

IASbaba - Daily Prelims Test [Day 3] – CSAT

QUESTIONS & SOLUTIONS

1. It takes Rina 2 more hours than Sita to type 20 pages. Working together, Rina and Sita can type 25 pages in 3 hours. How long will it take Rina to type 40 pages?

1. 5 hours
2. 6 hours
3. 8 hours
4. 10 hours
5. 12 hours

Solution: 5

This is a typical time and work problem. The way to solve this is

Let Sita's speed per page per hour be S . So time taken for 20 pages would be $20/S$.

Rina's time for 20 pages would be $= (20/S) + 2$. So, for 1 page $= 20 / ((20/S) + 2) = 10S/(10+S)$

Working together $= 25 / (S + 10S/(10+S)) = 3$ hours $\Rightarrow 3S^2 + 35S - 250 = 0 \Rightarrow S = 5$ hours (negative solution is rejected)

So, Rina's speed for 20 pages would be $(20/5)+2 = 6$ hours. So actual speed is 20 pages per 6 hour.

So time taken to type 40 pages would be 12 hours (double of that time).

2. The Earth's rivers constantly carry dissolved salts into its oceans. Clearly, therefore, by taking the resulting increase in salt levels in the oceans over the past hundred years and then determining how many centuries of such increases it would have taken the oceans to reach current salt levels from a hypothetical initial salt-free state, the maximum age of the Earth's oceans can be accurately estimated.

Which of the following is an assumption on which the argument depends?

1. The quantities of dissolved salts deposited by rivers in the Earth's oceans have not been unusually large during the past hundred years.
2. At any given time, all the Earth's rivers have about the same salt levels.
3. There are salts that leach into the Earth's oceans directly from the ocean floor.
4. None of the salts carried into the Earth's oceans by rivers are used up by biological activity in the oceans.

Solution: 4

Only if none of the salts were to be used would it be possible for the ocean to retain all the salt; and hence for the researchers to calculate the right amount of salt. Without this assumption, the amount of salt in the ocean will not be constant, and the results would be wrong.

Passage

A sanctuary may be defined as a place where Man is passive and the rest of Nature active. Till quite recently, nature had her own sanctuaries, where man either did not go at all or went only as a tool-using animal in comparatively small numbers. But now, in this machinery age, there is no place left where man cannot go with overwhelming forces at his command. He can strangle to death all the nobler wild life in the world to-day. Tomorrow he certainly will have done so, unless he exercises due foresight and self-control in the mean time.

There is not the slightest doubt that birds and mammals are now being killed off much faster than they can breed. And it is always the largest and noblest forms of life that suffer most. The whales and elephants, lions and eagles, go. The rats and flies, and all mean parasites, remain. This is inevitable in certain cases. But it is wanton killing off that I am speaking of to-night. Civilized man begins by destroying the very forms of wild life he learns to appreciate most when he becomes still more civilized. The obvious remedy is to begin conservation at an earlier stage, when it is easier and better in every way, by enforcing laws for close seasons, game preserves, the selective protection of certain species, and sanctuaries.

I have just defined a sanctuary as a place where man is passive and the rest of Nature active. But this general definition is too absolute for any special case. The mere fact that man has to protect a sanctuary does away with his purely passive attitude.

Then, he can be beneficially active by destroying pests and parasites, like bot-flies or mosquitoes, and by finding antidotes for diseases like the epidemic which periodically kills off the rabbits and thus starves many of the carnivora to death. But, except in cases where experiment has proved his intervention to be beneficial, the less he upsets the balance of Nature the better, even when he tries to be an earthly Providence.

3. The author implies that his first definition of a sanctuary is not absolute because

1. nature is one seamless entity where no divisions can be made
2. any general definition does not hold in a special case
3. a man is supposed to protect a sanctuary, in which his role is not passive
4. man cannot be passive anywhere

Solution: 3

“The mere fact that man has to protect a sanctuary does away with his purely passive attitude.”

It basically means that if a man starts protecting a sanctuary, which he should, his involvement makes him an active agent, not a passive one. Hence, the author's definition would not hold absolute.

4. The author's argument that destroying bot-flies and mosquitoes would be a beneficial action is most weakened by all of the following except

1. parasites have an important role to play in the regulation of populations
2. the pests themselves are part of the food chain
3. these insects have been introduced to the area by human activities
4. elimination of these insects would require the use of insecticides that kill a wide range of insects

Solution: 3

If insecticides used to kill the parasites would harm other insects too (some of them beneficial), it weakens the author's statement.

Only if these pests are unwanted, and have come from human interference, should they be eliminated.

5. The essential message from the passage is that

1. man will completely destroy nature in the coming times
2. humans should start experimenting with nature so as to learn from them
3. sanctuaries should be left undisturbed by humans
4. man should not intervene in natural environments unless proved beneficial

Solution: 4

Option A is a hypothesis of the author, and not a message. Option B is mentioned in a wrong context. Author does not say man needs to learn, he says man needs to intervene least and only where it has proved to be beneficial.

Hence, the answer is 4.