = 0.5b = 0.25c = 0.375d = 0.75e$

$$\Rightarrow \frac{a}{5} = \frac{b}{2} = \frac{c}{4} = \frac{3d}{8} = \frac{3e}{4}$$

$\Rightarrow 8a = 20b = 10c = 15d = 30d$
$\Rightarrow$ LCM(8, 20, 10, 15, 30) = $8 \times 3 \times 5 = 120$
$8a = 20b = 10c = 15d = 30d = 120$
Minimum possible amount (in Rs.) = 15 + 6 + 12 + 8 + 4 = 45.

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Q.48 [11594329]

If the area of triangle with vertices (10p, 4p), (14p, 0) and (10p, 0) is 200 sq. units, where p is a positive integer, then find the value of 'p'.

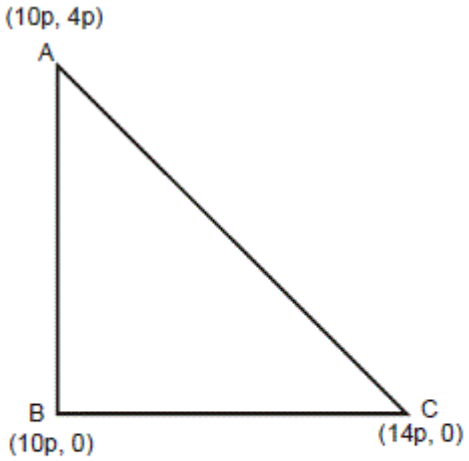
✔

Solution:

Correct Answer : 5

Your Answer : 5

Answer key/Solution



AB = 4p

BC = 4p

$\therefore$ Area of the triangle = $\frac{1}{2} \times 4p \times 4p = 200$

$\Rightarrow p^2 = 25 \Rightarrow p = 5$ units.

Bookmark FeedBack

Q.49 [11594329]

Given that 9n + 7, where n is an integer, is a perfect square less than 1000, how many values of n are there for which this is valid?

1 ○ 7

2 ○ 4

3 ○ 6

4 ○ 5

Solution:
Correct Answer : 1

Answer key/Solution

$9n + 7 = (9k + R)^2$

$n = \frac{(9k + R)^2 - 7}{9}$

For n to be an integer
$R^2 - 7$ must be divisible by 9.
R = 4 or R = 5
Corresponding values are
$9n + 7 = (9k + 4)^2$ or $(9k + 5)^2$

k = 0	16	25
k = 1	169	196
k = 2	484	529
k = 3	961	—

Bookmark FeedBack

Q.50 [11594329]

The average of nine consecutive even natural numbers in which A is the largest number is B. Find the average of 17 consecutive natural numbers in which B is the least number.

1 ○ A + 2

2 ○ A – 1

3 ○ A

4 ○ A + 1

✔

Solution:
Correct Answer : 3
Your Answer : 3

Answer key/Solution

1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Even	Even	Even	Even	Even	Even	Even	Even	Even
				↓				↓
				B				A

As these are even consecutive natural numbers, this is an AP and the central term i.e., 5th, will be average.
Between 5th and 6th term there is common difference of 2.
Thus A = B + 8
Now, starting from B we require 17 consecutive natural number. This is again an AP in which the 9th term will be average. Now starting from B, A will be the 9th consecutive natural number.
Thus required average = A.

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Q.51 [11594329]

A trader sold article A1 at a profit of 25%, article A2 at a loss of 12.5 % and article A3 at a profit of 16.66...%. If the ratio of selling prices of A1, A2 and A3 is 5 : 7 : 7, then find the overall profit earned by the trader.

1 ○ 5.55...%

2 ○ 11.11...%

3 ○ 6.25%

4 ○ 7.14%

✔

Solution:

Correct Answer : 1

Your Answer : 1

Answer key/Solution

SP of A_1 = 5x	Profit = 25%	CP of A_1 = 4x
SP of A_2 = 7x	Loss = 12.5%	CP of A_2 = 8x
SP of A_3 = 7x	Profit = 16.66%	CP of A_3 = 6x
Total SP = 19x		

Overall profit = $\left(\frac{19x-18x}{18x}\right)\times 100 = 5.55\%$.

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Q.52 [11594329]

Tony, Bruce, and Steve working together can complete a job in 4 hours. Tony and Steve working together take 15 hours less than Bruce working alone. Bruce started the work alone and after 2 hours Tony and Steve joined him. After another 2 hours, Bruce quit. In how many hours after the start was the job completed in ?

Solution:

Correct Answer : 6

Answer key/Solution

Let total work = 1 unit
Time taken by Tony and Steve working together = x hours
Time taken by Bruce alone = (x + 15) hours

Thus, $\frac{1}{x}+\frac{1}{x+15}=\frac{1}{4}$

On solving we get x = 5 hours

Now, Bruce's 1 hour work = $\frac{1}{20}$ units

Therefore, his 2 hours work = $\frac{2}{20}=\frac{1}{10}$ units

(Tony, Bruce and Steve)'s together 1 hour work = $\frac{1}{4}$ units

$\therefore$ Their 2 hours work = $\frac{1}{2}$ units

$\therefore$ (Tony and Steve)'s work done = $1-\left(\frac{1}{10}+\frac{1}{2}\right)=\frac{2}{5}$ units.

(Tony and Steve)'s 1 unit work is done in 5 hours

$\therefore$ Their $\frac{2}{5}$ units work will be done in = $5\times\frac{2}{5}$ = 2 hours

Hence, the total time taken = 2 + 2 + 2 = 6 hours.

Bookmark FeedBack

Q.53 [11594329]

If the value of $\frac{3}{\log_2(9000)^4}+\frac{1}{\log_3(9000)^2}+\frac{3}{\log_5(9000)^4}$ can be expressed as $\frac{p}{q}$, where p and q are co-primes, then find the value of $(p^2 + q^2)$.

1 ○ 26

2 ○ 17

3 ○ 37

4 ○ 10

Solution:

Correct Answer : 2

Answer key/Solution

$$\frac{3}{\log_2(9000)^4}+\frac{1}{\log_3(9000)^2}+\frac{3}{\log_5(9000)^4}$$

$$=\frac{3}{4}\log_{9000}2+\frac{1}{2}\log_{9000}3+\frac{3}{4}\log_{9000}5$$

$$=\frac{1}{4}\left[\log_{9000}2^3+\log_{9000}3^2+\log_{9000}5^3\right]$$

$$=\frac{1}{4}\left[\log_{9000}\left(2^3\times3^2\times5^3\right)\right]=\frac{1}{4}\log_{9000}9000=\frac{1}{4}$$

Thus, p = 1, q = 4, so $p^2 + q^2 = 17$.

Bookmark FeedBack

Q.54 [11594329]

Given that, f(a) + f(b) = f(a + b), where f(n) > 0 for any n > 0. If $f(10)=\frac{1}{20}$, then find the value of f(2) + f(4) + f(6) + f(8) + ... + f(30).

1 ○ 8/5

2 ○ 6/5

3 ○ 9/5

4 ○ 7/5

Solution:
Correct Answer : 2

Answer key/Solution

f(a) + f(b) = f(a + b)
Putting a = b = 1
f(1) + f(1) = f(2)
f(2) = 2f(1)
Putting a = 1, b = 2
f(1) + f(2) = f(3)
f(1) + 2f(1) = f(3)
f(3) = 3f(1)
Putting a = 2, b = 2
f(2) + f(2) = f(4)
f(4) = 2f(2)
f(4) = 4f(1)

Clearly we see the pattern.
f(10) = 10f(1)

$$f(1)=\frac{f(10)}{10}=\frac{1}{200}$$

Now, f(2) + f(4) + f(6) + ... + f(30)
2f(1) + 4f(1) + 6f(1) + ... + 30f(1)
2f(1)[1 + 2 + 3 + ... + 15]

$$=2\times\frac{1}{200}\times\frac{15\times16}{2}=\frac{6}{5}.$$

Bookmark FeedBack

Q.55 [11594329]

Baldev borrows Rs. 8,000 from State Bank of India at x% annual interest. He then adds Rs.P of his own money and lends Rs. (8000 + P) to Hari Ram at an interest of 12% per annum. At the end of the year, after returning SBI's dues, the net interest retained by Baldev is half as that accrued to SBI. On the other hand, had Baldev lent Rs. (8000 + 3P) to Hari Ram at 12%, then the net interest retained by him would have increased by Rs. 384. If all interests are compounded annually, then the values of x and P respectively, are

1 ○ 10%, Rs. 1,800

2 ○ 8.6%, Rs. 2,000

3 ○ 9.6%, Rs.1,600

4 ○ 9%, Rs.1,500

Solution:
Correct Answer : 3

Answer key/Solution

Let P = Rs. 100y
Baldev owes SBI an interest of Rs. 80x at the end of the year and similarly Hari Ram owes Baldev an interest of Rs. (960 + 12y) at the end of the year.
Given that, 3/2 × 80x = 960 + 12y
⇒ 120x – 12y = 960
⇒ 10x – y = 80 ... (i)
Also, an additional amount equal to 2P or 200y at 12% interest would fetch Baldev Rs. 384 more.
⇒ 24y = Rs. 384 ⇒ y = 16
Hence, from (i) 10x – 16 = 80 ⇒ x = 9.6% and P = 100y = Rs. 1,600.

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Q.56 [11594329]
A cube is cut by a plane such that the plane passes through exactly 3 of its vertices. The number of ways we can cut the cube in this manner is

1 ○ 4

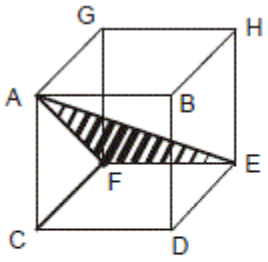
2 ○ 8

3 ○ 12

4 ○ 16

Solution:
Correct Answer : 2

Answer key/Solution



The way to do this is to make the plane go through a Vertex, and identify two other vertices which are diagonally opposite to each other. In the figure the plane through A can go through E, C.
This is the only way we can draw a plane passing through A and thru 2 other vertices.
Since there are 8 vertices, we would find 8 planes.

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Q.57 [11594329]

Ben and Emma are walking up an escalator which is moving up at a speed of 4 steps/sec. If the total steps taken by Ben and Emma together is 80 and the speed of Ben is 50% of the escalator's speed and the speed of Emma is 25% of the escalator's speed, then find the number of steps taken by Emma on the escalator.

Solution:
Correct Answer : 30

Answer key/Solution

Speed of escalator = 4 steps/sec, speed of Ben = 2 steps/sec and speed of Emma= 1 step/sec
Let the number of steps taken by Ben is x, thus the number of steps taken by Emma = 80 – x.

Time for which Ben was on escalator = $\frac{x}{2}$ sec and for Emma = $\frac{80-x}{1}$ sec

Thus total steps on escalator = $x + 4 \times \frac{x}{2}$ and $(80 - x) + 4 \times \frac{80-x}{1}$

We can equate these as both walk on the same escalator,
$x + 2x = 5 \times (80 - x)$
$\Rightarrow 3x = 400 - 5x$
$\Rightarrow 8x = 400$
$\Rightarrow x = 50$
Hence, the number of steps taken by Emma = 30.

Bookmark FeedBack

Q.58 [11594329]

If 'b' is the smallest value of x which satisfy the equation $5^x + \frac{54}{5^x} = 15$, then the value of 25^b will be

1 ○ 25

2 ○ 64

3 ○ 36

4 ○ 16

Solution:
Correct Answer : 3

Answer key/Solution

$5^x + \frac{54}{5^x} = 15$

Let $5^x = p$

$p + \frac{54}{p} = 15 \Rightarrow p^2 - 15p + 54 = 0$

$\Rightarrow (p - 9)(p - 6) = 0$
Thus, $p = 9$ or $p = 6$
So, $5^x = 9$ or $5^x = 6$
$\Rightarrow x = \log_5 9$ or $x = \log_5 6$
As 'b' represents smallest value of x,
Thus, $b = \log_5 6$
The required value of $25^b = 5^{2b}$

$= 5^{2\times\log_5 6} = 5^{\log_5 36} = 36$.

[We know that $a^{\log_a z} = z$]

Bookmark FeedBack

Q.59 [11594329]

Tej is the owner of a vehicle rental company. He has a total of 30 trucks and 50 cars available for rent from Monday morning to Saturday evening, every week. During a certain week, 50% of the trucks and 40% of the cars that were rented, were returned on or before the Saturday evening. He had at least 45 vehicles with him that Saturday evening. Find the maximum number of cars rented, if number of trucks rented were at least 15.

Solution:
Correct Answer : 45

Answer key/Solution

Let x and y be number of trucks and cars rented respectively.

Then, we know, $\frac{x}{2}$ and $\frac{2y}{5}$ trucks and cars returns.

Now, $80 - (x + y) + \frac{x}{2} + \frac{2}{5}y \geq 45$

$\Rightarrow 35 - \frac{x}{2} - \frac{3}{6}y \geq 0 \Rightarrow \frac{350 - 5x}{6} \geq y$

Maximum number of cars rented will be 45 at x = 16.

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Q.60 [11594329]

If $|4x - 18| \leq 30$ and $|2y - 11| \leq 19$, what is the maximum value of $(3|x| - 4|y|)$?

1 ○ 36

2 ○ 20

3 ○ 48

4 ○ 42

Solution:
Correct Answer : 1

Answer key/Solution

$|4x-18| \le 30 \Rightarrow -30 \le 4x-18 \le 30$

$\Rightarrow -3 \le x \le 12$

$|2y-11| \le 19 \Rightarrow -19 \le 2y-11 \le 19a$

$\Rightarrow -4 \le y \le 15$

For maximum value of $(3|x| - 4|y|)$, put $x = 12$ and $y = 0$, we get 36.

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Q.61 [11594329]

A milkman mixes 5 liters of mineral water with 20 litres of pure milk thereby making a profit of 40%. The selling price per litre of this mixture is 20 % more than the cost per litre of pure milk. The the ratio of cost of water/litre to milk/litre is

1 ○ 2 : 5

2 ○ 7 : 2

3 ○ 2 : 7

4 ○ 5 : 2

Solution:

Correct Answer : 3

Answer key/Solution

Let CP of pure milk = Rs. 10/L
and CP of mineral water = Rs. x/L
CP according to customers = 25 × 10 = Rs. 250
Actual CP = 200 + 5x
SP according to customer = Rs. 300 [20% Profit on Rs. 250]

Actual SP = $(200 + 5x) \times \frac{7}{5}$

Thus, $(200+5x)\frac{7}{5}=300$

$\Rightarrow$ 1400 + 35x = 1500
$\Rightarrow$ 35x = 100

$\Rightarrow x = \frac{20}{7}$

Hence, required ratio = $\frac{20}{7}$: 10 = 2 : 7.

Bookmark FeedBack

Q.62 [11594329]

A group of 36 men decide to do a piece of work in ‘m’ days. But after 18 days, they found that only 40% of the work is completed. So 18 more people who were as efficient as the first lot of men joined them. The job was now completed as per the schedule. What is the value of 'm'?

1 ○ 54

2 ○ 36

3 ○ 12

4 ○ 48

✔

Solution:
Correct Answer : 2
Your Answer : 2

Answer key/Solution

Since number of men became 54 from 36 i.e., $\frac{3}{2}$ times $\left(=\frac{54}{36}\right)$, therefore the time taken would become $\frac{2}{3}$ of what it was supposed to be (**Note:** only the time taken after the 18 men joined would become $\frac{2}{3}$rd, not the total time taken).

Since 40% work took 18 days to be done therefore 60% work would take 27 days to be done.

$\left(\text{i.e., } 40 \xrightarrow[\times\frac{3}{2}]{} 60 \text{ and } 18 \xrightarrow[\times\frac{3}{2}]{} 27\right)$

But because 18 men joined, the time taken which is supposed to be 27 days, would become $27 \times \frac{2}{3} = 18$ days.

Hence, total time taken $= \left(\underset{\substack{\downarrow\\ \text{For first}\\ 40\% \text{ of work}}}{18} + \underset{\substack{\downarrow\\ \text{For next}\\ 60\% \text{ of work}}}{18}\right)$ days = 36 days = 'm'.

Bookmark FeedBack

Q.63 [11594329]

How many real solutions does the equation given below have?

$(3x^2 - 84 + 9x)^{x^2+5x-36} = 1$

1 ○ 0

2 ○ 2

3 ○ 3

4 ○ 4

Solution:
Correct Answer : 3

Answer key/Solution

$(3x^2 - 84 + 9x)^{x^2 + 5x - 36} = 1$,
if the base $(3x^2 - 84 + 9x) = 1$, or the power $x^2 - 5x - 36 = 0$, or both.
(**Note:** both base and power should not be zero at the same time as 0^0 is not defined)
If $(3x^2 - 84 + 9x) = 1$
Then $(3x^2 - 85 + 9x) = 0$

So, $x = \frac{-9 \pm \sqrt{1101}}{6}$

If $(x^2 + 5x - 36) = 0$
Then $(x - 4)(x + 9) = 0$
So, $x = 4$ or -9
Do we have 4 solutions? No, we must check if roots of the power, $x = 4$ and $x = -9$, are possible roots of the bases as both base and power cannot be zero at the same time.
$(3x^2 - 84 + 9x) = 3(x - 4)(x + 7)$
So base $(3x^2 - 84 + 9x)$ will be zero at $x = 4$, which is therefore not an acceptable value.

Thus, only 3 values of $x = -9$ and $\frac{-9 \pm \sqrt{1101}}{6}$ are acceptable.

Bookmark FeedBack

Q.64 [11594329]
Find the area of the region bounded by the graph of function $f(x) = |x + 5| + |x - 3|$ and the line $y = 12$.

1 ○ 40

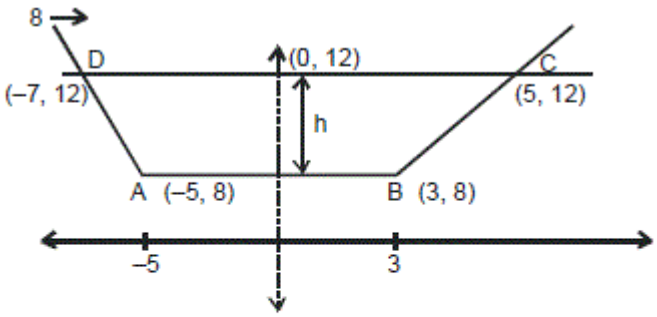
2 ○ 32

3 ○ 48

4 ○ 36

Solution:
Correct Answer : 1

Answer key/Solution



Area of trapezium = $\frac{1}{2}\times(AB+CD)\times h$

$=\frac{1}{2}\times(8+12)\times 4=40$.

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Q.65 [11594329]
The length, breadth and height of a room are in the ratio of 6 : 4 : 1. If the breadth and height are halved, while the length is doubled, then the total area of the four walls of the room will ___ .

1 ○ Increases by 10%

2 ○ Decreases by 30%

3 ○ Remains the same

4 ○ Decreases by 10%

✔

Solution:

Correct Answer : 2

Your Answer : 2

Answer key/Solution

Let the original length, breadth and height of the room be 6x, 4x and x respectively.
Therefore, the new length, breadth and height are 12x, 2x and x/2 respectively.
Area of four walls = (2 × length × height) + (2 × breadth × height)
Original area of four walls,
= (2 × 6x × x) + (2 × 4x × x)
= $12x^2 + 8x^2$
= $20x^2$
New area of four walls,

$$= \left(2 \times 12x \times \frac{x}{2}\right) + \left(2 \times 2x \times \frac{x}{2}\right)$$

= $12x^2 + 2x^2$
= $14x^2$
Therefore, area of walls decreases by = $[20x^2 - 14x^2] / 20x^2 \times 100 = 30\%$.

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