SECTION 1
You should spend about 20 minutes on questions 1-13 which are based on Reading Passage below.

Crisis! fresh water

A. As in New Delhi and Phoenix, policymakers worldwide wield great power over how water resources and managed. Wise use of such power will become increasingly important as the years go by because the world's demand for freshwater is currently overtaking its ready supply in many places, and this situation shows no sign of abating.

B. That the problem is well-known makes it no less disturbing: today one out of six people, more than a billion, suffer inadequate access to safe freshwater. By 2025, according to data released by the United Nations, the freshwater resources of more than half the countries across the globe will undergo either stress- for example, when people increasingly demand more water than is available or safe for use-or outright shortages. By mid century as much as three quarters of the earth's population could face scarcities of freshwater.

C. Scientists expect water scarcity to become more common in large part because the world's population is rising and many people are getting richer (thus expanding demand) and because global climate change is exacerbating aridity and reducing supply in many regions. What is more, many water sources are threatened by faulty waste disposal, releases of industrial pollutants, fertilizer runoff and coastal influxes of saltwater into aquifers as groundwater is depleted.

D. Because lack of access to water can lead to starvation, disease, political instability and even armed conflict, failure to take action can have broad and grave consequences. Fortunately, to a great extent, the technologies and policy tools required to conserve existing freshwater and to secure more of it are known among which several seem particularly effective. What is needed now is action. Governments and authorities at every level have to formulate and execute plan for implementing the political, economic and technological measures that can ensure water security now and in the coming decades.

E. The world's water problems requires, as a start, an understanding of how much freshwater each person requires, along with knowledge of the factors that impede supply and increase demand in different parts of the world. Main Falkenmark of the stockholm International Water Institute and other experts estimate that, on average, each person on the earth needs a minimum of 1000 cubic meters (m3) of water. The minimum water each person requires for drinking, hygiene and growing food. The volume is equivalent to two fifths of an Olympic-size swimming pool.

F. Much of the Americas and northern Eurasia enjoy abundant water supplies. But several regions are beset by greater or lesser degrees of "physical" scarcity-whereby demand exceeds local availability. Other areas, among them Central Africa, parts of the Indian subcontinent and Southeast Asia, contend with "economic" water scarcity limit access even though sufficient supplies are available.

G. More than half of the precipitation that falls on land is never available for capture or storage because it evaporates from the ground or transpires from plants; this fraction is called blue-water sources-rivers, lakes, wetlands and aquifers-that people can tap directly. Farm irrigation from these free- flowing bodies is the biggest single human use of freshwater resources, but the intense local demand they create often drains the surroundings of ready supplies.

H. Lots of water, but not always where it is needed one hundred and ten thousand cubic kilometers of precipitation, nearly 10 times the volume of Lake Superior, falls from the sky on to the earth's land surface every year. This huge quantity would be easily fulfill the requirements of everyone on the planet if the water arrived where and when people needed it. But much of it cannot be captured (top), and the rest is disturbed unevenly (bottom). Green water (61.1% of total precipitation): absorbed by soil and plants, then released back into the air: unavailable for withdrawal. Blue water (38.8% of total precipitation): collected in rivers, lakes, wetlands and groundwater: available for withdrawal before it evaporates or reaches the ocean. These figures may not add up to 100% because of rounding. Only 1.5% is directly used by people.

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I. Waters run away in tremendous wildfires in recent years. The economic actors had all taken their share reasonably enough: they just did not consider the needs of the natural environment, which suffered greatly when its inadequate supply was reduced to critical levels by drought. The members of the Murray-Darling Basin Commission are now frantically trying to extricate themselves from the disastrous results of their misallocation of the total water resource. Given the difficulties of sensibly apportioning the water supply within a single nation, imagine the complexities of doing so for international river basins such as that of the Jordan River, which borders on Lebanon, Syria, Israel, the Palestinian areas and Jordan, all of which have claims to the shared, but limited, supply in an extremely parched region. The struggle for freshwater has contributed to civil and military disputes in the area. Only continuing negotiations and compromise have kept this tense situation under control.

Questions 1-5

Do the following statements agree with the information given in Reading Passage 1? In boxes 1-5 on your answer sheet, write

TRUE If the statement is true

FALSE If the statement is false

NOT GIVEN If the information is not given in the passage

1. The prospect for the need for the freshwater worldwide is obscure.

2. To some extent, the challenge for the freshwater is alleviated by the common recognition.

3. Researchers arrive at the specific conclusion about the water crisis based on persuasive consideration of several factors.

4. The fact that people do not actually cherish the usage of water scarcity.

5. Controversy can't be avoided for adjacent nations over the water resource.

Questions 6-10

The readings Passage has eleven paragraphs A-I
Which paragraph contains the following information?
Write the correct letter A-I, in boxes 6-10 on your answer sheet.

NB You may use any letter more than once.

6. The uneven distribution of water around the world.
7. other factors regarding nature bothering people who make the policies.
8. Joint efforts needed to carry out the detailed solutions combined with various aspects.
9. No always-in-time match available between the requirements and the actual rainfall.
10. The lower limit of the amount of freshwater for a person to survive.

Questions 11-13

Summary

Complete the following summary of the paragraphs of Reading Passage, using **No More than** Three words from the Reading Passage for each answer. Write your answers in boxes **11-13** on your answer sheet.

Many severe problems like starvation and military actions etc result from the storage of water which sometimes for some areas seems**.....11.....** because of unavailability but other regions suffer other kind of scarcity for insufficient support. **.....12.....** of the rainfall can't be achieved because of evaporation. Some other parts form the **....13.....** which can be used immediately. Water to irrigate the farmland takes a considerable amount along with the use for cities and industries and the extended need from the people involved.

SECTION-2

Undersea Movement

A. The underwater world holds many challenges. The most basic of these is movement. The density of water makes it difficult for animals to move. Forward movement is a complex interaction of underwater forces. Additionally, water itself has movement. Strong currents carry incredible power that can easily sweep creatures away. The challenges to aquatic movement result in a variety of swimming methods, used by a wide range of animals. The result is a dazzling underwater ballet.

B. Fish rely on their skeleton, fins, and muscles to move. The primary function of the skeleton is to aid movement of other parts. their skull acts as a fulcrum and their vertebrae act as levers. The vertebral column consists of a series of vertebrae held together by ligaments, but not so tightly as to prevent slight sideways movement between each pair of vertebrae. the whole spine is , therefore, flexible. The skull is the only truly fixed part of a fish. it does not move in and off itself but acts as a point of stability for other bones. These other bones ct as levers that cause movement of the fish's body.

C. While the bones provide the movement, the muscles supply the power. A typical fish has hundreds of muscles running in all directions around its body. This is why a fish can turn and twist and change directions quickly. The muscles on each side of the spine contract in a series from head to tail and down each side alternately, causing a wave-like movement to pass down the body. Such a movement may be very pronounced in fish such as eels, but hardly perceptible in others, e.g. mackerel. The frequency of the waves varies from about 50/min in the dogfish to 170/min in the mackerel. The sideways and backward thrust of the head and body against the water results in the resistance of the water pushing the fish sideways and forwards in a direction opposed to the thrust. When the corresponding set of muscles on the other side contracts, the fish experiences a similar force from the water on that side. The two sideways forces are equal and opposite, unless the fish is making a turn, so they cancel out, leaving the sum of the two forward forces.

D. The muscles involved in swimming are of two main types. The bulk of a fish's body is composed of the so-called white muscle, while the much smaller areas at the roots of the fins and in a strip along the centre of each flank comprise red muscle. The red muscle receives a good supply of blood and contains ampler quantities of fat and glycogen, the storage form of glucose, which is used for most day to day swimming movements. In contrast, the white muscle has a poor blood supply and few energy stores, and it is used largely for short- term, fast swimming. It might seem odd that the body of an animal which adapts so efficiently to its environment should be composed almost entirely of a type of muscle it rarely uses. However, this huge auxiliary power pack carried by a fish is of crucial significance if the life of the fish is threatened- by a predator, for instance-because it enables the fish to swim rapidly away from danger.

E. The fins are the most distinctive features of a fish, composed of bony spines protruding from the body with skin covering them and joining them together, either in a webbed fashion, as seen in most bony fish, or more similar to a flipper, as seen in sharks. These usually serve as a means for the fish to swim. But it must be emphasized that the swimming movements are produced by the fins contribute any propulsive force! Their main function is to control the stability and direction of the fish: as water passes over its body, a fish uses its fins to thrust in the direction it wishes to go.

F. Fins located in different places on a fish serve different purposes, such as moving forward, turning, and keeping an upright position. The tail fin, in its final lash, may contibute as much as 40 per cent of the forward thrust. The median fins, that is, the dorsal, anal and ventral fins, control the rolling and yawing movements of the fish by increasing the vertical surface area presented to the water. The paired fins, pectoral and pelvic, act as hydroplanes and control the pitch of the fish, causing it to swim downwards or upwards according to the angle to the water at which they are held by their muscles. The pectoral fins lie in front of the centre of gravity and, being readily mobile, are chiefly responsible for sending the fish up or down. The paired fins are also the means by which the fish slows down and stops.

G. The swimming speed of fish is not so fast as one would expect from watching their rapid movements in aquaria or ponds. Tuna seem to be the fastest at 44 mph, trout are recorded as doing 23 mph, pike 20 mph for short burst and roach about 10 mph, while the majority of small fish probably do not exceed 2 or 3 mph. Many people have attempted to make accurate measurements of the speed at which various fish swim, either by timing them over known distances in their natural environment or by determining their performance in man-made swimming channels. From these studies, we can broadly categorise fish into four groups: "sneakers" , such as eels that are only capable of slow speeds "stayers" , that can swim quite fast bursts of speed (e.g pike): and "crawlers" that are sluggish swimmers, although they can accelerate slightly(bream, for example0.

H. One type of sailfish id considered to be fastest species of fish over short distances, achieving 68 mph over a three-second period, and anglers have recorded speeds in excess of 40 mph over longer periods for several species of tuna. One is likely to consider a fish's swimming capabilities in relation to its size. However, it is generally true that a small fish is a more able swimmer than a much larger one. On the other hand in terms of speed in miles per hour a big fish will, all other things being equal, be able to swim faster than a smaller fish.

Questions 14-19

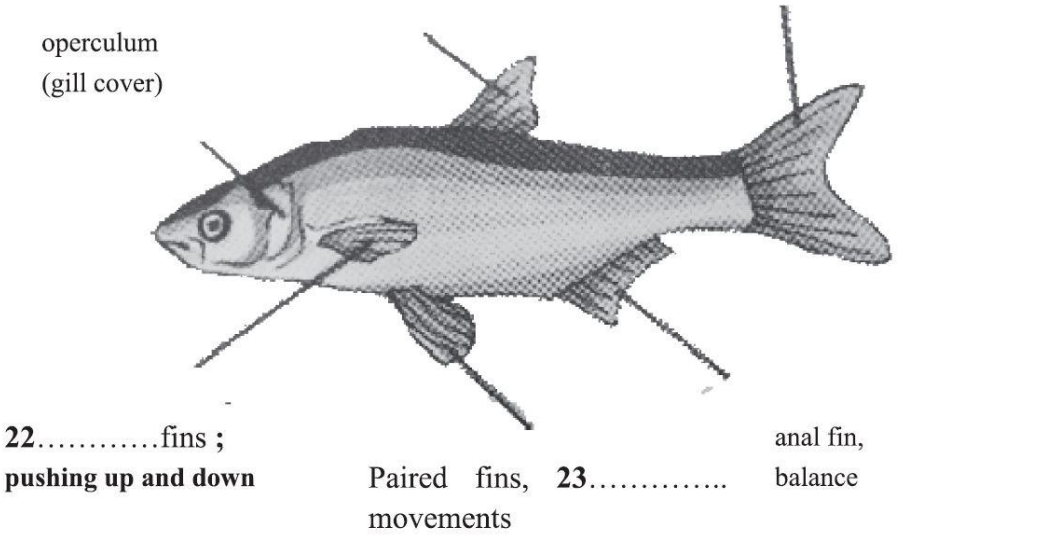
The passage has 8 paragraphs A-H. which paragraph contains the following information? Write the appropriate letter. A- H. In boxes 14-19 on your sheet.

14. Categorizations of fish by swimming speed.
15. An example of fish capable of maintaining fast swimming for a long time.
16. How fish control stability.
17. Frequency of the muscle movement of fish.
18. A mechanical model of fish skeleton.
19. Energy storage devices in a fish.

Questions 20-23

The diagram below gives information about fish fins and their puposes. Complete the diagram with **NO MORE THAN THREE WORDS** from the passage for each blank.

Write your answers in boxes 20-23 on your answer sheet.



Questions 24-26

Complete the summary below using NO MORE THAN THREE WORDS from the passage for each blank

Write your answers in boxes 24-26 on your answer sheet..

Two types of muscles are involved in fish swimming. The majority of a fish' s body comprises the **24.....,** and the red muscle is found only at the roots of the fins and in a strip along the centreof each flank. For most of its routune movements, the fish uses lot of its **25.....,** saved in body , and white muscle is mostly used for short term, fast swimming , such as escaping from **26.....**

Section 3

you should spend about 20 minutes on Questions 27-40, which are based in reading Passage 3 below.

The Beginning of intelligence

A No one doubts that intelligent develops as children grow older. Yet the concept of intelligence has proved both quit difficult to define in unambiguous terms and unexpectedly controversial in some respects. Although , at one level, there seem to be almost as many definitions of intelligence as people who have tried to define it, there is broad agreement on two key features. That is, intelligence involves the capacity not only to learn from experience but also to adapt to one's environment. However , we cannot leave the concept there. Before turning to what is known about the development of intelligence, it is necessary to consider whether we are considering the growth of one or many skills. That question has been tackled in rather different ways by psychometricians and by developmentalists.

B The former group has examined the issue by determining how children's abilities on a wide range of tasks intercorrelate, or go together. Statistical techniques have been used to find out whether the patterns are best explained by one broad underlying capacity, general intelligence , or by a set of multiple relatively separate, special skills in domains such as verbal and visuospatial ability. While it cannot be claimed that everyone agrees on what the results mean, most people now accept that for practical purposes it is reasonable to suppose that both are involved. In brief the evidence in favour of some kind of general intelligence capacity is that people who are superior (or inferior) on one type of task tend also to be superior (or inferior) on others. Moreover, general measures of intelligence tend to have considerable powers to predict a person's performance on a wide range of tasks requiring special skills. nevertheless, it is plain that it is not at all uncommon for individuals to be very good at some sorts of task and yet quite poor at some others.

C Furthermore the influences that affect verbal skills are not quite the same as those that affects other skills. This approach to investigating intelligence is based on the nature of the task involved , but studies of age-related changes show that this is not the only, or necessarily the most important approach. For instance , some decades ago, Horn and Cattell argued for a differentiation between what they termed 'fluid' and ' crystallised ' intelligence . fluid abilities are best assessed by tests that require mental manipulation of abstract symbols. Crystallised abilities by contrast , reflect knowledge of the environment in which we live and past experience of similar tasks; they may be assessed by tests of comprehension and information. It seems that fluid abilities peak in early adult life, whereas crystallised abilities increase up to advanced old age.

D Developmental studies also show that the interconnections between different skills very with age. Thus in the first year of life an interest in perceptual patterns is a major contributor to cognitive abilities, whereas verbal abilities are more important later on .These findings seemed to suggest a substantial lack of continuity between infancy and middle childhood. However, It is important to realize that the apparent discontinuity will way vary according to which of the cognitive skills were assessed in infancy. it has been

found that tests of coping with novelty do predict later intelligence. these findings reinforce the view that young children' s intellectual performance needs to be assessed from their interest in and curiosity about the environment , and the extent to which this is applied to new situations, as well as by standardised in intelligence testing.

E These psychometric approaches have focused on children's increase in cognitive skills as they grow older. Piaget brought about a revolution in the approach to cognitive development through his arguments (backed up by observations) that the focus should be on the thinking processes involved rather than on levels of cognitive achievement. These ideas of piaget gave rise to an immense body of research and it would be true to say that subsequent thinking has been heavily dependent on his genius in opening up new ways of thinking about cognitive development. Nevertheless, most of this concepts have had to be so redically revised, or rejected, that his theory no longer provides an appropriate basis for thinking about cognitive development. To appreciate why that is so , we need to focus on some rather different elements of Piaget's theorising.

F the first element, which has stood the test of time. is his view that the child is an active agent of learning and of the importance of this activity in cognitive development. Numerous studies have shown how infants actively scan their environment; how they prefer patterned to non-patterned objects, how they choose noval over familiar stimuli, and how they explore their environment as if choose novel over familiar stimuli, and how they explore they their environment as if choose novel over familiar stimuli, and how they explore their environment as if to see how it works. children' questions and comments vividly illustrate the ways in which they are constantly constructing schemes of what they know and trying out their ideas of how to fit new knowledge into those schemes to fit new knowledge into those schemes need modification. Moreover, a variety of students have shown that active experiences have a greater effect on learning than comparable passive experiences. however, a second element concerns the notion that development proceeds through a series of separate stages that have to be gone through step, in a set order, each of which is characterised by a particular cognitive structure. That has turned out to be a rather misleading way of thinking way about cognitive development, although it is not wholly wrong.

Questions 27-30
Choose the correct letter, A, B, C, or D.
write your answers in boxes 27-30 on your answer sheet

27. Most researchers accept that one feature of intelligence is the ability to
A change or behaviour according to our situation.
B react to others' behaviour patterns.
C experiment with invironmentak features.
D cope with unexpected setbacks.

28 What have psychometricians used statistics for ?
A to find out if cooperative tasks are a useful tool in measuring certain skills

B to explore whether several abilities are involved in the development of intelligence
C to demonstrate that mathematical models can predict test results for different skills
D to discover whether common sence is fundamental to developing children's abilities

29 Why are Horn and Cattell mentioned?
A they disagreed about the interpretation of different intelligence test.
B Their research concerned both linguistic and mathematical abilities
C They were the first to prove that intelligence can be measured by testing a range of special skills.
D Their work was an example of research into how people cognitive skills very with range.

30 What was innovative about Piaget's research?
A He refused to accept the children developed according to set pattern
B He emphasised the way children through more than how well they did in tests.
C He used visually appealing materials instead of traditional intelligence tests
D he studied children of all ages and levels of intelligence

QUESTIONS 31-36
Do the following statements agree with the information given in Reading Passage 3
In boxes 31-36 on your answer sheet , write

Yes	**if the statement is true**
No	**if the statement is false**
Not Given	**if the information is not given**

31 A surprising number of academics have come to have same conclusion about what the term intelligence means.
32 A general test of intelligence is unlikely to indicate the level of performance in every type of task.
33 The elderly perform less well on comprehension tests than young adults.
34 We must take into account which skills are tested when comparing intelligence at different ages
35 Piaget's work influenced theoretical studies more than practical research.

12

36 Piaget's emphasis on active learning has been discredited by later researchers.

Questions 37 -40
complete the summary using the list of words A-I, below .
Write your answers in boxes 37-40 on your answer sheet.

Researchers investigating the development of intelligence have shown that**.....37.....** skills become more significant with age. One good predictor **of .....38.....** intelligence is the degree to which small children are **.....39.....** about their surroundings and how much interest they show on finding themselves in **an .....40.....** setting.

A Adult	**B** practical	**C** Verbal
D spatial	**E** inquisitive	**F** Uncertain
G academic	**H** Plentiful	**I** Unfamiliar