CAT MOCK 1

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(1-4) Read the passage carefully and answer the following questions

The difference between Cezanne and Gauguin is subtle but goes very deep. For both the ultimate and internal significance of what they painted counted for more than the significance which is momentary and external. Cezanne saw in a tree, a heap of apples, a human face, a group of bathing men or women, something more abiding than either photography or impressionist painting could present. He painted the "treeness" of the tree, as a modern critic has admirably expressed it. But in everything he did he showed the architectural mind of the true Frenchman. His landscape studies were based on a profound sense of the structure of rocks and hills, and being structural, his art depends essentially on reality. Though he did not scruple, and rightly, to sacrifice accuracy of form to the inner need, the material of which his art was composed was drawn from the huge stores of actual nature.

Gauguin has greater solemnity and fire than Cezanne. His pictures are tragic or passionate poems. He also sacrifices conventional form to inner expression, but his art tends ever towards the spiritual, towards that profounder emphasis which cannot be expressed in natural objects nor in words. True his abandonment of representative methods did not lead him to an abandonment of natural terms of expression - that is to say human figures, trees and animals do appear in his pictures. But that he was much nearer a complete rejection of representation than was Cezanne is shown by the course followed by their respective disciples.

The generation immediately subsequent to Cezanne, Herbin, Vlaminck, Friesz, Marquet, etc., do little more than exaggerate Cezanne's technique, until there appear the first signs of Cubism. These are seen very clearly in Herbin. Objects begin to be treated in flat planes. A round vase is represented by a series of planes set one into the other, which at a distance blend into a curve. This is the first stage.

The real plunge into Cubism was taken by Picasso, who, nurtured on Cezanne, carried to its perfectly logical conclusion the master's structural treatment of nature. Representation disappears. Starting from a single natural object, Picasso and the Cubists produce lines and project angles till their canvases are covered with intricate and often very beautiful series of balanced lines and curves. They persist, however, in giving them picture titles which recall the natural object from which their minds first took flight.

With Gauguin the case is different. The generation of his disciples which followed him - I put it thus to distinguish them from his actual pupils at Pont Aven, Serusier and the rest - carried the tendency further. One hesitates to mention Derain, for his beginnings, full of vitality and promise, have given place to a dreary compromise with Cubism, without visible future, and above all without humour. But there is no better example of the development of synthetic symbolism than his first book of woodcuts. Here is work which keeps the merest semblance of conventional form, which gives its effect by startling masses of black and white, by sudden curves, but more frequently by sudden angles.

In the process of the gradual abandonment of natural form the "angle" school is paralleled by the "curve" school, which also descends wholly from Gauguin. The best known representative is Maurice Denis. But he has become a slave to sentimentality, and has been left behind. Matisse is the most prominent French artist who has followed Gauguin with curves. In Germany a group of young men, who form the Neue Kunstlevereinigung in Munich, work almost entirely in sweeping curves, and have reduced natural objects purely to flowing, decorative units.

But while they have followed Gauguin's lead in abandoning representation both of these two groups of advance are lacking in spiritual meaning. Their aim becomes more and more decorative, with an undercurrent of suggestion of simplified form. Anyone who has studied Gauguin will be aware of the intense spiritual value of his work. The man is a preacher and a psychologist, universal by his very unorthodoxy, fundamental because he goes deeper than civilization. In his disciples this great element is wanting. Kandinsky has supplied the need. He is not only on the track of an art more purely spiritual than was conceived even by Gauguin, but he has achieved the final abandonment of all representative intention. In this way he combines in himself the spiritual and technical tendencies of one great branch of Post-Impressionism.

1. What, according to the author, was the principal difference in the styles of Cezanne and Gauguin?

a. Gauguin's work was more passionate and solemn as compared to Cezanne, who merely stuck to using elements of nature

b. Though both artists rejected external representation for inner expression, Cezanne's work stayed true to the structural integrity of the elements he used while Gauguin's did not

c. Cezanne's work inspired many young artists to develop great works of art while Gauguin's disciples were far less successful

d. Cezanne was more successful in representing the intrinsic nature of different objects through his art, like the "treeness of the tree", as compared to Gauguin

Sol. The author states that Cezanne “did not scruple, and rightly, to sacrifice accuracy of form to the inner need, the material of which his art was composed was drawn from the huge stores of actual nature.” Gauguin, on the other hand, “was much nearer a complete rejection of representation than was Cezanne”. Hence, from the first two paragraphs, we can infer that though both rejected external representation, Cezanne did not reject accuracy of form. The option that best captures this difference is option B.

2. Which of the following statements can be inferred from the information given in the passage?

I) Picasso maintained accuracy of form even though he rejected external representation of objects

II) Gauguin’s work is less spiritual in nature than Kandinsky’s

III) If not for the title, one would not be able to recognize the natural object that inspired the art of a Cubist

a. I only

b. I and II only

c. II and III only

d. All of the above

Sol. The author states that the principal difference between Cezanne and Gauguin was that though both rejected representation, the former stuck to the accuracy of form and this trait was carried forward by his disciples including Picasso. Hence, we can infer statement I. The author states that Kandinsky is "on the track of an art more purely spiritual than was conceived even by Gauguin." Hence, we can infer statement II. Though the passage states that Cubists abandon all representation, we cannot say if the end product is not even reminiscent of the original inspiration. Hence, we cannot infer statement III. Hence, option B.

3. Which of the following statements is the author least likely to agree with?

a. Sentimentality is detrimental to pure artistic expression

b. Derain's initial works were far superior as compared to his latest efforts

c. Among all of Gauguin's disciples, Kandinsky's work comes the closest to the works of Gauguin

d. The first truly Cubist painter was Herbin who replaced representation of natural objects with planes and beautifully drawn curves

Sol. The author says that early signs of cubism were seen in the works of Herbin, but the first leap into Cubism was made by Picasso. Thus, we can infer that he is unlikely to agree with statement D. Options B and C are given directly in the passage. We can infer option A from the author's tone when he says Denis "has become a slave to sentimentality."

4. What is the tone of the passage?

a. Sardonic

b. Persuasive

c. Acerbic

d. Analytical

Sol. The author's tone is objective and neutral in nature. Hence, we can eliminate the negative tone options A and C. The author is trying to analyze objectively the works of Cezanne and Gauguin and their disciples. Hence, option D.

(4-8) Read the passage carefully and answer the following question:

Certain forms of personal righteousness have become to a majority of the humans almost automatic. It is as easy for most of us to keep from stealing our dinners as it is to digest them, and there is quite as much voluntary morality involved in one process as in the other. To steal would be for us to fall sadly below the standard of habit and expectation which makes virtue easy. In the same way we have been carefully reared to a sense of family obligation, to be kindly and considerate to the members of our own households, and to feel responsible for their well-being. As the rules of conduct have become established in regard to our self-development and our families, so they have been in regard to limited circles of friends. If the fulfillment of these claims were all that a righteous life required, the hunger and thirst would be stilled for many good men and women, and the clew of right living would lie easily in their hands.

But we all know that each generation has its own test, the contemporaneous and current standard by which alone it can adequately judge of its own moral achievements, and that it may not legitimately use a previous and less vigorous test. The advanced test must indeed include that which has already been attained; but if it includes no more, we shall fail to go forward, thinking complacently that we have "arrived" when in reality we have not yet started.

To attain individual morality in an age demanding social morality, to pride one's self on the results of personal effort when the time demands social adjustment, is utterly to fail to apprehend the situation. It is perhaps significant that a German critic has of late reminded us that the one test which the most authoritative and dramatic portrayal of the Day of Judgment offers, is the social test. The stern questions are not in regard to personal and family relations, but did ye visit the poor, the criminal, the sick, and did ye feed the hungry?

All about us are men and women who have become unhappy in regard to their attitude toward the social order itself; toward the dreary round of uninteresting work, the pleasures narrowed down to those of appetite, the declining consciousness of brain power, and the lack of mental food which characterizes the lot of the large proportion of their fellow-citizens. These men and women have caught a moral challenge raised by the exigencies of contemporaneous life; some are bewildered, others who are denied the relief which sturdy action brings are even seeking an escape, but all are increasingly anxious concerning their actual relations to the basic organization of society.

The test which they would apply to their conduct is a social test. They fail to be content with the fulfillment of their family and personal obligations, and find themselves striving to respond to a new demand involving a social obligation; they have become conscious of another requirement, and the contribution they would make is toward a code of social ethics.

5. According to the passage, which is the least suitable statement about "righteousness" mentioned in the passage?

a. Individual righteousness comes more easily social righteousness.

b. A righteous life requires us to adjust to the new codes of ethics in the society.

c. Our current life has made it harder for us to fulfil the obligations demanded by the society.

d. A righteous life can only be attained if the claims for social obligations are fulfilled.

Sol. Option A: It is clearly mentioned in the first paragraph that individual righteousness or a sense of obligation to our friends and family comes naturally to us. Hence, A can be inferred.

Option B: The passage mentions that each generation has its own code of ethics. Righteousness should always be redefined, and people must adjust to the new values; otherwise, we will fail to go forward as a society(Para 2). Hence, B can be inferred.

Option C: We have become discontent with our existing lifestyle and our attitude towards social obligations. However, it cannot be inferred that our current life has made it harder to fulfil our social obligations. Thus, statement C cannot be inferred from the information given in the passage.

Option D: In the first paragraph, the author mentions that if righteous life required only fulfilling individual obligation, people would have easily attained it. But it also needs fulfilment of social obligations. Only then a righteous life can be achieved. Hence, D can be inferred.

As, A, B and D can be inferred from the passage, option C represents the least suitable statement.

6. The main purpose of the passage is to

a. teach what is righteousness and how it should be modified for the upcoming generation

b. discuss the ethics in society and how it manifests itself in different forms.

c. discuss how a social test can be used to improve the social ethics for the next generation

d. discuss the requirement of a new code of ethics felt by the new generation.

Sol. The author starts of by stating that individual righteousness comes naturally to us, but each new generation has the responsibility to push the envelope when it comes to morality. Then the author goes on to explain that we also need to fulfil our social obligations of morality. The author ends the passage by discussing how the new social order has thrown up a moral challenge to the new generation and how this has created a need for a new code of social ethics. Thus, through the passage, the author is arguing for a new code of social ethics that should be adopted by the current generation. Hence, option D is the right answer.

Option A: Although the author discusses a need for modifying the definition of righteousness, the main purpose is not to teach what righteousness is.

Option B:The author has just mentioned two kinds of obligations and how people want to adjust their behavior to lead a more righteous life.The main purpose of passage is not to discuss different forms of obligations. Hence this option can be rejected.

Option C: The social test mentioned is only to provide a way to fulfil social obligations for people who want to contribute to a code of social ethics.

7. Which of the following statement can be inferred from the passage?

a. Virtue and ethics comes easily to some men and women while for others it takes time to get accustomed to the rule of conduct.

b. If we design a less vigorous test for the conduct of the society, people will become content with their attitude towards society.

c. The social test questions the human tendency to be content with the fulfilment of personal obligations.

d. Men and women are finding their work uninteresting because of their attitude towards social morality.

Sol. Option A: The passage mentions that individual righteousness comes easily to people than social righteousness. However, it is not mentioned that righteousness comes easily to some people more than others.

Option B: If we design a less vigorous test, we may fail to go forward as a society. However, people may still find it difficult to be content with the ethics of society.

Option C: Paragraph 3 mentions the social test which asks questions to individuals if they have been considerate towards poor, sick and hungry members of the society. Hence, those who only fulfil personal obligations would fail the personal test. Thus, option C can be inferred.

Option D: People finding work uninteresting is not a consequence of their attitude towards social obligations. Hence this option can be rejected.

8. Which of the following is not a consequence of the consciousness towards the demand of a social obligation?

a. Men and women are seeking an escape from their current lifestyle.

b. People are losing interest in their work.

c. People have become concerned about their relations to the society.

d. People are trying to fulfill the demands of a new code of social morality.

Sol. Option A: In 4th paragraph, it has been mentioned that people are dissatisfied with their current lifestyle and seeking an escape.

Option B: People are losing interest in their work. That's why they are trying to respond to a demand for social obligation. This might be a reason and not the consequence.

Option C: Consider the sentence: "These men and women..... but all are increasingly anxious concerning their actual relations to the basic organization of society." It shows that people have become concerned about their attitude towards their relations to the society.

Option D: It can be directly inferred from the last para.

(9-12) Read the passage and answer the questions that follow.

We don't live in that same world anymore where we can turn a corner and be eaten by a giant cat. We need our long-term higher-order creative thinking. We need it pretty much all the time.Prolonging fight-or-flight into a chronic condition means that neurons in the brain related to things like learning, memory, and judgment all suffer the consequences, thanks to the wide-ranging effects of double-edged sword stress hormones called glucocorticoids. Recent research has even shown a constantly stressed out brain appears to lead to a kind of hardening of neural pathways. Essentially, feeling chronic stress makes it harder to not perceive stress, creating a vicious cycle of unending stress.

Aside from the many health issues like diabetes and cardiac disease that chronic stress leads to, it also causes behavioral changes as people reach for levers of control to reduce stress. These levers include among others, self-medication and displacement aggression.

Self-medication is self-explanatory, it's pretty much any addictive substance or behavior you can think of, but displacement aggression is a special something among mammals. It turns out that we can reduce our stress by picking on those below us in our social hierarchies. In other words, this is where anti-social behaviors like bullying, racism, and anti-immigrant xenophobia are born. You know, those same things that fuel fascism.

So to solve these problems, we need to go to the root, which is what's causing the stress in the first place. What's the most common cause of stress? It's money. Whether it be the lack of sufficient money, or money that is too irregular or infrequent, or money that feels like the flow

of it could stop at any moment. There are a lot of reasons to stress about money, and it all comes down to the fact that we built a system that requires money for our continued survival.

Unconditional basic income cuts to the root by ending our existential money-based fears. With UBI, no matter what happens, our ability to secure our basic needs is guaranteed, from birth to death. That feeling of emancipatory security is transformative in the most profound of ways. It creates trust.

What happened in the Great Depression? The amount of resources and energy were unchanged. The manufacturing capacity was unchanged. The amount of human labor willing to work to produce what was needed was unchanged. And yet the system essentially ground to a halt. Why? Because there was insufficient money in most people's hands and thus a lack of trust.

Nothing was stopping anyone from exchanging goods and services. As Alan Watts has described the situation, it was like everyone showed up on Monday to build a house, and they were told there would be no work that day, not because of a lack of wood or hammers or nails or cement, but because they were all out of inches. Money doesn't really exist like we think it does. It's just a tool of measurement built on trust.

So what are we doing hoarding so much of an imaginary construct in some places, and preventing any of it from reaching other places? Why have we invented something out of thin air, and then pretended it is a finite resource?

The answer is because we didn't create enough democracy. We didn't make citizens equal enough. We didn't free citizens enough to engage in and grow democracy. And we weren't able to do that because we didn't implement unconditional basic income to free people from the imposition of survival work. It's a catch-22. Its two sides of a coin. We need UBI for democracy, and we need democracy for UBI. It's a feedback loop for prosperity…

Sources: Excerpted from article by Scott Santens, Medium

9. What is the primary purpose of the author?

a. To explain the importance of trust and the role of UBI in promoting trust.

b. To explain the importance of democracy in ensuring that society continues to develop.

c. To explain how stress about money is leading to a rise in fascism and how UBI can solve this problem

d. To make the case for UBI

Sol. The passage begins by explaining the consequences of stress. It then introduces its primary source, money. The author explains the concept of money and then explains why UBI is important to combat stress and become a more prosperous state. Thus, through the passage, the author is making the case for Universal basic income.

So, we can see that Option D is the most suitable option as it captures this point.

Option A is incorrect as it incorrectly identifies the focal point of the passage. The author has talked about "trust" to explain why UBI would lead to a more robust economy. Option C suffers from a similar flaw. Though the author mentions how stress leads to fascism, this is not the focal point of the passage.

Option B is incorrect because it excludes the concept of UBI which is central to the passage. Democracy is only a part of the final paragraph.

10. Why does the author call the stress hormones a ‘double-edged sword’?

a. It leads to the hardening of neural pathways which in turn makes it harder to feel stress, fuelling even more stress.

b. Stress hormones, which help us deal with stressful situations, can alsocause harm with prolonged exposure.

c. Not only do stress hormones lead to people self-medicating, but in mammals they also cause displacement aggression.

d. It creates a vicious cycle-causing not only uncertainty but also leading to poor decision-making.

Sol. The meaning of "double-edged sword" refers to something that can have both favourable and unfavourable effects. In the given paragraph, the author talks about how prolonged exposure to stress hormones can lead to a wide-range of problems including poor decision making. Thus, the author is trying to say that the stress hormones which help us deal with stress in a situation where our survival is threatened (like being eaten by a cat) can cause a lot of damage with prolonged exposure. Thus, of the given options, only option B captures the point that stress hormones have both positive and negative effects on people. Hence, option B.

11. The author is likely to support all of the following statements, except:

a. UBI reduces stress as people are assured that their basic needs will be met.

b. Picking on people below us is an effective way to reduce stress.

c. The Great Depression was caused due to a lack of trust in the economy.

d. Displacement aggression is synonymous with addictive substances and behaviors.

Sol. Self medicating is synonymous with addictive substances and behaviors-not displacement aggression-hence Option D is incorrect.

Option A can be inferred from the line “With UBI, no matter what happens, our ability to secure our basic needs is guaranteed, from birth to death.”

Option B can be inferred from the line “It turns out that we can reduce our stress by picking on those below us in our social hierarchies.”

Option C can be inferred from the lines “What happened in the Great Depression? The amount of resources and energy were unchanged. The manufacturing capacity was unchanged. The amount of human labor willing to work to produce what was needed was unchanged. And yet the system essentially ground to a halt. Why? Because there was insufficient money in most people’s hands and thus a lack of trust.”

Hence, the author is likely to support all the statements other than Option D.

12. What is the author’s main reason for advocating UBI?

a. To reduce stress in people.

b. To make everyone more equal.

c. To assure every person of having their basic needs met.

d. To promote democracy, peace and prosperity.

Sol. Although all the options are correct, the primary purpose of UBI is to assure everyone of having their basic needs met. This in turn, will reduce stress, promote equality and promote prosperity. The remaining options are all consequences of a person having his or her basic needs met. What we need to identify is the immediate impact of UBI-which is that everyone is assured of having enough to survive. Hence, Option C is the right answer. Options-A,B and D are all consequences of Option C.

(13-16) **Read the passage carefully and answer the following questions**

If you see police choking someone to death, you might choose to pepper-spray them and flee. You might even save an innocent life. But what ethical considerations justify such dangerous heroics? More important: do we have the right to defend ourselves and others from government injustice when government agents are following an unjust law? I think the answer is yes. But that view needs defending. Under what circumstances might active self-defence, including possible violence, be justified?

Civil disobedience is a public act that aims to create social or legal change. Think of Henry David Thoreau's arrest in 1846 for refusing to pay taxes to fund the colonial exploits of the United States. In such a case, disobedient citizens visibly break the law and accept punishment, so as to draw attention to a cause. But justifiable resistance need not have a civic character. It need not aim at changing the law, reforming dysfunctional institutions or replacing bad leaders. Sometimes, it is simply about stopping an immediate injustice.

Some people say we may not defend ourselves against government injustice because governments and their agents have 'authority'. But the authority argument doesn't work. It's one thing to say that you have a duty to pay your taxes or follow the speed limit. It is quite another to show that you are specifically bound to allow a government and its agents to use excessive violence and ignore your rights to due process.

Others say that we should resist government injustice, but only through peaceful methods. Indeed, we should, but that doesn't differentiate between self-defence against civilians or government. The common-law doctrine of self-defence is always governed by a necessity proviso: you may lie or use violence only if necessary, that is, only if peaceful actions are not as effective. But peaceful methods often fail to stop wrongdoing. Eric Garner peacefully complained: 'I can't breathe,' until he drew his last breath.

Another argument is that we shouldn't act as vigilantes. But invoking this point here misunderstands the antivigilante principle, which says that when there exists a workable public system of justice, you should defer to public agents trying, in good faith, to administer justice. So if cops attempt to stop a mugging, you shouldn't insert yourself. But if they ignore or can't stop a mugging, you may intervene. If the police themselves are the muggers the antivigilante principle does not forbid you from defending yourself. It insists you defer to more competent government agents when they administer justice, not that you must let them commit injustice.

Some people find my thesis too dangerous. They claim that it's hard to know exactly when self-defence is justified; that people make mistakes, resisting when they should not. Perhaps. But that's true of self-defence against civilians, too. No one says we lack a right of self-defence

against each other because applying the principle is hard. Rather, some moral principles are hard to apply.

However, this objection gets the problem exactly backwards. In real life, people are too deferential and conformist in the face of government authority and reluctant to stand up to political injustice. If anything, the dangerous thesis is that we should defer to government agents when they seem to act unjustly. Remember, self-defence against the state is about stopping an immediate injustice, not fixing broken rules.

Jason Brennan & Marina Benjamin

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13. What is the main point of the last two paragraphs?

a. Self-defence against the state is no more open to misuse than self-defence against civilians. In fact, people are less likely to act even when justified instead of the other way around.

b. Self-defence against the state is less likely to be misused as compared to self-defence against civilians. People are generally scared of authority and hesitate to act against government officials.

c. Asking people to act in self-defence against corrupt government officials is not dangerous. Asking them not to act is.

d. Knowing when to act in self-defence against the state is hard to guess. However, in cases of immediate injustice, people should not hesitate to act

Sol. Through the last two paragraphs, the author is trying to refute the objection that self-defence against the state could be dangerous as people would not know when it is appropriate to use this power. The author refutes this by saying that this is true for all self-defence and more often than not people are likely to not act even when justified instead of the other way around. Option A correctly captures this and hence is the right choice.

Option B, which says that self-defence against the state is less open to misuse is incorrect. The author says that knowing when it is appropriate to act is similarly difficult in both cases.

Option C contains the distortion of "corrupt" government officials. The passage is about government agents who act unfairly or unjustly, and not about corruption.

Option D misses the main point of the last two paragraphs. Hence, we can eliminate it.

Thus, the right answer is option A.

14. Which of the following responses would the author not agree with?

a. A man decides to come to the rescue of a little girl who is being brutally thrashed by her father for damaging his car.

b. A woman tries to pry the gun out of the hands of a police officer who is trying to shoot her unarmed husband.

c. A group of teenagers film a confrontation with the cops when they are pulled over for rash driving.

d. Passersby film a police confrontation on camera where the police have drawn guns at a minor for a traffic violation.

Sol. The author in the given passage tries to address the question whether it is justified to act against the government's injustice when the time calls. He also mentions that while people have a self-defence against civilians, they hesitate to exhibit the same against the government or its agents. Option D illustrates one such situation where people should act against the use of excessive force from government agents but fail to do so. According to the author, people should do more to stop immediate injustice. By just filming the incident, people are not doing enough to protect the minor involved.

In options A and B, people are acting in self-defence which is in line with what the author preaches. Option c is not related to the topic of self-defence. Thus, of the given options, option D is the only situation where the author asks people to act against the officials.

15. What point does the author try to make through the given passage?

a. People should have the right to self-defence against the state.

b. It is important to treat all acts of injustices equally and take a stern action against it if applicable

c. Like self-defence against civilians, self-defence against the state is not only the morally right thing to do but also the legally right thing to do.

d. People have a lot of reservations against self-defence against the state. They should not feel so as self-defence against the state is no different from self-defence against civilians.

Sol. At the start of the passage, the author introduces the question that is "self-defence against the state justified?". The author goes on to explain how self-defence against the state is justified. He examines all the counterarguments and refutes them. Thus, the main point of the passage is to argue for self-defence against the state. Hence, option A is correct.

Option B completely misses the point, so we can eliminate this option.

Option C introduces the distortion of "legally right". The author does not discuss the topic from a legal perspective.

Option D focuses only on the last two paragraphs.

Hence, option A is the correct answer.

16. All of the following statements are not true according to the passage except

a. The difference between self-defence against a civilian and that against a cop is that in the former case we can ascertain whether it was justified or not but not in the latter.

b. Civil disobedience always aims at bringing about a social change.

c. It may be ineffective to seek justice via peaceful methods against immediate injustice.

d. David Thoreau's attempt at weakening the colonial exploits of the United States was accepted by the masses and eventually succeeded.

Sol. In the given question we need to find out the option which is true as per the passage. Let, us evaluate the option individually.

Refer to the second-last para. The author states that self-defence against a civilian and a government agent both can be challenging to determine whether they are justified or not. Option A contradicts this and therefore is incorrect.

Refer to para 2, line 1. Although civil disobedience often aims at creating a social or legal change, the word 'always' makes option B extreme. Hence, B is incorrect. Refer to para 4. The author states that peaceful methods often fail to deter wrongdoing and hence, may not be as effective as they are touted to be. Therefore, option C is correct. Refer to para 2, line 1. We know that David Thoreau staged a protest and got arrested for the same but whether his efforts were well received by the public and eventually succeeded cannot be determined by the given information.

Hence, option C is correct.

17. **The passage given below is followed by four summaries. Choose the option that best captures the author's position.**

It's been argued that artworks can be the equivalent of 'speech acts' - that is, they can be used to do things, such as protest or endorse something. If artworks can be speech acts, then presumably they can be harmful acts too, such as in straightforward hate speech - in racist, misogynistic or homophobic language. The utterance of 'Blacks are not permitted to vote' by a legislator during apartheid subordinates Black people. In parallel to this are the statues of slave traders and white supremacists. These public memorials don't just represent a particular person - they literally put them on a pedestal. Through various aesthetic conventions, statues commemorate and glamorise the person and their actions and, in doing this, they rank people of colour as inferior, legitimising racial hatred.

a. Speech and artworks are important means of expression, which should not be used to legitimise hateful actions or people.

b. Artworks that express hatred towards a particular community and endorse the transgression of individual freedom must be censored.

c. Artworks, like speech, express meaning and can similarly be harmful if they glorify hateful actions and people.

d. Artworks can be used as a medium to instigate acts of discrimination against people of colour and validate those committing them.

Sol. In the passage, the author draws a parallel between artworks and speech acts- speech acts drive action, like a call for protest or the endorsement of a particular idea. And these artistic expressions can be harmful too. The author cites the example of statues and figurines of slave traders and white supremacists to suggest that the artistic expression can result in the endorsement of an idea, in this case, the "supposed" inferior nature of people of colour, and this could affect the lives of the individuals concerned.

Option A leaves out the part where speech and artwork are expressed as similar modes of expression. It only highlights their negative aspect, where they are used to hurt others.

The author does not discuss anything pertaining to the censorship of artworks. Therefore, option B can be eliminated.

Option C conveys the author's view, elucidated above. Therefore, option C is the answer.

Option D is incomplete. Like Option A, it delves into the negative aspect of artwork and leaves out its parallel with speech as a medium of expression. Thus, Option D can be eliminated too.

18. **Read the following paragraph and choose the option that best captures its essence:**

Eternal peace is a chimera. Whatever pains we may take to avoid war, there always comes a moment when tradition and interest, passion and affection clash and bring to pass the shock which we desired to avoid, a shock which, in the conditions within which civilisation evolves, appears not merely inevitable, but salutary. So we see that philosophers and historians have generally spoken of war as a necessary evil.

a. Eternal peace is a myth since war brings about some positive changes and philosophers and historians consider war to be a necessary evil.

b. A clash due to conflict of interests is an integral part of how a civilization evolves and hence, philosophers and historians consider war to be a necessary evil.

c. The inevitability of a war due to conflict of interests renders the idea of eternal peace imaginary.

d. Though wars due to conflict of interests in a civilization are inevitable and unpleasant, war carries some positive effects with it.

Sol. The main idea the paragraph conveys is that 'war is not only inevitable, it is salutary'. 'Salutary' means some unpleasant event bringing some positive effects with it. Only option D captures this point. Only option D captures all the main points - war is inevitable, unpleasant but has some positive effects as well. Therefore, option D is the right answer.

19. **Read the following paragraph and choose the option that best captures its essence:**

Our conscious thoughts, observations, wishes, aversions are important, because they represent inchoate, nascent activities. They fulfill their destiny in issuing, later on, into specific and perceptible acts. And these inchoate, budding organic readjustments are important because they are our sole escape from the dominion of routine habits and blind impulse. They are activities having a new meaning in process of development. Hence, normally, there is an accentuation of personal consciousness whenever our instincts and ready formed habits find themselves blocked by novel conditions.

a. Personal consciousness, which is stirred by novel conditions, is comprised of conscious thoughts, observations, wishes, and aversions. This consciousness is important because it leads to new acts which are our only escape from habitual actions.

b. The importance of our conscious thoughts, observations, wishes, aversions cannot be ignored because they are responsible for accentuating our personal consciousness and they also help us in dealing with routine habits and blind impulse.

c. Our conscious thoughts, observations, wishes, aversions are important because they are nascent activities in the process of development of personal consciousness and organic readjustments and they help to escape routine habits and blind impulse.

d. When faced with novel conditions, our personal consciousness accentuates which leads to the generation of conscious thoughts, observations, wishes and aversions helping us to escape routine habits and blind impulse.

Sol. The main points of the paragraph are - when we face new conditions, our personal consciousness arises. This consciousness - that is our conscious thoughts, observations, wishes, aversions - produces new actions and hence it is important because it is the only way we can break old habits. These points are covered in option A.
Option B is wrong because conscious thoughts, observations, wishes, aversions and personal consciousness are same things and the former are not responsible for the later.
Option C misses the point of new conditions.
Option D is wrong because personal consciousness is not responsible for the generation of conscious thoughts, observations, wishes and aversions.
Hence, option A is the correct answer.

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

1. The blackest black paint has absorbed 99.9 per cent of public attention for far too long.

2. Surfaces coated with it reflect 98.1 per cent of sunlight, creating a powerful cooling effect—without any of the electricity required by commercial air conditioners.

3. Like its dark counterpart, famously used for things such as thermal camouflage, the new paint has important potential applications.

4. Now the time has come to shed some light on the other end of the practical paint spectrum: a new colourant described as the whitest white.

Sol. The paragraph introduces a 'whitest white' colourant which reflects most of the light incident on it. 1 first introduces the blackest black colourant, which is quite well known. The author then uses this to shift the focus on the whitest white colourant, which he feels deserves the same prominence. Hence, 4 follows 1. 32 is a mandatory pair, where 3 introduces that it has profound implications, and 2 exemplifies one of them. Hence, the correct order is 1432.

21. Four sentences are given below. These sentences, when rearranged in proper order, form a logical and meaningful paragraph. Rearrange the sentences and enter the correct order as the answer.

1. Yet even art does not fully satisfy the deepest need of the soul.
2. Religion is placed above the dominion of art.
3. The soul wants to contemplate truth in its inmost consciousness.
4. Art is intended to make us contemplate the true and the infinite in forms of sense.

Sol. After reading all the sentences, we know that the paragraph is about art and its failure in satisfying the need of the soul. Statement 4 is the opening sentence which mentions the intention of art. Statement 1 states that even art intends to satisfy the soul, but it fails to do so. Statement 3 gives the reason for the same. Statement 2 says that religion is above the dominion of art as

it might be able to satisfy the soul. Thus, the correct order is 4 - 1 - 3 - 2. Hence, 4132 is the correct answer.

22. **Four sentences are given below. These sentences, when rearranged in proper order, form a logical and meaningful paragraph. Rearrange the sentences and enter the correct order as the answer.**

1) If the transmigration of souls is a fact, this animal was certainly qualifying most rapidly for a Christian, for her vanity was only second to her love of drink.

2) She would hang about for hours outside the cellar door for the purpose of sneaking in on the first opportunity and lapping up the drippings from the beer-cask.

3) Whenever she caught a particularly big rat, she would bring it up into the room where we were all sitting, lay the corpse down in the midst of us, and wait to be praised.

4) I do not mention this habit of hers in praise of the species, but merely to show how almost human some of them are.

Sol. Sentence 1 mentions that the animal's love for vanity is only next to her love of drink. Therefore, before sentence 1, the animal's love of drink should have been discussed and after sentence 1, the animal's love for vanity should have been discussed.

Sentence 3 talks about how the animal expects appreciation after bringing home a rat. Sentence 3 describes the animal's love for vanity. 3 should follow 1.

Sentences 2 and 4 describe the animal's love of drink. Sentence 2 mentions how the animal finds its way to drink and in sentence 4, the author mentions that he is not praising the habit but just showing how the species shows some human behaviour. Therefore, sentence 2 should be followed by 4.

Sentences 2413 form a coherent paragraph and hence, 2413 is the right answer.

23. **Five sentences are given below. Four of these sentences, when rearranged properly, form a logical and meaningful paragraph. The fifth one does not belong to the same paragraph. Identify the one which does not belong to the paragraph and enter its number as the answer.**

1. But when the Navy heard that the Foreign Office was inclined to listen to Mr. Wilson's protests it made no attempt to conceal its opposition.
2. So, the Navy kept sinking ships and relying upon the Foreign Office to make excuses and keep America out of the war.
3. Gottlieb von Jagow, the Secretary of State, although he was an intimate friend of the Kaiser and an officer in the German Army, was at heart a pacifist.
4. After the sinking of the 'Arabic', the German Foreign Office intimated to the United States Government and to the American correspondents that methods of submarine warfare would be altered and that ships would be warned before they were torpedoed.
5. Every time an opportunity presented itself he tried to mobilise the peace forces of the world to make peace.

Sol. On carefully reading the sentences, we see that the paragraph is about the relation between the German Foreign Office, Navy and America. Sentence 4, which introduces the subject should

be the opening sentence of the passage. Sentences 4 and 1 form a pair. 1 mentions that the Navy did not pay heed to Foreign office's interests. Sentences 3 and 5 form a pair, which explain why the foreign office was willing to listen to Wilson's protests. Sentence 2, which starts with 'so' does not fit anywhere in the passage. It is the odd sentence. 4135 forms a meaningful paragraph.

24. **Five sentences are given below. Four of these, when rearranged properly, form a logical and meaningful paragraph. Identify the sentence which does not belong to the paragraph and enter its number as the answer.**

1. It was obvious that the separated churches were helpless against the demands arising in their midst for the right of individual interpretation where they themselves drew such widely differing conclusions.

2. The Quakers appeared about a hundred years after the decentralization of authority in theological science.

3. Within these communions the goal towards which the breaking away from the Roman centre had been an unconscious step was already well in view.

4. But far away beneath the institutional confusions and doctrinal dilemmas of this post-Reformation century fresh life was welling up.

5. The Reformers' dream of a remade church had ended in a Europe where, over against an alienated parent, four young Protestant communions disputed together as to the doctrinal interpretation of the scriptures.

Sol. After reading all the sentence, we know that the paragraph is about the decentralization of power of churches. Statement 2 introduces the idea and statement 5 expands the idea about decentralization mentioned in statement 2. Statement 3 provided additional details about the communions discussed in statement 5. Statement 1 illuminates the condition of churches after separation amid hostile circumstances. Thus, 2-5-3-1 is a paragraph. Statement 4 mentions a positive change which took place in the post-reform era. It is an odd sentence as all the other sentences are about the separation of churches and the dilution of power. Hence, 4 is the correct answer.

(25-30)

In a game of card cricket, there are cards placed on a table, each card having an identifiable front(F) and a back(B) side. The first card has number 1 on F and 2 on B, the second card has number 3 on F and 4 on B, and so on..... The nth card has 2n-1 on F and 2n on B. These cards are shuffled, such that the F of each card is on the top and the B of each card is on the bottom. The batsman picks up any random card in each turn. If the number on either F or B of the card has a single digit, the batsman is termed OUT. Else if the number on either F or B has every digit as the same(ex: 555, 66, 1111), the batsman is termed OUT. If none of the above conditions is met, the batsman is awarded some runs in the following way:

S1 = Sum of digits of the number on F

S2 = Sum of digits of the number on B

R(Runs awarded to the batsman) = Maximum(S1, S2)

After every turn, the card is put back into the deck, so that it can be picked again.

Each time the batsman picks a card, it is termed as a delivery(similar to cricket). Runs scored in each delivery keeps on adding to the total score of the batsman. So, the total score of a batsman is the sum of the runs scored by him/her in all the deliveries faced. The batsman keeps picking up cards till he/she is termed OUT. After the batsman is out, the second player follows the same till he/she is termed out. The player with a higher total score wins the game. Based on the information provided, answer the questions that follow.

25. Anuj, who was the batsman got out on the first delivery. What is the probability of this happening, given that the total number of cards was 393?

a. 7/131

b. 22/393

c. 20/393

d. 23/393

Sol. Total number of cards = 393.

2 x 393 = 786 -->> Highest number on any card

Cards on which he can get OUT are:

(1,2), (3,4), (5,6), (7,8), (9,10), (11,12), (21,22), (33,34), (43,44), (55,56), (65,66), (77,78), (87,88), (99,100), (111,112), (221,222), (333,334), (443,444), (555,556), (665,666), (777,778)

Total = 21

Hence, probability = 21/393 = 7/131

26. Virat is playing this game against Rishabh. Partial information is known about the deliveries before they got out. It is known that both Virat and Rishabh got OUT on their respective fifth deliveries. The numbers that they could pick from the first four deliveries are depicted as follows:

Virat: 89(F) x(B) 166(B) 98(B)

Rishabh: 67(F) 85(F) y(B) z(F)

Here, B and F represents the front/back face of the card picked. Which of the following could be a possible value of x, y and z respectively, given that Virat won the game?

a. 15, 68, 11

b. 102, 38, 67

c. 102, 63, 67

d. 102, 16, 67

Sol. Option A: 15, 68, 11

11 cannot appear on 'z' because that would mean that the batsman is out on that delivery itself, which is not the case.

Option B: 102, 38, 67

In this case, total score of Virat = 17 + 3 + 13 + 17 = 50

Rishabh scored = 14 + 14 + 11 + 14 = 53.

Hence, Rishabh won; this case is not possible.

Option C: 102, 63, 67

63 cannot appear on the back of a card; it is odd.

Option D: 102, 16, 67

Virat scored = 17 + 3 + 13 + 17 = 50.

Rishabh scored = 14 + 14 + 7 + 14 = 49.

Hence, this is the right choice.

27. If any card is picked once, it cannot be picked again. Virat scored a total of 53 in 2 deliveries. What can be the minimum number of cards they are playing with?

Sol. We will try and divide 53 into 2 almost equal runs.

53 = 27 + 26

Now, for 27, the minimum number that can be possible = 999.But 999 means OUT. Hence, the card numbered (1899,1900). (997,998) will give 9 +9 + 8 = 26.

Hence, we can get 27 + 26 = 53.

Minimum number of cards needed = 1900/2 = 950.

28. A betting agency was betting on the run scored by Saha on a particular delivery. They correctly knew that Saha was not given OUT on that delivery. Also, they got to know that Saha's card had 3-digit numbers on both faces. They also knew that the number on one of the faces had 2 consecutive 1's in it, however, they were not aware whether it was F or B. What should the agency bet at to maximise the chances of them winning the bet?

a. 8

b. 10

c. 11

d. More than one of the above

Sol. Possible cards that can be picked up are:

(109,110) -> 10

(111,112) x Since he will be out in this scenario

(113,114) -> 6

(115,116) -> 8

(117,118) -> 10

(119,120) -> 11

(211,212) -> 5

(311,312) -> 6

(411,412) -> 7

(511,512) -> 8

(611,612) -> 9

(711,712) -> 10

(811,812) ->11

(911,912) -> 12

10 has the maximum possibility to occur, 3 times. Hence, the agency should bet on ten runs.

29. Suppose a game is started with 51 cards. If a card is removed once it is picked and is not available to be picked again, what is the maximum total score one can score in seven deliveries?

a. 114

b. 110

c. 112

d. 108

Sol. 18 -> (99,100) not possible, since 99 implies OUT

17 -> (97,98) & (89,90)

16 -> (79,80) [87-88 is not possible because that would mean that the batsman is OUT]

15 -> (95,96) & (69,70) [77-78 is not possible because that would mean that the batsman is OUT]

14 -> (59,60) & (85,86) & (67,68)

Hence, total score = 17 x 2 + 16 + 15 x 2 + 14 x 2 = 34 + 16 + 30 + 28 = 108.

30. Stephen has arranged the cards in such an order that the card on the top fetches the maximum runs, the one second from the top fetches the second-highest runs and so on. All cards that may get him out are at the bottom of the stack. Stephen is very clever. He does not pick the same card more than once. He picks the first card from the top in the first delivery, the second card from the top in the second delivery and so on. In X deliveries he will reach his century(hundred runs), and he scored Y runs in that Xth delivery. Find X+Y. The total number of cards = 200.

Sol. (399,400) - > 21

(389,390) - > 20

(397,398) - > 20

(299,300) - > 20

(199,200) - > 19

Total = 21 + 20 + 20 + 20 + 19 = 100

Hence, in 5 deliveries, a 100 is scored. X= 5, Y = 19.

X + Y = 24

(31-35)

Read the information carefully and answer the questions that follow.

Eight friends, Abhi, Anupam, Deepak, Vinod, Prakash, Neha, Sukriti, and Jyoti are the alumni from different colleges viz. IIM A, IIM B, IIM C, IIM L, IIM K, IIM I, IIM R, IIM S, not necessarily in that order are sitting around a round table with eight seats.. Further, they are working in different domains viz. HR, Marketing, Finance, Operations, Consulting, Strategy, Sales, and General Management not in any particular order. It is also known that:
1. The friend, who is sitting opposite Vinod, works in General management and is an alumnus of IIM I.
2. Neha is sitting opposite the friend working in Marketing while the friends working in HR and Strategy are sitting adjacent to each other.
3. The alumnus from IIM K, who works in Strategy is sitting opposite the alumnus from IIM C, who works in Operations.
4. Anupam works in Finance and he sits second to the left of Prakash, who sits to the immediate right of Jyoti.
5. The alumnus of IIM S sits second to the right of Abhi, who sits opposite the alumnus from IIM B.
6. Vinod, who works in Consulting, sits adjacent to the friend working in Sales. Deepak sits opposite the friend who is an alumnus of IIM R.
7. The friends working in Sales and Marketing sit opposite each other and Prakash does not work in Marketing.
8. Anupam is an alumnus of IIM B. The alumnus of IIM A sits second to the right of Jyoti.

31. Who is sitting opposite Neha?

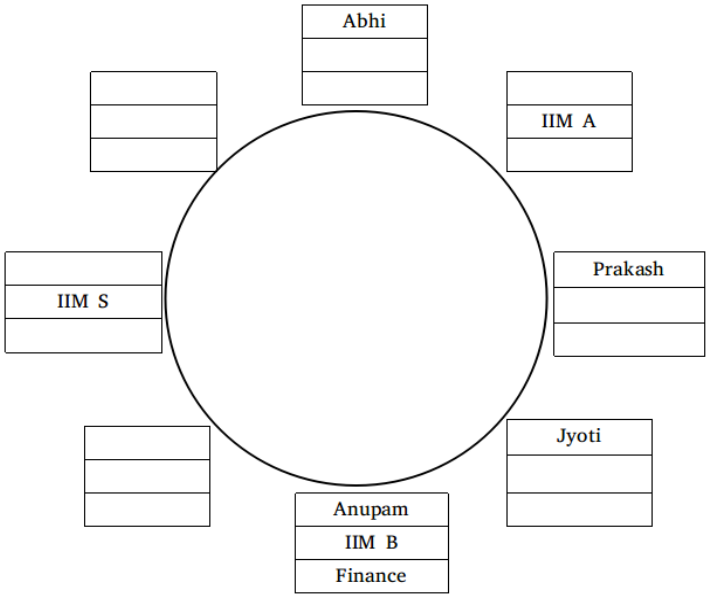
a. Deepak

b. Sukriti

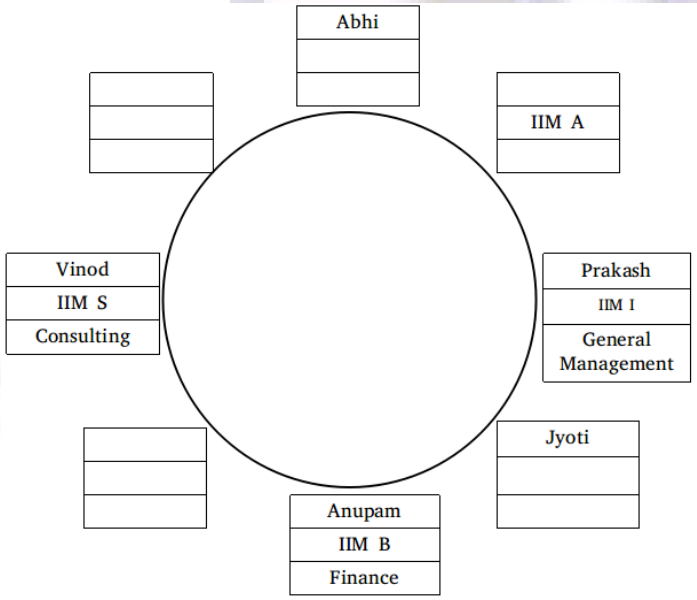
c. Jyoti

d. Anupam

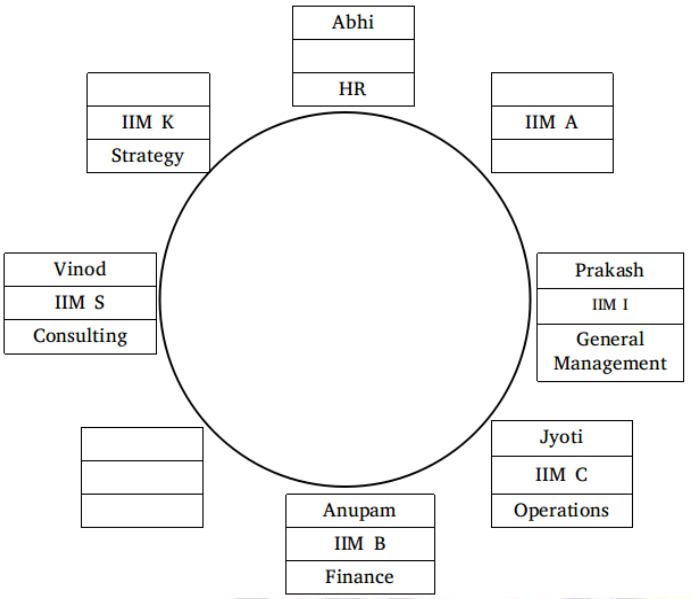
Sol. Anupam works in Finance and he sits second to the left of Prakash, who sits to the immediate right of Jyoti. The alumnus of IIM A sits second to the right of Jyoti. Anupam is an alumnus of IIM Bangalore. The alumnus of IIM S sits second to the right of Abhi, who sits opposite the alumnus from IIM B.



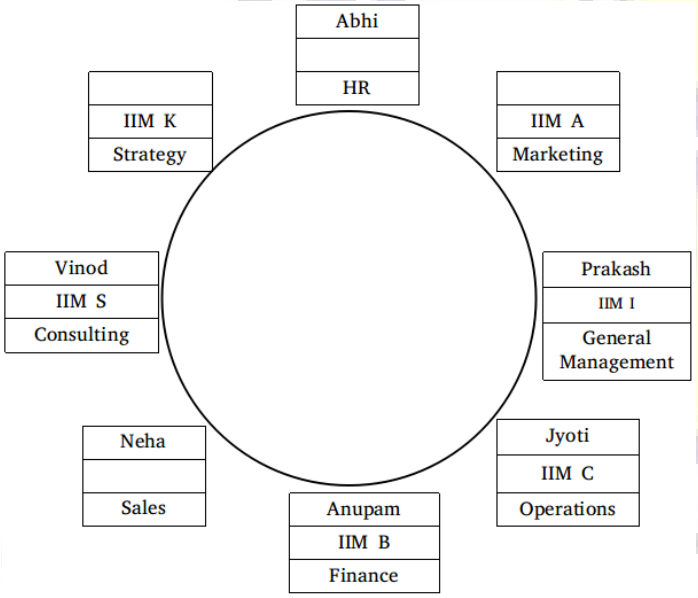
Neha is sitting opposite the friend working in Marketing. The friends working in sales and marketing sit opposite each other and Prakash does not work in Marketing. So, Neha must be working in Sales. Vinod, who works in Consulting, sits adjacent to the friend working in Sales. So, Vinod sits adjacent to Neha. So, Neha must be sitting either to the immediate right of Abhi or to the immediate left of Anupam. In either case, Vinod must be sitting opposite Prakash. The friend, who is sitting opposite Vinod, works in General management and is an alumnus of IIM I. Thus, Prakash must be from IIM I and he must be working in General Management.



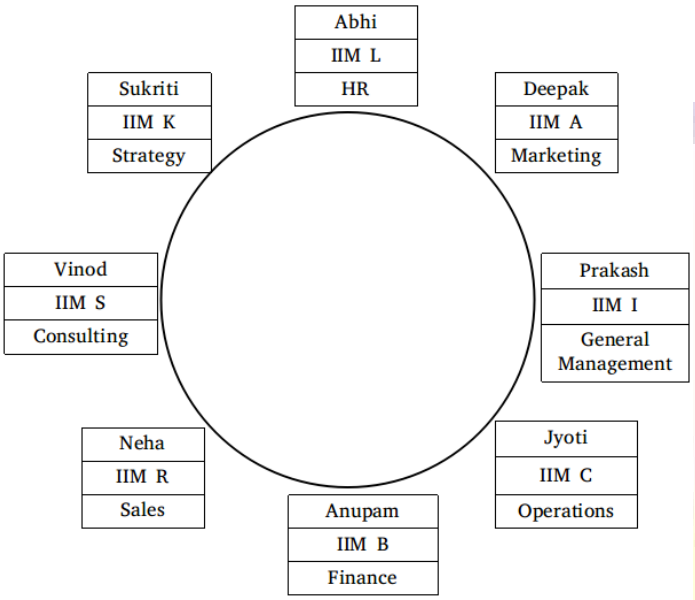
The alumnus from IIM K, who works in Strategy is sitting opposite the alumnus from IIM C, who works in Operations. The friends working in HR and Strategy are sitting adjacent to each other. There is only one possibility - the friends working in HR and Strategy sit between Abhi and Vinod. Therefore, Abhi must be working in HR.



Neha sits opposite the friend who works in Marketing. So, she must be sitting between Vinod and Anupam. Also, the friend who is an alumnus of IIM A must be working in Marketing.



Deepak sits opposite the friend who is an alumnus of IIM R. So, Neha must be an alumnus from IIM R and Deepak must be sitting between Abhi and Prakash. Thus, Sukriti must be sitting between Vinod and Abhi and Abhi must be an alumnus of IIM L. Thus, we get the final arrangement as:



From the arrangement, we can see that Deepak sits opposite Neha.

Hence, option A is the correct answer.

32. Who is an alumnus of IIM C?

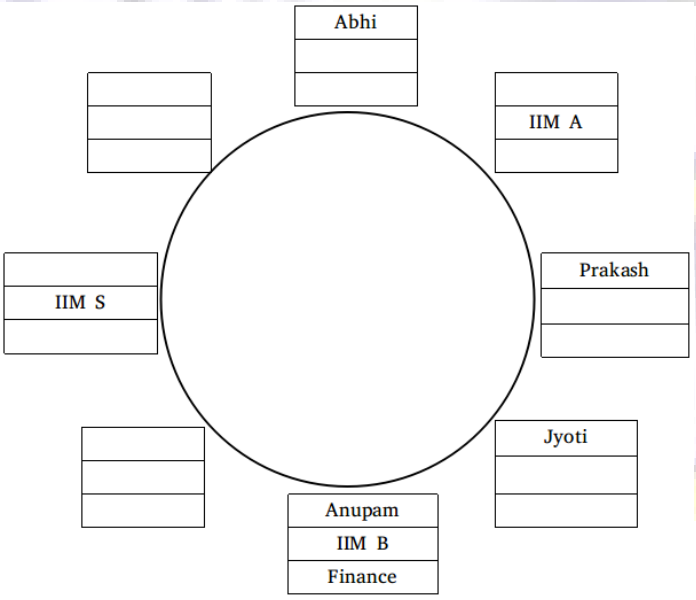
a. Prakash

b. Jyoti

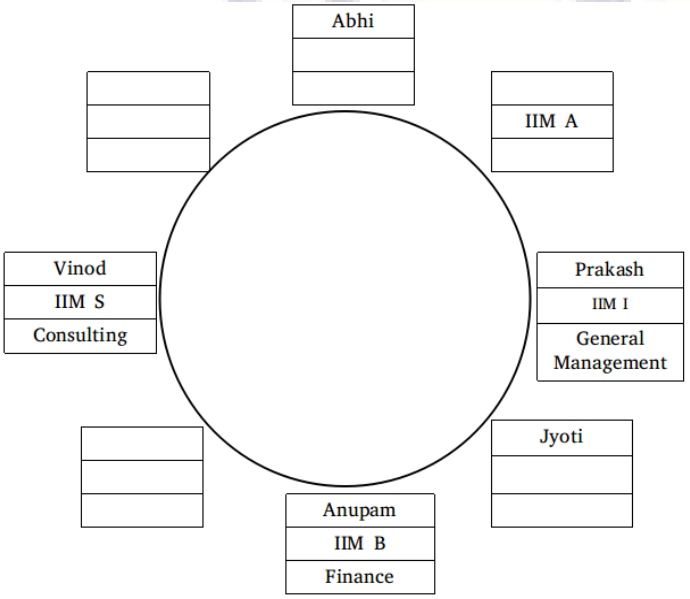
c. Abhi

d. Sukriti

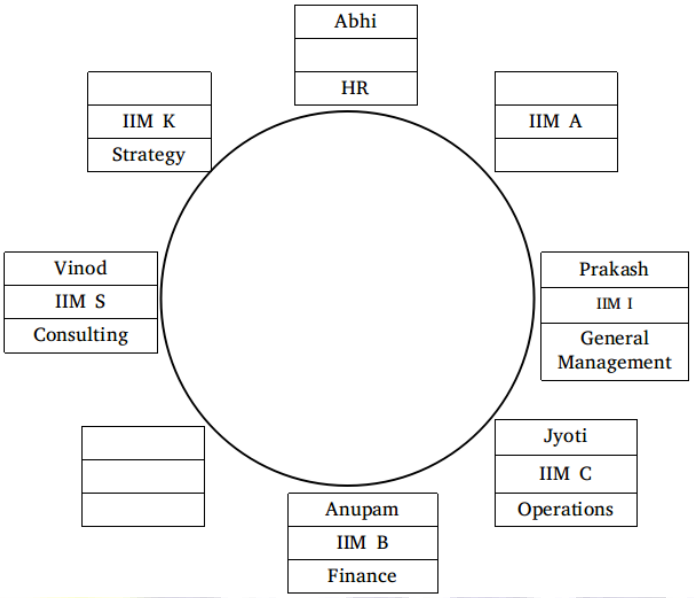
Sol. Anupam works in Finance and he sits second to the left of Prakash, who sits to the immediate right of Jyoti. The alumnus of IIM A sits second to the right of Jyoti. Anupam is an alumnus of IIM Bangalore. The alumnus of IIM S sits second to the right of Abhi, who sits opposite the alumnus from IIM B.



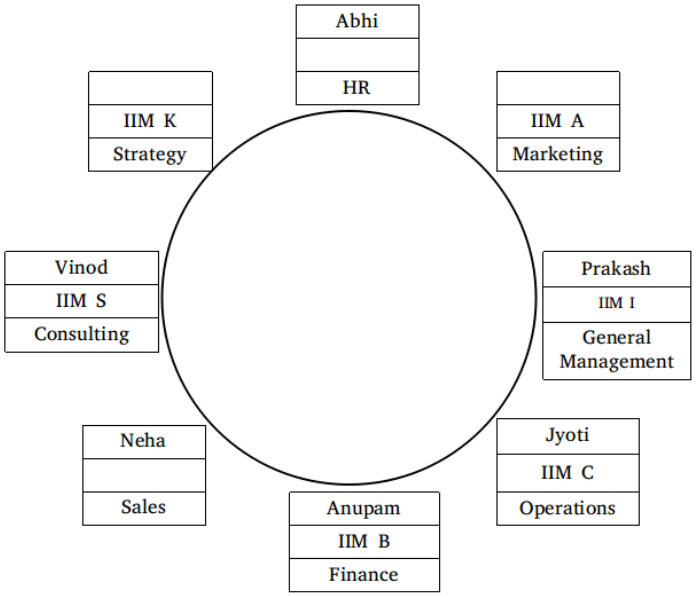
Neha is sitting opposite the friend working in Marketing. The friends working in sales and marketing sit opposite each other and Prakash does not work in Marketing. So, Neha must be working in Sales. Vinod, who works in Consulting, sits adjacent to the friend working in Sales. So, Vinod sits adjacent to Neha. So, Neha must be sitting either to the immediate right of Abhi or to the immediate left of Anupam. In either case, Vinod must be sitting opposite Prakash. The friend, who is sitting opposite Vinod, works in General management and is an alumnus of IIM I. Thus, Prakash must be from IIM I and he must be working in General Management.



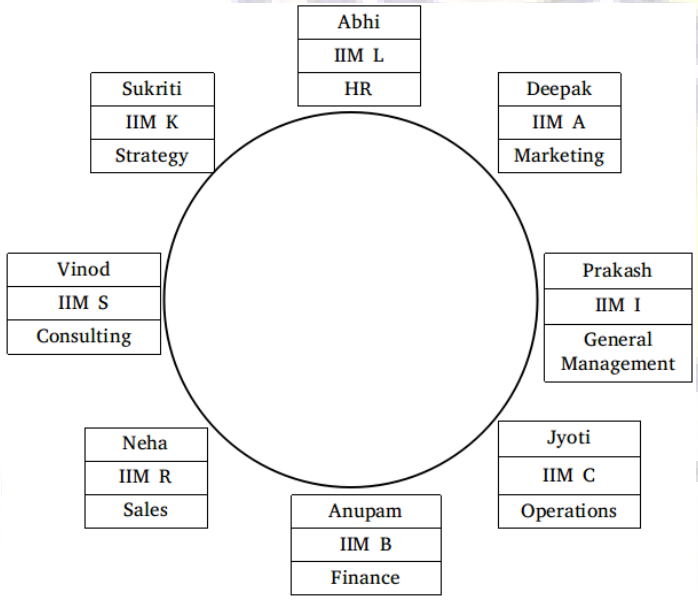
The alumnus from IIM K, who works in Strategy is sitting opposite the alumnus from IIM C, who works in Operations. The friends working in HR and Strategy are sitting adjacent to each other. There is only one possibility - the friends working in HR and Strategy sit between Abhi and Vinod. Therefore, Abhi must be working in HR.



Neha sits opposite the friend who works in Marketing. So, she must be sitting between Vinod and Anupam. Also, the friend who is an alumnus of IIM A must be working in Marketing.



Deepak sits opposite the friend who is an alumnus of IIM R. So, Neha must be an alumnus from IIM R and Deepak must be sitting between Abhi and Prakash. Thus, Sukriti must be sitting between Vinod and Abhi and Abhi must be an alumnus of IIM L. Thus, we get the final arrangement as:



From the arrangement, we can see that Jyoti is an alumnus of IIM C.

Hence, option B is the correct answer.

33. What is the position of the friend who is an alumnus of IIM A with respect to the friend who works in HR?

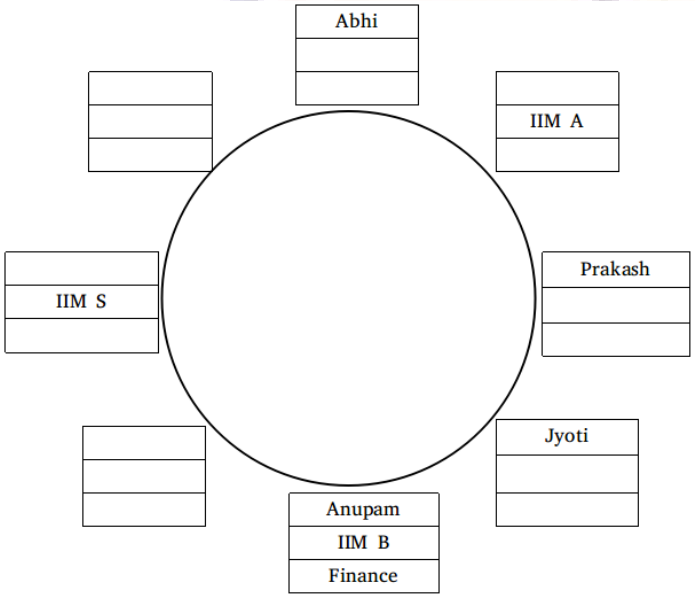
a. Immediate right

b. Immediate left

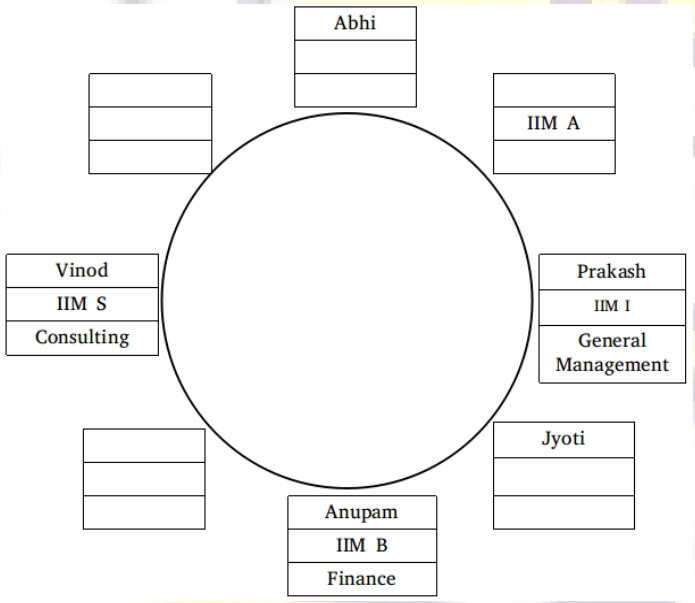
c. Second to the right

a. Third to the left

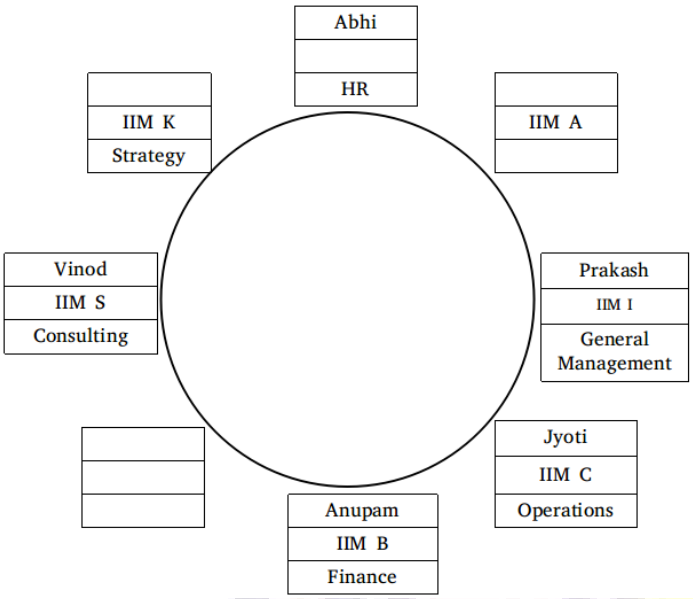
Sol. Anupam works in Finance and he sits second to the left of Prakash, who sits to the immediate right of Jyoti. The alumnus of IIM A sits second to the right of Jyoti. Anupam is an alumnus of IIM Bangalore. The alumnus of IIM S sits second to the right of Abhi, who sits opposite the alumnus from IIM B.



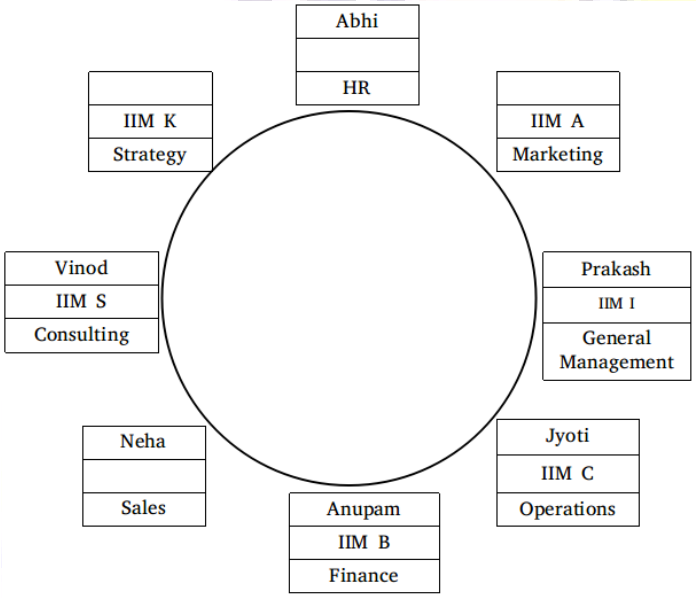
Neha is sitting opposite the friend working in Marketing. The friends working in sales and marketing sit opposite each other and Prakash does not work in Marketing. So, Neha must be working in Sales. Vinod, who works in Consulting, sits adjacent to the friend working in Sales. So, Vinod sits adjacent to Neha. So, Neha must be sitting either to the immediate right of Abhi or to the immediate left of Anupam. In either case, Vinod must be sitting opposite Prakash. The friend, who is sitting opposite Vinod, works in General management and is an alumnus of IIM I. Thus, Prakash must be from IIM I and he must be working in General Management.



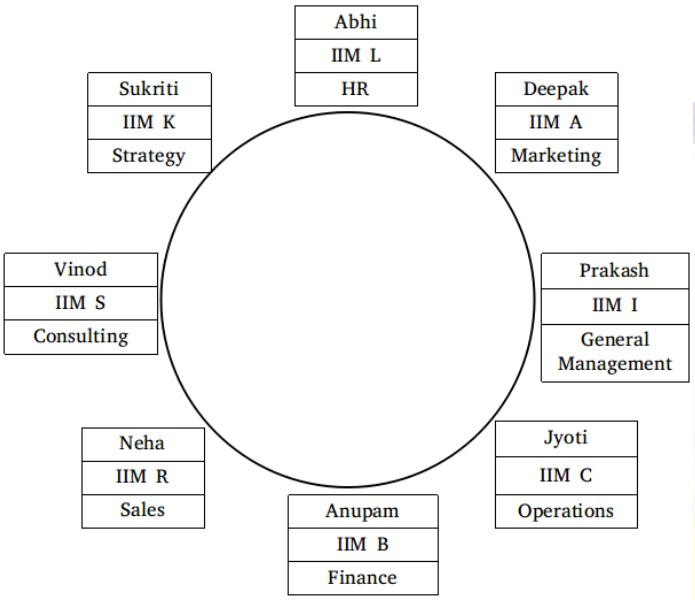
The alumnus from IIM K, who works in Strategy is sitting opposite the alumnus from IIM C, who works in Operations. The friends working in HR and Strategy are sitting adjacent to each other. There is only one possibility - the friends working in HR and Strategy sit between Abhi and Vinod. Therefore, Abhi must be working in HR.



Neha sits opposite the friend who works in Marketing. So, she must be sitting between Vinod and Anupam. Also, the friend who is an alumnus of IIM A must be working in Marketing.



Deepak sits opposite the friend who is an alumnus of IIM R. So, Neha must be an alumnus from IIM R and Deepak must be sitting between Abhi and Prakash. Thus, Sukriti must be sitting between Vinod and Abhi and Abhi must be an alumnus of IIM L. Thus, we get the final arrangement as:



From the arrangement, we can see that the friend who is an alumnus of IIM A sits to the immediate left of the friend who works in HR.

Hence, option B is the correct answer.

34. Which of the following is a correct combination?

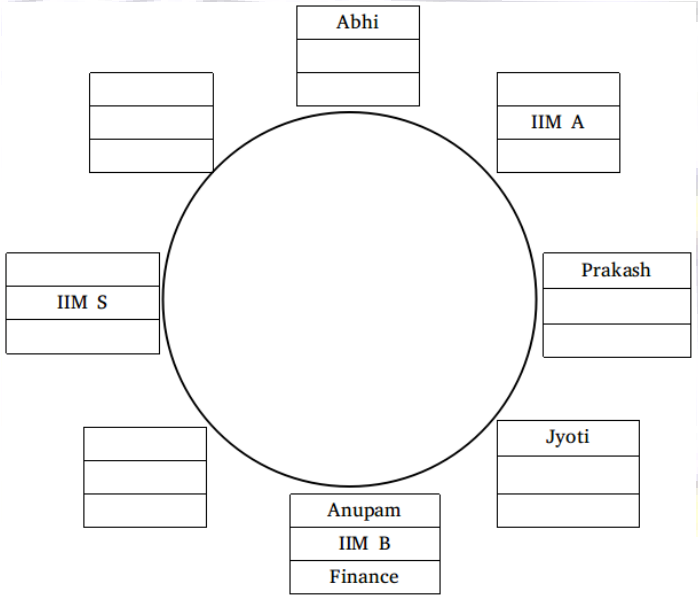
a. Abhi – IIM I – General Management

b. Vinod – IIM R – Consulting

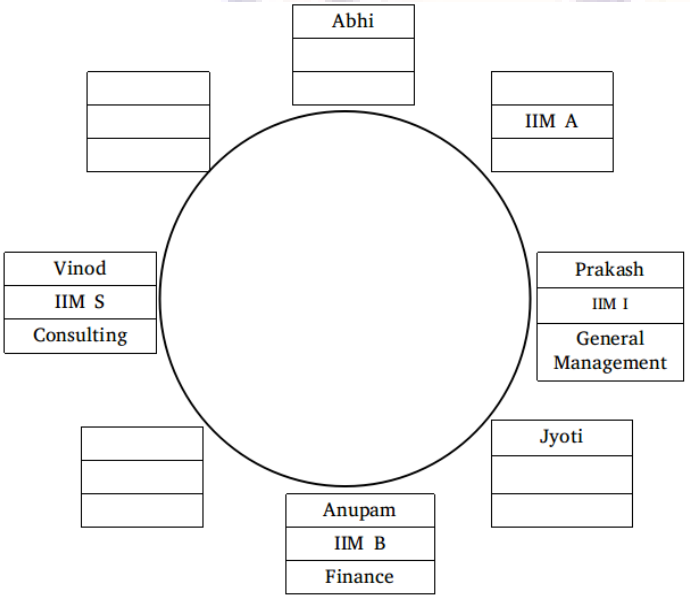
c. Deepak – IIM L – Marketing

d. Sukriti – IIM K – Strategy

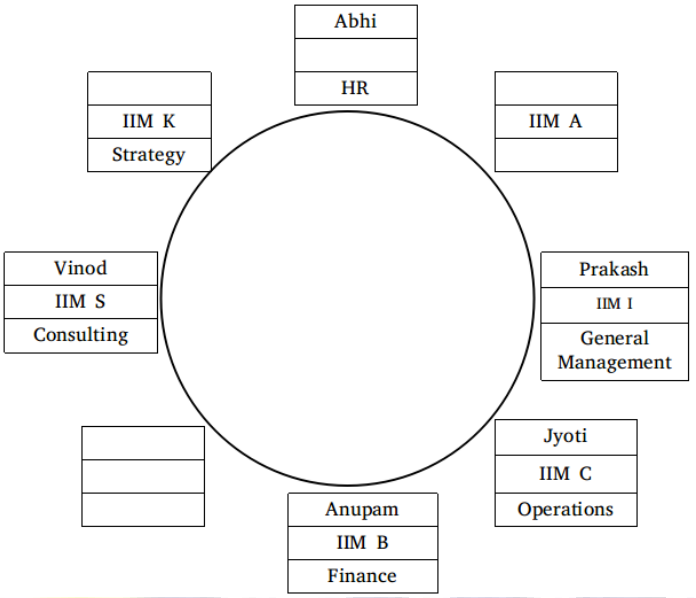
Sol. Anupam works in Finance and he sits second to the left of Prakash, who sits to the immediate right of Jyoti. The alumnus of IIM A sits second to the right of Jyoti. Anupam is an alumnus of IIM Bangalore. The alumnus of IIM S sits second to the right of Abhi, who sits opposite the alumnus from IIM B.



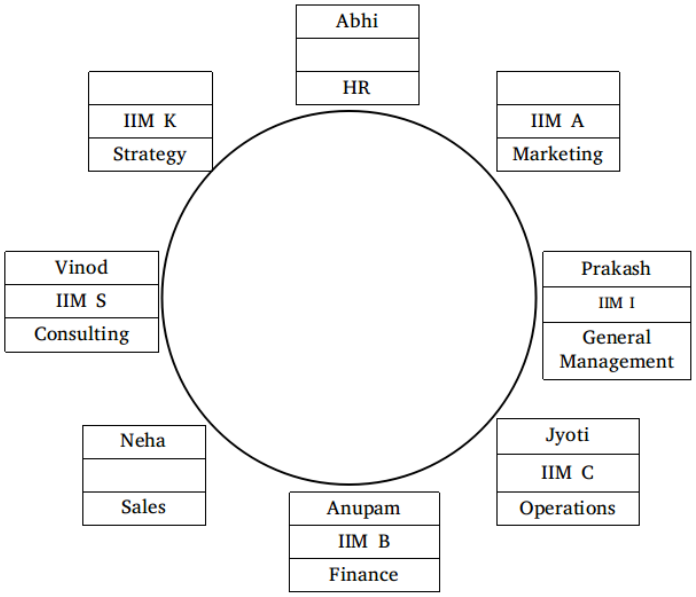
Neha is sitting opposite the friend working in Marketing. The friends working in sales and marketing sit opposite each other and Prakash does not work in Marketing. So, Neha must be working in Sales. Vinod, who works in Consulting, sits adjacent to the friend working in Sales. So, Vinod sits adjacent to Neha. So, Neha must be sitting either to the immediate right of Abhi or to the immediate left of Anupam. In either case, Vinod must be sitting opposite Prakash. The friend, who is sitting opposite Vinod, works in General management and is an alumnus of IIM I. Thus, Prakash must be from IIM I and he must be working in General Management.



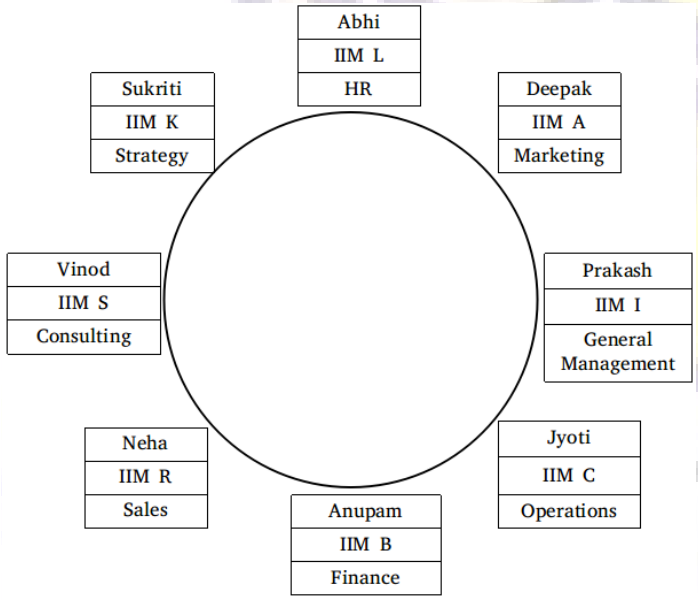
The alumnus from IIM K, who works in Strategy is sitting opposite the alumnus from IIM C, who works in Operations. The friends working in HR and Strategy are sitting adjacent to each other. There is only one possibility - the friends working in HR and Strategy sit between Abhi and Vinod. Therefore, Abhi must be working in HR.



Neha sits opposite the friend who works in Marketing. So, she must be sitting between Vinod and Anupam. Also, the friend who is an alumnus of IIM A must be working in Marketing.



Deepak sits opposite the friend who is an alumnus of IIM R. So, Neha must be an alumnus from IIM R and Deepak must be sitting between Abhi and Prakash. Thus, Sukriti must be sitting between Vinod and Abhi and Abhi must be an alumnus of IIM L. Thus, we get the final arrangement as:



From the arrangement, we can see that only the combination in Option D is correct.

Hence, option D is the correct answer.

(35-40)

A Jury must be selected using the given 12 people who belong to different crafts . The conditions for selection of a Jury vary from one film festival to another.

Person	Roles Handled
A	FILM CRITIC EDITOR PRODUCER
B	WRITER EDITOR
C	FILM CRITIC DOP DIRECTOR
D	DIRECTOR DOP
E	FILM CRITIC PRODUCER EDITOR
F	WRITER DOP
G	FILM CRITIC PRODUCER DIRECTOR
H	PRODUCER DOP
I	FILM CRITIC EDITOR DIRECTOR
J	WRITER PRODUCER
K	FILM CRITIC DOP WRITER
L	EDITOR WRITER

All the people belonging to the same department give the exact same score. A person belonging to multiple departments will give the score of the department which is the maximum among the departments he belong to .

The direction department gives the least score.

The critics department gives twice the score of Director.

The DOP and production departments gives three times the score of Direction department.

The writing and editing departments gives a score of four times the direction department.

The Jury conditions for Cannes film festival :

1) For Cannes film festival there must be exactly 4 members in the Jury .

2) The Jury must include exactly 3 film critics.

3)The Jury must include exactly 3 film directors.

4) There can be a maximum of only 2 directors who are critics in the Jury

The Jury conditions for Melbourne film festival :

1) The Jury must have exactly 5 members .

2) There must be at least 4 writers.

3) There must be equal number of people from Production, Editing, DOP and Critics departments .

35. If while selecting a Jury for Cannes film festival an additional condition is provided that there can be a maximum of only 2 people from each of the production, Writing, Editing and DOP departments, in how many ways can a Jury be selected?

a. 5

b. 6

c. 7

d. 8

Sol. Since there are 6 film critics and 4 film directors and we plan to use 3 of the directors and since 3 of the 4 directors are film critics and as per the given condition we must use at most 2 directors who are film critics and 1 director who is not a film critic.

We cannot form a jury with one or zero people who are film critics and directors because we will not have sufficient number of directors to place in the jury and hence there must be 2 people who are both critics and directors in the Jury.

The director who is not a film critic is D.

Hence D must be a part of all the possible combinations.

Selecting two film critics who are directors can happen in 3 possible ways they are selecting :

CG, GI, CI.

Hence the possible cases are CGD, GID, CID.

Since we are planning to select four people team and we must include 3 film critics we cannot include :

I for CG, C for GI and G for CI :

Hence we can have one among A/E/K :

Hence the cases will be :

For CGD : The possible Juries are

ACDG : (3 Critics + 3 Directors +1 Editor + 2 Producer + 2 DOP)

CDEG : (3 Critics + 3 Directors + 2 DOP +2 Producer+ 1 Editor)

CDGK : (3 Critics + 3 Directors +3 DOP + 1 Producer+ 1 Writer)

For GID : The possible Juries are

ADGI : (3 Critics + 3 Directors +2 Editors +2 Producer+ 1DOP)

DEGI : (3 Critics + 3 Directors + 1 DOP + 2 Producers + 2 Editors)

DGIK : (3 Critics + 3 Directors + 2 DOP + 1 Producer +1 Writer + 1 Editor)

For CID : The possible juries are

ACDI : (3 Critics + 3 Directors + 2 Editors + 1 Producer + 2 DOP)

CDEI : (3 Critics + 3 Directors +2 DOP + 1 Producer + 2 Editor)

CDIK : (3 Critics + 3 Directors + 3 DOP + 1 Editor + 1 Writer).

Since only a maximum of 2 from the departments of DOP , Writing, Editing and Production are allowed of the 9 possible cases cases of CDGK, CDIK fails because there are 3 DOP's in the following Juries .

Hence a total of 7 possible selections is allowed.

36. Which of the following member must be a part of all the Cannes juries?

a. C

b. G

c. K

d. D

Sol. Since there are 6 film critics and 4 film directors and we plan to use 3 of the directors and since 3 of the 4 directors are film critics and as per the given condition we must use atmost 2 directors who are film critics and 1 director who is not a film critic.

We cannot form a jury with one or zero people who are film critics and directors because we will not have sufficient number of directors to place in the jury and hence there must be 2 people who are both critics and directors in the Jury.

The director who is not a film critic is D.

Hence D must be a part of all the possible combinations.

37. If the score given by Direction department is x. What is the least score a Jury in Cannes can give to a film ?

a. 12x

b. 13x

c. 14x

d. 15x

Sol. Since there are 6 film critics and 4 film directors and we plan to use 3 of the directors and since 3 of the 4 directors are film critics and as per the given condition we must use at most 2 directors who are film critics and 1 director who is not a film critic.

We cannot form a jury with one or zero people who are film critics and directors because we will not have sufficient number of directors to place in the jury and hence there must be 2 people who are both critics and directors in the Jury.

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Since we are planning to select four people team and we must include 3 film critics we cannot include :

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Hence we can have one among A/E/K :

Hence the cases will be :

For CGD : The possible Juries are

ACDG : (3 Critics + 3 Directors +1 Editor + 2 Producer + 2 DOP)

CDEG : (3 Critics + 3 Directors + 2 DOP +2 Producer+ 1 Editor)

CDGK : (3 Critics + 3 Directors +3 DOP + 1 Producer+ 1 Writer)

For GID : The possible Juries are

ADGI : (3 Critics + 3 Directors +2 Editors +2 Producer+ 1DOP)

DEGI : (3 Critics + 3 Directors + 1 DOP + 2 Producers + 2 Editors)

DGIK : (3 Critics + 3 Directors + 2 DOP + 1 Producer +1 Writer + 1 Editor)

For CID : The possible juries are

ACDI : (3 Critics + 3 Directors + 2 Editors + 1 Producer + 2 DOP)

CDEI : (3 Critics + 3 Directors +2 DOP + 1 Producer + 2 Editor)

CDIK : (3 Critics + 3 Directors + 3 DOP + 1 Editor + 1 Writer).

Since as per the given condition the people will be giving the maximum possible score they could actually give :

Since Direction department gives a score of x

A will give the score of Editing department = 4x

B will give the score of Writing or Editing department = 4x

C will give the score of DOP department = 3x

D will give the score of DOP department = 3x

E will give the score of Editing department = 4x

F will give the score of Writing department = 4x

G will give the score of Production department = 3x

H will give the score of Production department = 3x

I will give the score of Editing department = 4x

J will give the score of Writing department = 4x

K will give the score of Writing department = 4x

L will give the score of Editing or Writing department = 4x

The minimum score possible by selecting all the 4 people giving a score of 3x is 12x. This is possible by forming a jury using CDHJ but such a Jury is not used in Cannes.

Checking for the contenders :

For the first Jury of ACDG the scores will be 4x+3x+3x+3x = 13x.

Since 13x is the least possible score and this is obtained by the first Jury this will be the least score attained

38. If the condition that a person belonging to multiple departments will give the score of the department which is the maximum among the departments he belongs to is changed to minimum among the departments he belongs to. What is the average of the scores of all possible Cannes Juries if the score given by Direction department is x?

a. 8x

b. 7x

c. 6x

d. 5x

Sol. Since there are 6 film critics and 4 film directors and we plan to use 3 of the directors and since 3 of the 4 directors are film critics and as per the given condition we must use exactly 2 directors who are film critics and 1 director who is not a film critic.

The director who is not a film critic is D.

Hence D must be a part of all the possible combinations.

Selecting two film critics who are directors can happen in 3 possible ways they are selecting :

CG, GI, CI.

Hence the possible cases are CGD, GID, CID.

Since we are planning to select four people team and we must include 3 film critics we cannot include :

I for CG, C for GI and G for CI :

Hence we can have one among A/E/K :

Hence the cases will be :

For CGD : The possible Juries are

ACDG : (3 Critics + 3 Directors +1 Editor + 2 Producer + 2 DOP)

CDEG : (3 Critics + 3 Directors + 2 DOP +2 Producer+ 1 Editor)

CDGK : (3 Critics + 3 Directors +3 DOP + 1 Producer+ 1 Writer)

For GID : The possible Juries are

ADGI : (3 Critics + 3 Directors +2 Editors +2 Producer+ 1DOP)

DEGI : (3 Critics + 3 Directors + 1 DOP + 2 Producers + 2 Editors)

DGIK : (3 Critics + 3 Directors + 2 DOP + 1 Producer +1 Writer + 1 Editor)

For CID : The possible juries are

ACDI : (3 Critics + 3 Directors + 2 Editors + 1 Producer + 2 DOP)

CDEI : (3 Critics + 3 Directors +2 DOP + 1 Producer + 2 Editor)

CDIK : (3 Critics + 3 Directors + 3 DOP + 1 Editor + 1 Writer).

Since as per the given condition the people will be giving the minimum possible score they could actually give :

Since Direction department gives a score of x and all the Juries include only A, C, D, E, G, I, K.

A will give the score of Critics department = 2x
C will give the score of Direction department = x

D will give the score of Direction department = x

E will give the score of Critics department = 2x
G will give the score of Direction department = x
I will give the score of Direction department = x
K will give the score of Critics department = 2x

In all the Juries we have

A present 3 times so a total score of 6x

D present 9 times so a total score of 9x

C present 6 times so a total score of 6x

G present 6 times so a total score of 6x

I present 6 times so a total score of 6x

E present 3 times so a total score of 6x

K present 3 times so a total score of 6x.

The sum of this = 6x+9x+6x+6x+6x+6x+6x = 45x.

There are a total of 9 Juries and hence the average score is 5x.

39. If while selecting a Jury for Melbourne film festival an additional condition was mentioned that B will not join the Jury if J is part of the Jury and L will not be apart of the Jury if B is apart of the Jury. How many Juries can be formed?

a. 0

b. 1

c. 2

d.3

Sol. Since we need 4 writers to be a part of the Jury and given the additional condition that B will be present only when J is absent from the Jury and since if B is present L will not be a part of the Jury :

So if we include B in the Jury we must not include J and L in the Jury.

Since J and L are writers and if B is included both must be dropped. In total we have 5 writers and if B is included we cannot have 4 Writers.

Since we need 4 writers we will drop B from the Jury .

So the Jury must include :

FJKL : All four of them combined the responsibilities present are :

(4 Writers + 2 DOP + 1 Editor + 1 Critic + 1 Producer).

Since we need equal number of people fro DOP, Editing, Critic, Production department).

We must have a person who belongs to Editing, Critic, Production department so that we have on the whole we have 2 people from DOP, Editing, Critic, Production department.

The person must have background in Editing, Critic, Production departments .

So this can either be A or E

So the Juries can be FJKLA or FJKLE.

40. If while selecting a Jury for Melbourne film festival an additional condition was mentioned that B will not join the Jury if J is part of the Jury and L will not be apart of the Jury if B is apart of the Jury. Who can be a part of the Jury?

a. B

b. C

c. D

d. E

Sol. Since we need 4 writers to be a part of the Jury and given the additional condition that B will be present only when J is absent from the Jury and since if B is present L will not be a part of the Jury :

So if we include B in the Jury we must not include J and L in the Jury.

Since J and L are writers and if B is included both must be dropped. In total we have 5 writers and if B is included we cannot have 4 Writers.

Since we need 4 writers we will drop B from the Jury .

So the Jury must include :

FJKL : All four of them combined the responsibilities present are :

(4 Writers + 2 DOP + 1 Editor + 1 Critic + 1 Producer).

Since we need equal number of people fro DOP, Editing, Critic, Production department).

We must have a person who belongs to Editing, Critic, Production department so that we have on the whole we have 2 people from DOP, Editing, Critic, Production department.

The person must have background in Editing, Critic, Production departments .

So this can either be A or E

So the Juries can be FJKLA or FJKLE.

B,C,D cannot be a part of both the Juries.

Hence E is the only possible answer

(41-45)

A B-school has 4 clubs - Sports, Dramatics, Literary, and Quiz. 60 students joined these clubs in the first year. A person can join only one of these 4 clubs. After the first year was over, some students did not like the club they joined and hence, moved from one club to another.

Further the following information is known:

No student moved from the quiz club to the sports club.
The number of students who moved from dramatics club to the sports club is the same as the number of students who moved from the sports club to the dramatics club. The same is the case with sports club and literary club as well.
The number of students who moved out from the sports and quiz clubs are equal.
The number of students who moved to the literary club is one more than the number of persons who moved to the sports club.
At least one student moved from the sports club to literary club.
The number of students who left the quiz club for the dramatics club and the literary club is the same.
A total of 21 students shifted from one club to another.
4 students moved out of dramatics club and 5 students moved out of literary club.
The number of students who joined sports club is exactly half the number of students who left it.
The number of students who left other clubs for dramatics club is 4 more than the number of students who left other clubs for the quiz club.

41. From which club did maximum number of people leave for the dramatics club?

a. Literary club

b. Sports club

c. Quiz club

d. More than one of the above

Sol. Let us start by tabulating the data available.

We have no information about the number of persons in each club.

The sports-sports cell in the table represents the number of persons from sports club who stayed in sports club. Since we do not have this information (we have information only regarding the movement from one club to another), let us mark all such cells with X.

The cell sports-dramatics (row-column) represents the number of students from sports club who left for dramatics club. Therefore, the cell sports-total will provide the number of students who left the sports club and the cell total-sports will provide the number of students who left other clubs for the sports club.

The number of persons who moved from dramatics club to the sports club is the same as the number of persons who moved from the sports club to the dramatics club. The same is the case with sports club and literary club as well. Let us use ‘a’ to denote the number of persons who moved from the dramatics club to the sports club and ‘b’ to denote the number of persons who moved from sports club to literary club. The number of persons who moved out of sports and quiz clubs is the same. Let us denote it by ‘c’.

A total of 21 students left one club for another. No person moved from the quiz club to sports club (quiz-sports = 0).

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	b		c
Dramatics	a	×			
Literary	b		×		
Quiz	0			×	c
Total					21

The number of persons who moved to the literary club is one more than the number of persons who moved to the sports club. Let the number of persons who moved to the literary club be 'd+1' and the number of persons who moved to the sports club be 'd'.

The number of persons who left the quiz club for the dramatics club and the literary club is the same. Let us denote the number of persons who left the quiz club for dramatics club by 'e'. 4 students moved out of dramatics club and 5 students moved out of literary club.

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	b		c
Dramatics	a	×			4
Literary	b		×		5
Quiz	0	e	e	×	c
Total	d		d+1		21

As we can see from the table, c+c+4+5 =21

=> c = 6

The number of students who left other clubs for dramatics club is 4 more than the number of students who left other clubs for the quiz club.
Let the number of students who left other clubs for quiz club be 'f'.
=> Number of students who left other clubs for dramatics club = f+4.

The number of students who joined sports club is exactly half the number of students who left it. We know that 6 students left the sports club. Therefore, 3 students should have joined the sports club. => d = 3

We can see from the table that e+e = 6

=> e = 3

Let us fill the vacant cells with variables from g to k. We get the following table.

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	b	i	6
Dramatics	a	×	h	j	4
Literary	b	g	×	k	5
Quiz	0	3	3	×	6
Total	3	f+4	4	f	21

f+f+4+3+4 = 21
=> 2f = 10
f = 5
a+b = 3
a+b+i = 6
=> i = 3
a+h+j = 4 ----------(1)
b+h = 1 ----------(2)
a+b = 3 ----------(3)
b+g+k = 5 ----------(4)
j + k = 2 ----------(5)
a+g = 6 ----------(6)
Let us rewrite every variable in terms of 'a'.
b = 3-a
g =6-a
Substituting these values in (4), we get,
3-a+6-a+k = 5
9-2a+k = 5
k = 2a-4
Substituting the value of 'k' in (5), we get,
j+2a-4 = 2
j = 6-2a
(1)=> a+h+j = 4
a+h+6-2a = 4
=> **h = a-2**
It has been given that at least one student moved from Sports to Literary club. Therefore, the value of 'a' cannot be 3.
We know that k=2a-4. Therefore, the value of 'a' should be at least 2.
2 is the only value that falls within the range.
Solving the equations using a=2, we get the following table:

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	2	1	3	6
Dramatics	2	×	0	2	4
Literary	1	4	×	0	5
Quiz	0	3	3	×	6
Total	3	9	4	5	21

Maximum number of people left literary club for dramatics club. Therefore, option A is the right answer.

42. How many persons moved from the sports club to quiz club?

a. 0

b. 1

c. 2

d. 3

Sol. Let us start by tabulating the data available.

We have no information about the number of persons in each club.

The sports-sports cell in the table represents the number of persons from sports club who stayed in sports club. Since we do not have this information (we have information only regarding the movement from one club to another), let us mark all such cells with X.

The cell sports-dramatics (row-column) represents the number of students from sports club who left for dramatics club. Therefore, the cell sports-total will provide the number of students who left the sports club and the cell total-sports will provide the number of students who left other clubs for the sports club.

The number of persons who moved from dramatics club to the sports club is the same as the number of persons who moved from the sports club to the dramatics club. The same is the case with sports club and literary club as well. Let us use ‘a’ to denote the number of persons who moved from the dramatics club to the sports club and ‘b’ to denote the number of persons who moved from sports club to literary club. The number of persons who moved out of sports and quiz clubs is the same. Let us denote it by ‘c’.

A total of 21 students left one club for another. No person moved from the quiz club to sports club (quiz-sports = 0).

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	B		c
Dramatics	a	×			
Literary	b		×		
Quiz	0			×	C
Total					21

The number of persons who moved to the literary club is one more than the number of persons who moved to the sports club. Let the number of persons who moved to the literary club be ‘d+1’ and the number of persons who moved to the sports club be ‘d’.

The number of persons who left the quiz club for the dramatics club and the literary club is the same. Let us denote the number of persons who left the quiz club for dramatics club by 'e'. 4 students moved out of dramatics club and 5 students moved out of literary club.

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	B		c
Dramatics	a	×			4
Literary	b		×		5
Quiz	0	e	e	×	C
Total	d		d+1		21

As we can see from the table, c+c+4+5 =21

=> c = 6

The number of students who left other clubs for dramatics club is 4 more than the number of students who left other clubs for the quiz club.
Let the number of students who left other clubs for quiz club be 'f'.
=> Number of students who left other clubs for dramatics club = f+4.

The number of students who joined sports club is exactly half the number of students who left it. We know that 6 students left the sports club. Therefore, 3 students should have joined the sports club. => d = 3

We can see from the table that e+e = 6

=> e = 3

Let us fill the vacant cells with variables from g to k. We get the following table.

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	b	i	6
Dramatics	a	×	h	j	4
Literary	b	g	×	k	5
Quiz	0	3	3	×	6
Total	3	f+4	4	f	21

f+f+4+3+4 = 21
=> 2f = 10
f = 5
a+b = 3
a+b+i = 6
=> i = 3
a+h+j = 4 ----------(1)
b+h = 1 ----------(2)
a+b = 3 ----------(3)
b+g+k = 5 ----------(4)
j + k = 2 ----------(5)
a+g = 6 ----------(6)
Let us rewrite every variable in terms of 'a'.
b = 3-a

g =6-a
Substituting these values in (4), we get,
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2 is the only value that falls within the range.
Solving the equations using a=2, we get the following table:

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	2	1	3	6
Dramatics	2	×	0	2	4
Literary	1	4	×	0	5
Quiz	0	3	3	×	6
Total	3	9	4	5	21

3 persons have moved from sports club to quiz club. Therefore, option D is the right answer.

43. What is the absolute difference between the number of students who joined literary club and the number of students who left it?

Sol. Let us start by tabulating the data available.

We have no information about the number of persons in each club.

The sports-sports cell in the table represents the number of persons from sports club who stayed in sports club. Since we do not have this information (we have information only regarding the movement from one club to another), let us mark all such cells with X.

The cell sports-dramatics (row-column) represents the number of students from sports club who left for dramatics club. Therefore, the cell sports-total will provide the number of students who left the sports club and the cell total-sports will provide the number of students who left other clubs for the sports club.

The number of persons who moved from dramatics club to the sports club is the same as the number of persons who moved from the sports club to the dramatics club. The same is the case with sports club and literary club as well. Let us use ‘a’ to denote the number of persons who moved from the dramatics club to the sports club and ‘b’ to denote the number of persons who moved from sports club to literary club. The number of persons who moved out of sports and quiz clubs is the same. Let us denote it by ‘c’.

A total of 21 students left one club for another. No person moved from the quiz club to sports club (quiz-sports = 0).

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	B		c
Dramatics	a	×			
Literary	b		×		
Quiz	0			×	C
Total					21

The number of persons who moved to the literary club is one more than the number of persons who moved to the sports club. Let the number of persons who moved to the literary club be 'd+1' and the number of persons who moved to the sports club be 'd'.

The number of persons who left the quiz club for the dramatics club and the literary club is the same. Let us denote the number of persons who left the quiz club for dramatics club by 'e'. 4 students moved out of dramatics club and 5 students moved out of literary club.

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	B		c
Dramatics	a	×			4
Literary	b		×		5
Quiz	0	e	e	×	C
Total	d		d+1		21

As we can see from the table, c+c+4+5 =21

=> c = 6

The number of students who left other clubs for dramatics club is 4 more than the number of students who left other clubs for the quiz club.
Let the number of students who left other clubs for quiz club be 'f'.
=> Number of students who left other clubs for dramatics club = f+4.

The number of students who joined sports club is exactly half the number of students who left it. We know that 6 students left the sports club. Therefore, 3 students should have joined the sports club. => d = 3

We can see from the table that e+e = 6

=> e = 3

Let us fill the vacant cells with variables from g to k. We get the following table.

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	b	i	6
Dramatics	a	×	h	j	4
Literary	b	g	×	k	5
Quiz	0	3	3	×	6

Total	3	f+4	4	f	21

f+f+4+3+4 = 21
=> 2f = 10
f = 5
a+b = 3
a+b+i = 6
=> i = 3
a+h+j = 4 ----------(1)
b+h = 1 ----------(2)
a+b = 3 ----------(3)
b+g+k = 5 ----------(4)
j + k = 2 ----------(5)
a+g = 6 ----------(6)
Let us rewrite every variable in terms of 'a'.
b = 3-a
g =6-a
Substituting these values in (4), we get,
3-a+6-a+k = 5
9-2a+k = 5
k = 2a-4
Substituting the value of 'k' in (5), we get,
j+2a-4 = 2
j = 6-2a
(1)=> a+h+j = 4
a+h+6-2a = 4
=> **h = a-2**
It has been given that at least one student moved from Sports to Literary club. Therefore, the value of 'a' cannot be 3.
We know that k=2a-4. Therefore, the value of 'a' should be at least 2.
2 is the only value that falls within the range.
Solving the equations using a=2, we get the following table:

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	2	1	3	6
Dramatics	2	×	0	2	4
Literary	1	4	×	0	5
Quiz	0	3	3	×	6
Total	3	9	4	5	21

Number of persons who joined literary club = 4
Number of persons who left literary club = 5
Therefore, the required difference is 5 – 4 = 1

44. The strength of which club decreased the most after the change?

a. Literary

b. Quiz

c. Sports

d. Dramatics

Sol. Sol. Let us start by tabulating the data available.

We have no information about the number of persons in each club.

The sports-sports cell in the table represents the number of persons from sports club who stayed in sports club. Since we do not have this information (we have information only regarding the movement from one club to another), let us mark all such cells with X.

The cell sports-dramatics (row-column) represents the number of students from sports club who left for dramatics club. Therefore, the cell sports-total will provide the number of students who left the sports club and the cell total-sports will provide the number of students who left other clubs for the sports club.

The number of persons who moved from dramatics club to the sports club is the same as the number of persons who moved from the sports club to the dramatics club. The same is the case with sports club and literary club as well. Let us use ‘a’ to denote the number of persons who moved from the dramatics club to the sports club and ‘b’ to denote the number of persons who moved from sports club to literary club. The number of persons who moved out of sports and quiz clubs is the same. Let us denote it by ‘c’.

A total of 21 students left one club for another. No person moved from the quiz club to sports club (quiz-sports = 0).

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	B		c
Dramatics	a	×			
Literary	b		×		
Quiz	0			×	C
Total					21

The number of persons who moved to the literary club is one more than the number of persons who moved to the sports club. Let the number of persons who moved to the literary club be ‘d+1’ and the number of persons who moved to the sports club be ‘d’.

The number of persons who left the quiz club for the dramatics club and the literary club is the same. Let us denote the number of persons who left the quiz club for dramatics club by ‘e’. 4 students moved out of dramatics club and 5 students moved out of literary club.

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	B		c
Dramatics	a	×			4
Literary	b		×		5

Quiz	0	e	e	×	C
Total	d		d+1		21

As we can see from the table, c+c+4+5 =21

=> c = 6

The number of students who left other clubs for dramatics club is 4 more than the number of students who left other clubs for the quiz club.
Let the number of students who left other clubs for quiz club be 'f'.
=> Number of students who left other clubs for dramatics club = f+4.

The number of students who joined sports club is exactly half the number of students who left it. We know that 6 students left the sports club. Therefore, 3 students should have joined the sports club. => d = 3

We can see from the table that e+e = 6

=> e = 3

Let us fill the vacant cells with variables from g to k. We get the following table.

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	a	b	i	6
Dramatics	a	×	h	j	4
Literary	b	g	×	k	5
Quiz	0	3	3	×	6
Total	3	f+4	4	f	21

f+f+4+3+4 = 21
=> 2f = 10
f = 5
a+b = 3
a+b+i = 6
=> i = 3
a+h+j = 4 ----------(1)
b+h = 1 ----------(2)
a+b = 3 ----------(3)
b+g+k = 5 ----------(4)
j + k = 2 ----------(5)
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Let us rewrite every variable in terms of 'a'.
b = 3-a
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Substituting these values in (4), we get,
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k = 2a-4
Substituting the value of 'k' in (5), we get,
j+2a-4 = 2
j = 6-2a
(1)=> a+h+j = 4

a+h+6-2a = 4
=> **h = a-2**
It has been given that at least one student moved from Sports to Literary club. Therefore, the value of 'a' cannot be 3.
We know that k=2a-4. Therefore, the value of 'a' should be at least 2.
2 is the only value that falls within the range.
Solving the equations using a=2, we get the following table:

	Sports	Dramatics	Literary	Quiz	Total
Sports	×	2	1	3	6
Dramatics	2	×	0	2	4
Literary	1	4	×	0	5
Quiz	0	3	3	×	6
Total	3	9	4	5	21

Number of members lost by sports club = 6 – 3 = 3.
Number of members gained by dramatics club = 9 – 4 = 5.
Number of members lost by literary club = 5 – 4 =1
Number of members lost by quiz club = 6 – 5= 1.
As we can see, sports club lost the highest number of members.
Therefore, option C is the right answer.

45. There are 10 train stops between Hyderabad and Vizag. How many types of tickets should be printed to service all kinds of passengers travelling either way on the train?

a. 132

b. 90

c. 45

d. 66

Sol. The two train stops can be selected in ${}^{12}C_2$ ways and the direction can be selected in 2 ways. So, total number of ways is 12 × 11 = 132.

46. A container has 50 litres of ethanol. Using a mug of volume 'X' litres of the solution is removed and replaced with water. This process is repeated three times using the same mug and after that, only 25.6 litres of ethanol is left in the container. What is the volume of the mug?

a. 20 l

b. 10 l

c. 30 l

d. 15 l

Sol. We can use the formula

Quantity left = Quantity present initially $\times \left(1-\frac{Quantity\ removed}{Total\ Quantity}\right)^n$

where n is the number of iteration.
Let the quantity removed in each iteration be x litres
Putting all values we get

$25.6 = 50 \times \left(1-\frac{x}{50}\right)^3$

Solving this equation we can get x=10 litres
Hence, option B is correct.

47. A container was half-filled with liquid A having p and q in the ratio 3:5. Liquid p evaporates at the rate of 2 liters per minute and Liquid q evaporates at the rate of 3 liters per minute for half an hour. After half an hour, the same container was totally filled with liquid B having q and p in the ratio 2:3. If the ratio p:q is 11:9 after the addition of liquid B, then what is the capacity of the container (in liter)?

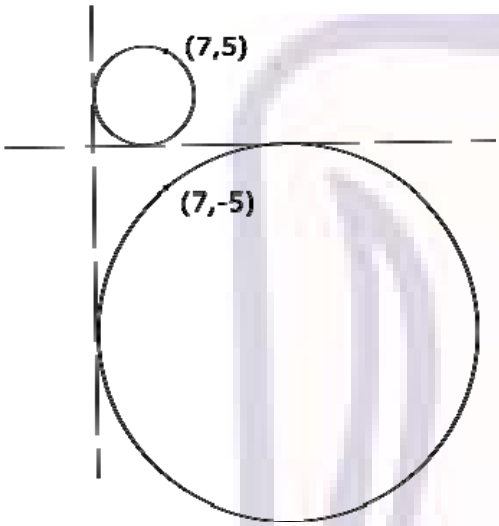
Sol. Let the capacity of the container be 160x liters.
It was half filled by A having liquids p and q in the ratio 3 : 5.
Thus, the amount of liquid p and q in the container is 30x liters and 50x liters.
They evaporate at the rate of 2 liters per minute and 3 liters per minute.
Thus, amount of p and q left after 30 minutes = 30x – 2 * 30 = 30x – 60 liters and 50x – 90 liters respectively.
Volume of the portion of the container that is empty = 160x - 30x + 60 - 50x + 90 = 80x + 150 liters
This is filled by liquid B having q and p in the ratio 2 : 3.
Thus, the amount of q added = (80x + 150) * 0.4 = 32x + 60 liters.
The amount of p added = (80x + 150) * 0.6 = 48x + 90 liters.
The ratio of p and q in the final mixture is 2 : 3.

Thus, $\frac{30x-60+48x+90}{50x-90+32x+60}=\frac{11}{9}$

$\Rightarrow \frac{78x+30}{82x-30}=\frac{11}{9}$

Solving, we get, x = 3.
Thus, the capacity of the container is 160 × 3 = 480 liters.

48. The diameters of the two circles given below are different. What is the sum of the diameters of the two circles shown in the figure.



Sol. Let the centre of the circle in quadrant 1 be (x, x) and the centre of the circle in quadrant 4 be (y, -y) where both x, y > 0
The radius of the first circle must be 'x' and that of the bigger circle must be 'y'.
Distance between (x, x) and (7, 5) must be equal to the radius 'x'.
$\Rightarrow (x - 7)^2 + (x - 5)^2 = x^2$

$\Rightarrow x^2 + 49 - 14x + x^2 + 25 - 10x = x^2$

$\Rightarrow x^2 - 24x + 74 = 0$

The roots of this equation is $x = 12 \pm \sqrt{70}$
The distance between (0,0) and (7,5) is $\sqrt{74} < 12 + \sqrt{70}$. But, by the figure we can see that this distance must be more than the radius. Thus, the radius of the smaller circle must be $12 - \sqrt{70}$ and diameter $24 - 2\sqrt{70}$
Similarly, in the second circle, distance between (y, -y) and (7, -5) must be equal to the radius 'y'.
$\Rightarrow (y - 7)^2 + (5 - y)^2 = y^2$

$\Rightarrow y^2 - 24y + 74 = 0$

$\Rightarrow y = 12 \pm \sqrt{70}$
Here, the distance between (0, 0) and (7, -5) must be less than the radius.
$\Rightarrow$ y should be $12 + \sqrt{70}$
Thus, the sum of the 2 diameters is 48.

49. The sum of the numerical values of the perimeter and area of a rectangle is 140. The perimeter of the rectangle is at least

a. 20 units

b. 60 units

c. 40 units

d. 30 units

Sol. Let the sides of the triangle be x and y

It is given that,

$2(x + y) + xy = 140$

Adding 4 to both sides of the equation

$2x + 2y + xy + 4 = 144$

or, $x(2 + y) + 2(y + 2) = 144$

or, $(x + 2)(y + 2) = 144$

Applying AM ≥ GM

$$\frac{(x+2)+(y+2)}{2} \geq \sqrt{(x+2)(y+2)}$$

Replacing the value of $(x + 2)(y + 2)(x+2)(y+2)$ by 144144 , we get

$$\frac{(x+2)+(y+2)}{2} \geq \sqrt{144}$$

or, $(x + y + 4) \geq 24$

or, $(x + y) \geq 20$

$\Rightarrow 2(x + y) \geq 40$

Thus, the perimeter of the rectangle is at least 4040 units.

Hence, option C is the correct answer.

50. A particular mobile phone was sold to a customer at 5% loss. If he had sold it for 90 Rs more, the shopkeeper would have made a profit of 1%. Find the initial cost price of the mobile phone.

1200

1300

1400

1500

Sol. Let cost price of product be C

Selling price (S) = 0.95C (as sold at 5% loss)

Given, if he had sold it for 90 Rs more, he would get 1% profit

$S + 90 = 1.01C$

$0.95C + 90 = 1.01C$

$0.06C = 90$

$C = 1500$

Therefore, initial cost price is Rs 1500

51. Aditya, Bikas and Chandu together take 12 days to complete a work. The time taken by Aditya and Bikas is 25% of the time taken by Chandu alone to complete the work. Time taken by Chandu and Bikas to complete the work is equal to the time taken by Aditya alone to complete the work. Find the time taken by Aditya and Chandu to complete the work when Aditya works at 80% of his actual efficiency while Chandu works at his actual efficiency.

24

15

20

120/7

Sol. Let us assume Aditya does a units of work per day, Bikas does b units of work per day and Chandu does c units of work per day.
Now total work would be: 12(a + b + c)
Now as per given condition :
we get, $\frac{(a+b)}{4}$ = c and (1)

b + c = a (2)
Putting a = b + c in (1)
we get
2b = 3c

$\frac{b}{c}=\frac{3}{2}$

⇒ a : b : c = 5 : 3 : 2

Now total time taken by Aditya and Chandu to complete the work if Aditya works at 80% of his efficiency and Chandu works at his actual efficiency would be:

$\frac{(12(5+3+2))}{5\times 0.8+2}=\frac{120}{6}=20$ days.

52. The roots of the quadratic equation $px^2 + qx + r = 0$, are 'a' and 'b'. It is known that $\frac{1}{a}+\frac{1}{b}=\frac{8}{35}$. Moreover, the product of the roots of the equation $rx^2 + qx + p = 0$ is -3/35. Find the sum of the roots of the equation $qx^2 + px + r = 0$

a. -8/3

b. -7/5

c. -3/8

d. -5/7

Sol. We have been given that the roots of the first equation are 'a' and 'b' and $\frac{1}{a}+\frac{1}{b}=\frac{8}{35}$

$$\Rightarrow \frac{\frac{-p}{q}}{\frac{r}{p}}=\frac{8}{35} \Rightarrow \frac{-q}{r}=\frac{8}{35}$$

The product of the roots of the equation $rx^2 + qx + p = 0$

$$= \frac{p}{r} \Rightarrow \frac{p}{r} = \frac{-3}{35}$$

The sum of the roots of the required equation $qx^2 + px + r = 0$

$$= \frac{-p}{q} \Rightarrow \frac{p}{r}\times\frac{-r}{q} = \frac{35}{8}\times\frac{-3}{35} = \frac{-3}{8}$$

53. Let $g(x) = Ax^2 – Bx + C$for some constants A,B and C. Which of the following is true?

a. g(x) always increases as x increases

b. g(x) always increases as A increases and C increases

a. g(x) always increases as B and C increases

a. g(x) is independent of the value of C

Sol. Let $g_1(x) = - A_1x^2 + B_1x + C_1$, and $g_2(x) = A_2x^2 + B_2x + C_2$

Now, if we subtract 1 from 2, we get

$g_2(x) – g_1(x) = A_2x^2 + B_2x + C_2 – A_1x^2 + B_1x + C_1$

$(A_2 – A_1)x^2 + (B_2 – B_1)x + (C_2 – C_1)$

Keeping B and C constant,

$G_2(x) – G_1(x) = (A_2 – A_1)x^2$

Hence, the value of g(x) increases if A increases.

Keeping A and C constant,

$G_2(x) – G_1(x) = (B_2 – B_1)x$

Hence, the value of g(x) can increase or decrease with a decrease or an increase of B. It will also depend on x.

Keeping A and B constant,

$G_2(x) – G_1(x) = (C_2 – C_1)$

Hence, the value of g(x) increases with an increase in the value of C.

Option B is the only correct option.

54. Five pipes A, B, C, D, and E can fill a tank in 60 minutes, 20 minutes, 30 minutes, 8 minutes, 32 minutes respectively. Out of these five pipes, two have now been converted into emptying pipes such that their efficiency remains the same. When only one of filling pipes and one of the emptying pipes operate, the tank can be filled in 60 minutes. Another combination of one filling and one emptying pipes empties the tank in 8/45th of the time taken by the previous combination to fill the tank. Which pipes are converted into emptying pipes?

A and D

C and D

B and D

Cannot be determined

Sol. Let the total work to be done be 480 units (LCM of 60,20,30,8,32)
So the respective efficiencies of different pipes are-
A- 8 units/min (480/60)
B- 24 units/min
C- 16 units/min
D- 60 units/min
E- 15 units/min
Now, one combination of emptying and filling pipe can fill the tank in 60 minutes, i.e. together they can do 480/60 = 8 units of work per minute.
Out of the combinations possible, only A-C and B-C have a difference of 8 units/min.
So, if A is an emptying the tank and C is a filling it, they will do together 8 units of work per min. When C is an emptying the tank and B is filling it, the work done per minute will be the same 8 units/min.

According to the question, the second combination takes 8/45th of time of first one, i.e 32/3 minutes. Only combination that can do so is when D is the emptying pipe and E is the filling pipe. So among A, B, and C, we cannot know for sure which pipe is the filling one and which one is the emptying one.

Thus, we can't determine which pipes have been converted to emptying pipes.

55. A, B, C, D are standing in clockwise direction at the corners of a square of side 's'. They are start running clockwise along the sides of the square with speeds in the ratio 1:2:3:4 respectively. How much distance does A run by the time they all meet for the third time?

11 s

12 s

15 s

18 s

Sol. In the amount of time taken by A to run one side of the square, D runs all four sides and reaches where he was initially standing. Hence, A and D can only meet at D's initial position.

Once A, B, C, D reach D's starting position, they can meet again only at point D (since the speeds are in the ratio 1:2:3:4 - by the time A, covers 1 round, B will cover 2 rounds, C will cover 3 rounds and D will cover 4 rounds). Therefore, after meeting at D, all 4 of them will meet when A completes a round.

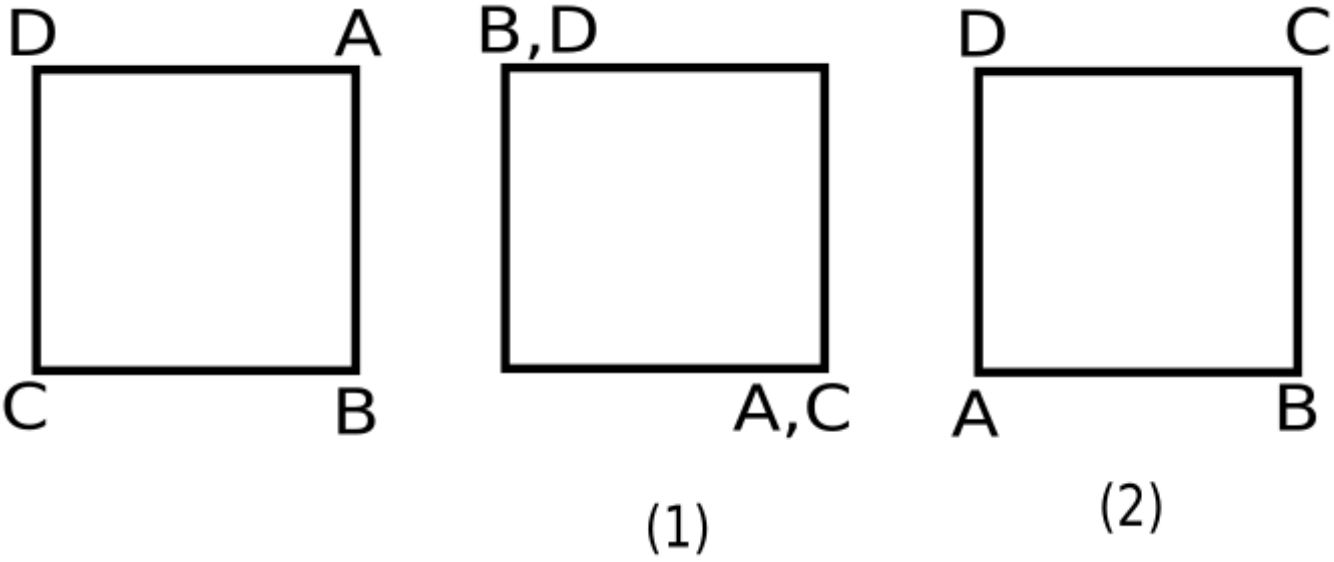
Let us assume that A completes a round in 12 seconds. B will take 6 seconds, C will take 4 seconds, and D will take 3 seconds to complete a round. A covers a distance of 4s in 12 seconds. => A takes 3 seconds to cover a distance of 's'.

It takes A 9 seconds to reach D (initially). A will complete a round in 12 seconds. Therefore, when they meet for the third time, 12+12+9 = 33 seconds would have elapsed. In 33 seconds, A would have covered 33/3 = 11s.

So, total distance covered by A = 11s.

Alternate Solution:

Using diagram,



In each step, A is moving s distance. After 4 steps the configuration is repeated. In the third step, A has travelled 3s, when all four meet. After 4 steps they will meet again for the second time. After 4 more steps they will meet again for the third time. So total distance travelled by A = 3s+4s+4s = 11s

56. A man has enough money to pay X for 21 days or to pay Y for 28 days. If both X and Y start working together, for how long would the man be able to pay them.

10

8

14

12

Sol. Let the total amount of work done by X in 21 days = Work done by Y in 28 days = k
Work done by them in 1 day = k/21 + k/28 = 7k/84 = k/12
Time taken to complete 'k' amount of work = k/(k/12) = 12 days

57. XYWZ is a trapezium with XY parallel to WZ. If XY is 10 cm; XZ is 8 cm, √XZW is 45 degrees and YW is perpendicular to ZW, find the length of WZ?

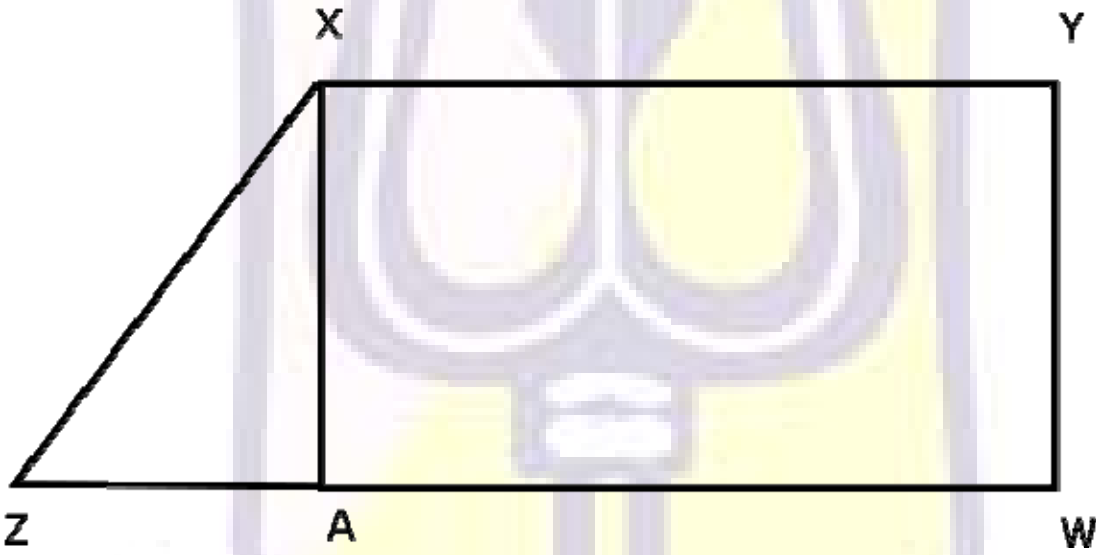
14 cm

14√2 cm

10 + 4√2 cm

2 cm

Sol. Let a perpendicular line from X cut WZ at A.



From the figure we can see that, XY = AW = 10 cm.
Given √XZA is 45 degrees and XZ = 8 cm.

Let ZA = XA = x

By Pythagorus Theorem, $x^2 + x^2 = 64$

⇒ x = 4√2

So, WZ = WA + AZ = 10 + 4√2

58. Ram bought 1.5 ton AC of Samsui at Rs. 20,000.The AC has 1- year free maintenance and an offer at the time of purchasing to extend the maintenance for 2 more years by paying an additional amount of Rs.1470. It is known that the given model of Sansui Ac's have a maintenance rate of 2.5% of cost the first year, with the maintenance rate increasing at 50% every year. How much gain or loss would Ram have on maintenance cost if he took the offer?

20% loss

33.33% loss

27.55% gain

33.3% gain

Sol. The maintenance at the end of 1st year = 2.5% of 20,000 = 500
Maintenance at the end of 2nd year = 500 + 50% (500) = 750
Maintenance at the end of 3rd year = 1125
Thus, the total maintenance cost(excluding year 1) = 750 + 1125 = 1875
$\therefore$the gain% of Ram = $\frac{1875-1470}{1470}\times 100 \approx 27.55\%$

59. A system of four spheres of 11 cm radius is stacked to form a pyramid on a wooden floor, such that three sphere are touching the floor and every sphere touches all other spheres. Which of the following is closest to the distance from the topmost point to the base of this system?

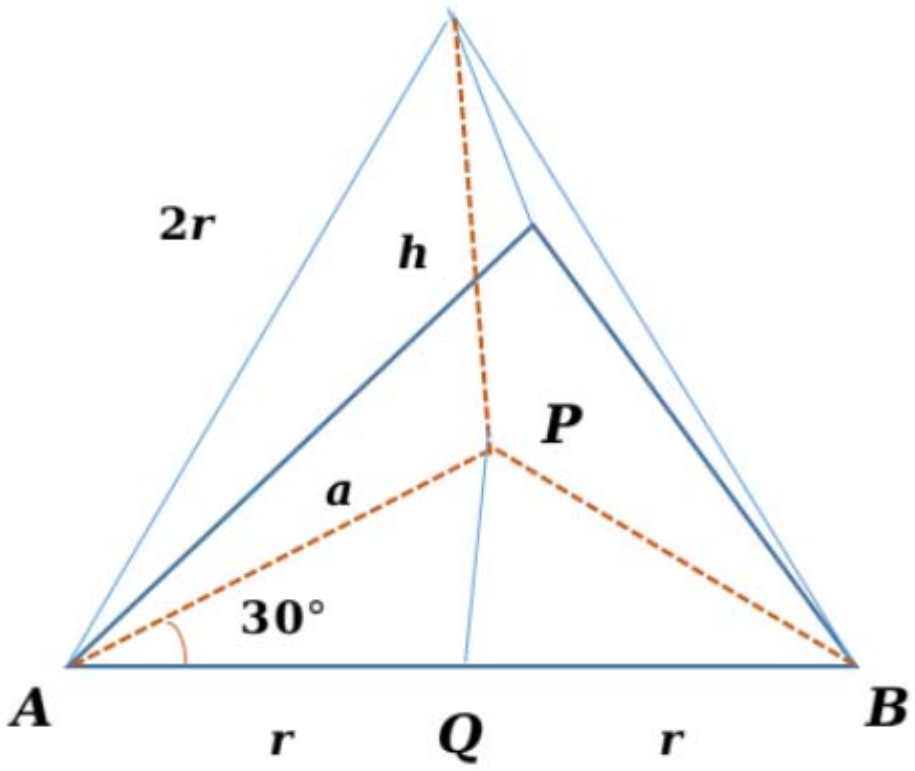
40

41

39

42

Sol. We can form a pyramid by stacking one sphere on a base of three spheres. The centres of the spheres forming the bottom layer are 'r' cms above the wooden floor. On connecting the centres of the spheres, we obtain a tetrahedron as shown below:



Calculating 'h' from the above setup and adding it to twice the radius of the sphere will render us our desired answer.

Since AP bisects the equilateral triangle forming the base, $\angle PAB = 30^o$ a cos $30^o = r$; $\therefore a = \frac{2r}{\sqrt{3}}$

We can find h in terms of 'r' by using the Pythagoras theorem: $h^2 + a^2 = 4r^2$

On solving we obtain, $h = 2r\sqrt{\frac{2}{3}}$

Hence, the total height till the top of the sphere would be $(h + r + r) = 2r\left(1+\sqrt{\frac{2}{3}}\right) \approx 40\ cms$

Thus, Option A is the correct choice.

60. The number of positive integral solutions for the equation $\log_2 \frac{3x-7}{2x+3} \le 0$

10

8

16

Infinite

Sol. We have $\log_2 \frac{3x-7}{2x+3} \le 0$

$\Rightarrow \frac{3x-7}{2x+3} \le 1$

$\Rightarrow 3x - 7 \le 2x + 3$
$\Rightarrow x \le 10$
We know that logarithm is defined only for positive integers, so

$\Rightarrow \frac{3x-7}{2x+3} \ge 0$

$\Rightarrow x > 7/3$ or $x < -3/2$ but we have been asked only about the positive solutions so we can ignore the negative x. Hence $x > 7/3$
So x can take all integer values between 7/3 and 10 (10 included).
Hence required values are 3,4,5,6,7,8,9 and 10
So correct answer is 8.

61. A shopkeeper bought 23 pens, 60 pencils and 28 erasers and paid his dealer Rs. 2530. The next day, he bought 17 pens, 44 pencils and 21 erasers and paid his dealer Rs. 1890. One day, he bought only 4 pens and 16 pencils. How much did he pay the dealer that day?

80

120

160

Cannot be determined

Sol. Let x, y, and z represent the cost of pens, pencils and erasers respectively. Then

23x+60y+28z=2530 -(1)

17x+44y+21z=1890 -(2)

We have to obtain the expression 4x+16y+0z on the LHS to get the cost on the RHS.

Let (1) is multiplied with a and (2) is multiplied with b to yield the expression.

Then 23a+17b will give us 4, that is 23a+17b=4. (3)

Also, 28a+21b = 0, or 4a = -3b. Let a=3m, then b becomes -4m. (4)

Putting (4) in (3), we get 69m-68m=4, m=4.

Thus, a=12 and b=-16.

Multiplying (1) with 12 and (2) with -16 and adding, we get the cost:

4x+16y=2530 x 12 – 1890 x 16 = 120

62. If a,b are two positive integers such that $2^{a+3}+3^{b-2}=145$and $2^{2a+1}+3^{2b-7}=371$, then find the value of $2^{3a-5}+3^{b-1}$

259

275

307

283

Sol. 145 can be written as $64 + 81 = 2^6 + 3^4$

$\Rightarrow a+3 = 6 \Rightarrow a= 3$

and $b – 2= 4 \Rightarrow b= 6$

Also $2^{2a+1} + 3^{2b-7} = 2^7 + 3^5 = 371$

Hence $2^{3a-5} + 3^{b-1} = 2^4 + 3^5 = 259$

63. A shopkeeper obtains a profit of 25% on an item by selling it at marked price. If the cost price and the marked price of the product increases by 10%, what discount should the shopkeeper give on the marked price, so that the overall profit comes down to 20%?

5%

3%

4%

4.5%

Sol. Let the CP be 100. Profit = 25%

$\Rightarrow$ The SP = MP = 125.

New CP = 110, new MP = 137.5.

New profit = 20% ⇒ New SP = 132.

Therefore, required discount % on MP = (5.5/137.5) × 100 = 4%.

64. If two dice are rolled together, what is the probability that the sum of the dice is less than 7?

1/2

5/12

7/12

13/36

Sol. If the sum is less than 7, it can either be 2, 3, 4, 5, or 6.

For a sum of 2, the possible outcomes are (1,1).

For a sum of 3, the possible outcomes are (1,2) and (2,1).

For a sum of 4. the possible outcomes are (1,3), (3,1), (2,2).

For a sum of 5. the possible outcomes are (1,4), (4,1), (2,3) and (3,2).

For a sum of 6, the possible outcomes are (1,5), (5,1), (2,4), (4,2), (3,3).

The total number of favorable outcomes = 15

The total number of outcomes = 36

Hence, the probability = 15/36 = 5/12.

66. What is the reminder when 17^{128} is divided by 21?

1

16

19

12

Sol. $17^{128}=(21-4)^{128}$ So, the reminder when 17^{128} is divided by 21 equals the reminder when 4^{128} is divided by 21. 4^3 leaves a reminder of 1 when divided by 21. Hence, the reminder when 17^{128} is divided by 21 equals the reminder when $4^{126}\times4^2$is divided by 21. That is 16.

66. In a certain infinite geometric progression, the sum of any three consecutive terms equals 26 times the sum of all the terms that follow them. What is the ratio of any term of the progression to the sum of all the terms that follow it?

1

1/2

2

-1

Sol. Let the geometric progression be a, ar, ar^2, ar^3,…

It is given that,

$a + ar + ar^2 += 26\left(\frac{ar^3}{1-r}\right)$

$\Rightarrow 1 - r^3 = 26r^3$

$\Rightarrow 27r^3 = 1$

$\Rightarrow r = \frac{1}{3}$

The required ratio is

$$\frac{a}{\frac{ar}{1-r}} = \frac{1-r}{r} = 2$$