1. Passage 1- Weather

The first section is designed to test listening ability.

Preparing to Listen - Pre - questions

Think about the answers to these questions

1. How does the weather affect people's health, intelligence, and feelings?
2. What kinds of weather have an influence on people?
3. What is the "Perfect weather"?

Listen to the following selection:

The powerful Influence of Weather

Weather has a powerful effect on people. It influences health, intelligence, and feelings.

In August, it is very hot and wet in the southern part of the United States. Southerners have heart attacks and other kinds of health problems during this month. In the Northeast and the Middle West, it is very hot sometimes and very cold at other times. People in these states tend to have heart attacks after the weather changes in February or March.

The weather can also influence intelligence. For example, in a 1938 study by scientists, the IQ scores of a group of undergraduate college students were very high during a hurricane, but after the storm, their scores were 10 percent below average. Hurricanes can increase intelligence. Very hot weather, on the other hand, can lower it. Students in many of the United States often do badly on exams in the hot months of the year.

Weather also has a strong influence on people's feelings. Winter may be a bad time for thin people. They usually feel cold during these months. They might feel depressed during cold weather. In hot summer weather, on the other hand, fat people may feel unhappy. At about 65° F, people become stronger.
Low air pressure relaxes people. It also increases forgetfulness. People leave more packages and umbrellas on buses and in stores on low-pressure days. There is a 'perfect weather' for work and health. People feel best at a temperature of about 64 F with 65 percent humidity (moisture in the air).

Are you feeling sick, sad, tired or very intelligent today? The weather may be the cause.

Questions:
1. Say whether the following statements are true or false.
   a. The weather influences people's health and feelings.
   b. There are the same number of heart attacks in every part of the United States in every month of the year.
   c. Intelligence (IQ) never changes.
   d. Hot and cold weather affects all people the same way.
   e. Some weather influences are temperature, storms, and air pressure.
   f. There is a perfect kind of weather for people's work and health.

2. Which two phrases are correct for each blank, according to the passage?
   1. ________ may have a bad effect on health.
      a. Hot, wet weather   b. Perfect weather   c. Weather changes   d. High intelligence
   2. Intelligence may increase because of ________
      a. Storms   b. Very hot weather   c. A hurricane   d. Low air pressure
   3. Low air pressure ________
   4. In 'perfect' weather 64 F, ________
      a. People are very forgetful   b. Thin people feel cold   c. People work well   d. People are in better health
2. Passage 2 –Alloy

Pre-questions:
1. What is an alloy?
2. What does the speaker say about the properties of alloy?
3. Why does the speaker use the example of the aircraft industries?
4. What is the difference between combinations of metals in nature and alloys?

Listen to the following lecture on alloy.

An alloy is a substance that is formed by combining a metal with other metals for example, brass is an alloy of the metals Copper and Zinc, and Steel is an alloy of the metal iron with the non metal carbon.

The special characteristics of metals, such as hardness, strength, flexibility, and weight are called its properties. By the process of alloying, it is possible to create materials with the exact combination of properties for a particular use. In the aircraft industry, there is a need for metals that are strong but not too heavy, whereas aluminium is light but not strong. By alloying aluminium with copper and other metals, a material that is strong enough to withstand the stress of flight, but light enough to reduce the cost of the fuel to lift the craft is created. By allowing steel with nickel and chromium, the steel alloy that results is not only lighter but also stronger than solid steel.

Of course, there is an important difference between the alloys we have used in our examples and the combination of metals that occur accidentally as impure metals. Both are mixtures but alloys are mixtures that have been deliberately combined in specific proportion for a definite purpose.
Questions:

1. What is an alloy?
   A. Impure metals that occur accidentally
   B. Metals melted into liquid from
   C. A planned combination of metals for a specific purpose.
   D. Industrial metals that do not have to be very pure.

2. What does the speaker say about the properties of alloy? [Mark two answers]
   A. They are chosen for a particular purpose.
   B. They are combined in specific proportions.
   C. They are difficult to determine because there is more than one metal involved.
   D. They occur accidentally in nature.

3. Why does the speaker use the example of the aircraft industry?
   A. To demonstrate how alloys can be used to solve industrial problems.
   B. To emphasize the importance of the aviation industry.
   C. To compare alloys and other mixtures
   D. To illustrate how metals can be used without alloying them

4. What is the difference between combinations of metals in nature and alloys?
   A. Mixtures of metals in nature are very pure
   B. Combinations of metals do not occur in nature
   C. Metals combined in nature are mixed in random proportion
   D. Alloys are mixtures, but metals that occur in nature are not.
3. Passage 3: Comprehending a speech

You will now listen to a speech delivered by Albert Einstein before the student-body of the California Institute of Technology. You may know that ALBERT EINSTEIN is the author of “The Theory of Relativity” and he is considered to be the greatest scientist of our century. The topic is: “THE UTILITY OF APPLIED SCIENCE”;

Before you listen to the speech, attempt to orient your mind to the theme of the talk. To help you do this, a few hints on the “topic” are given below; recall information which you may know on the subtopics:

a) Subjects which are considered to belong to fundamental science
b) Subjects which are considered to belong to applied science
c) Uses of fundamental sciences.
d) Uses of applied sciences.
e) Beneficiaries of applied sciences and beneficiaries of fundamental sciences.

Now listen to the speech carefully.

I could sing a hymn of praise with the refrain of the splendid progress in applied science that we have already made, and the enormous further progress that you will bring about. We are indeed in the era and also in the native land of applied science. But it lies far from my thought to speak in this way. I am reminded much more of the young man who had married a not very attractive wife and was asked whether or not he was happy. He answered thus: If I wished to speak the truth, then I would have to lie. So it is with me. Just consider a quite uncivilized Indian (Red Indian) whether his experience is less rich and happy than that of the average civilized man. I hardly think so. There lies a deep meaning in the fact that the children of all civilized countries are so fond of playing Indians. Why does this magnificent applied science, which
saves work and makes life easier, bring us so little happiness? The simple answer runs: because we have not yet learned to make a sensible use of it.

In war it serves that we may poison and mutilate each other. In peace it has made our lives hurried and uncertain. Instead of freeing us in great measure from spiritually exhausting labour, it has made men into slaves of machinery, who for the most part complete their monotonous long day's work with disgust and must continually tremble for their poor rations.

You will be thinking that the old man sings an ugly song. I do it, however, with a good purpose, in order to point out a consequence. It is not enough that you should understand about applied science in order that your work may increase man's blessings.

Concern for man himself and his fate must always form the chief interest of all technical endeavours, concern for the great unsolved problems of the organization of labour and the distribution of goods, in order that the creation of our mind shall be a blessing and not a curse to mankind. Never forget this in the midst of your diagrams and equations.

1. Say whether the following statements are true or false.
   a. The speech was delivered by a professor in California Institute of Technology.
   b. Albert Einstein delivered the speech.
   c. The speech was about the theory of relativity.
   d. The topic for the speech was the Utility of Applied Sciences.
   e. The speaker addressed a group of scientists.
   f. The speaker praised the progress of applied sciences.
   g. Modern applied science has brought real happiness.
2. Answer the following questions:

A. The main theme of Albert Einstein's speech is

a) to praise the extraordinary progress of applied science
b) to feel sorry that much development in applied science has not taken place
c) to state that scientists should see how every individual may be made to live happily
d) to express his unhappiness that science is used for destructive purposes

B. A young man who had married a not very attractive wife, according to the speaker ____

a) does not live happily,
b) may live happily,
c) may be a liar,
d) will never speak the truth.

C. A Red Indian, according to the speaker, is as happy as any other civilized man ________.

(a) although he does not possess modern comforts like the radio, the fan, etc.,
(b) only when he possesses material comforts like the radio, the fan, etc.,
(c) because he is contented with what he has
(d) although he does not live in modern cities.

D. Modern applied science has brought ____________

(a) physical comforts and freedom from drudgery,
(b) not any real happiness in the final analysis,
(c) wars and easy methods of killing the unwanted ones,
(d) man under the control of machines
E. Real human happiness, according to the speaker, lies _________

(a) in engaging oneself in the general cares of the humanity,
(b) in improving one’s physical comforts,
(c) in enjoying sensual pleasures like beauty, taste, etc
(d) in making new innovations and discoveries.

F. Applied science should help every man ________________

(a) with agents of destruction for wars,
(b) do a large number of things quickly during times of peace,
(c) free himself from drudgery so that he may cultivate his spiritual growth
(d) take interest in scientific pursuits.

G. Scientist should now ____________

(e) stop their scientific pursuits as they are becoming more destructive,
(f) interest themselves in seeing that the benefits of science reached every human individual.
(g) interest themselves in fundamental science and develop new disciplines like Biophysics,
(h) work out new diagrams and methods for populating the moon and other planets.
SECTION 2 – READING SKILLS

The second section is designed to test different reading skills such as identifying main ideas, using context for vocabulary, and insertion of missing words.

Passage: Biorhythms

Pre-reading:

1. All living beings perform their biological functions conforming to certain periods of time, consciously or unconsciously. We have our own timings to eat and sleep. Birds migrate and animals mate in particular seasons. Do they have an inner clock within themselves?

2. Are they influenced by the environment and get cues from it? What would happen if they are kept in a place where the environmental cues are not there-just like a laboratory for a long period? Would they perform their biological functions at the same times regardless?

All of us are used to clocks, but typically ones that we can see and touch. Asked to discuss our biological clocks-our inner rhythms-we grow contemplative. After pondering, some of us would say we're night people, while others would rush to claim the morning hours. But inner clocks we most certainly do possess and we have learned how profoundly they affect us partly by studying our fellow creatures.

All creatures appear to exhibit a periodicity in their behaviour, i.e., patterns of performance involving a complex interaction among their bodily system in synchronicity with their environments. Rhythms that are reactions to a 24-hour cycle of light and dark are termed circadian, those tied to the 29-day cycle of the moon are known as circalunar. Still others are linked to the tides,
which come in two types: a 12-4 hour tide and a 24-8 hour tide. Not surprisingly, those are termed circatidal rhythms. Yet another group of beings exhibit biorhythmical patterns linked to the seasons of the year termed circannual. But the most intriguing aspect of all biorhythms is their ability to reign over us even when the customary environmental cues are removed.

The most familiar clocks to layman and scientist alike are the circadian ones that operate on daily or 24-hour basis. Examples are on all sides of us, from the squirrels with their punctual, early-morning foraging hours to the bats that swoop out of hiding to begin hunting for food in the early twilight. They and we, have regular periods of wakefulness, activity and sleep within each 24-hour period, which has within it set amounts of light and dark. Animals with pronounced circadian rhythms have been deprived of light in laboratory experiments, yet they continue to perform their ‘light tasks’, at the same times regardless. Apparently, no clue from the environment is necessary.

Circannual rhythms appear to dominate certain bird species, especially warblers. Yet if a wood warbler is kept in a laboratory where light and dark are tightly controlled, with 12 hours allotted to each, it precise annual cycle may continue undisturbed for several months longer than a year. Likewise, in certain circannual rodents such as European hedgehogs, chipmunks, and ground squirrels, we note a faithfulness to cyclical periods of hibernation and activity even under constant laboratory photoperiods. Although the animals’ laboratory year may vary in length from roughly 220 to 450 days, the endogenous circannual rhythms assert their dominance over behaviours.

Human beings appear to be more complex, with some individuals responding in such a highly negative manner to deprivation of daylight that winter poses a significant health hazard. People reacting to the shorter days and
diminished physical activity of winter may gain weight, complain of headaches or extreme lassitude and may therefore sleep inordinately long periods of time. According to doctors, they are suffering from SAD, Seasonal Affective Disorder. Animals with SAD can be said to have solved the problem by hibernating, emerging hungry-but-svelte as the days lengthen into spring. (In fact, those that hibernate actually do so in response to circannual cues).

What is it that causes the biological clock to tick with such a dependable regularity? Thousands of studies have been performed, all suggesting that the primary mechanism underlying behavioural periodicity is neural, although hormones are believed to play a supporting role.

In several insects, the circadian clock is apparently regulated by fibres that extend from cells in optic lobes to neurons in the thorax. Crustaceans such as crabs and crayfish depend on neurons in their eyestalks to provide rhythmical information. Certain mollusks are dependent on seasonal chemical changes in neurons and blood that dictate periodic levels of rest and activity.

Questions:
1. Say whether the following statements are 'true' or 'false'
   1. All creatures seem to exhibit a rhythmic pattern in their behaviour synchronizing with the environment.
   2. Rhythms that are linked to the seasons of the year are termed as circatidal.
   3. Animals with circadian rhythms continue to perform their 'light tasks' even when deprived of light in a laboratory.
   4. Circannual rhythms appear to dominate certain bird species like the warblers.
5. Circannual rodents like ground squirrels do not conform to cyclical periods of hibernation and activity under laboratory conditions.

6. People reacting to the shorter days and diminished physical activity in winter may lose weight.

7. The primary mechanism underlying behavioural periodicity is neural.

8. In several insects, the circadian clock is regulated by fibres from cells in optic lobes.

9. Crustaceans like crabs depend on hormones in their eyestalks for rhythmical information.

10. Periodic levels of rest and activity are determined by the seasonal chemical changes in neurons and blood in certain mollusks.

2. Complete the following sentences by choosing the right one from the alternatives given:

   1. We can infer that this passage will eventually focus on
      a) biorhythms of the smaller mammals
      b) the circadian environment
      c) creatures exhibiting circa lunar rhythms
      d) periodicity in human behaviour

   2. We can deduce that our own biological clocks are set to
      a) circadian rhythms
      b) circa annual rhythms
      c) a combination of all rhythms presented
      d) rhythms yet to be presented
3. Data on biological clocks show that even if the sun did not set for an extended period of time, a circadian creature would
   a) still require three meals a day
   b) productively use the extra daylight hours
   c) rest at the customary time
   d) become cross from lack of regular sleep

4. Environmental influence is portrayed here as
   a) a relatively minor factor
   b) a critical, interactive factor
   c) important only in laboratory experiments
   d) critical in studies on light

5. Observing test warblers in the lab where photoperiods were controlled proved to scientists that
   a) the warblers' biological clock was preeminent
   b) the warblers were circannual beings
   c) warblers utterly disregarded light and dark
   d) warblers were in tune with their environment

6. All the examples in this passage serve to illustrate
   a) the significance of neural and hormonal changes
   b) the universal existence of endogenous clocks
   c) the complexity of dominant circadian rhythms
   d) the necessity for balancing biorhythmical needs

7. Animals with SAD hibernate and emerge hungry- but-'svelte' in spring. The word 'svelte' means
   a) gracefully thin          b) lean and hungry looking
   b) c) lean and hungry looking d) fat e) active
3. Match the words given under A with the meanings given under B. List B has some extra items. The meanings of the words relate to their occurrence in the passage.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>Contemplative</td>
<td>a) Spending the winter in a state like deep sleep</td>
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<tr>
<td>Profoundly</td>
<td>b) Something that may be dangerous</td>
</tr>
<tr>
<td>Synchronicity</td>
<td>c) Far more than you would normally or reasonably expect</td>
</tr>
<tr>
<td>Intrigue</td>
<td>d) Project or undertaking</td>
</tr>
<tr>
<td>Swoop</td>
<td>e) Spending a lot of time thinking seriously and quietly</td>
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<tr>
<td>Rodents</td>
<td>f) Having a strong influence or effect</td>
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<tr>
<td>Hibernation</td>
<td>g) Moving suddenly and steeply down through the air, especially to attack some thing</td>
</tr>
<tr>
<td>Hazard</td>
<td>h) Easily noticed or understood</td>
</tr>
<tr>
<td>Inordinate</td>
<td>i) Two or more events connected in some way happening at the same time or place</td>
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<tr>
<td>Apparent</td>
<td>j) Strange or mysterious</td>
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<td></td>
<td>k) Small animals with long sharp front teeth, such as rats</td>
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<td></td>
<td>l) Sudden violent wind, often with rain or snow</td>
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<td></td>
<td>m) Connected with or relevant to something</td>
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</tbody>
</table>
4. Find single words in the passage which have roughly the meanings given below. Example: have something as one's belongings - possess

1. Think about something carefully
2. Searching or hunting, especially for food
3. Faint light after sunset or before sunrise
4. Group of animals or plants within a genus
5. Become smaller or less
6. Method or procedure for getting things done
7. Adjust something so that it functions as deserved
8. Occurring or appearing at intervals.

5. Complete the following summary of the passage

People may .... contemplative ............... asked whether they ........... about their 'inner clocks' or not. All the creatures ........ to exhibit a ...... in their behaviour ...... their environments The most familiar biological clocks to human beings .......... ones that operate on a 24-hour basis. Rhythms tied to the 29 day cycle of the moon ......... as circalunar, while ........ to 12.4 and 24.8 hour tides are known as ....... However, the most intriguing aspect ..... biorhythms ..... ability to reign over us even ........... removed. The ...... for the occurrence ........ with regularity has been ...... Thousands of studies ........ the primary mechanism underlying ....... Neural, ........ are believed ........ a supporting role.
ANSWERS FOR SECTION - 1   LISTENING SKILLS

PASSAGE - 1 – The powerful influence of weather

1. TRUE OR FALSE
   a – True
   b – False
   c – False
   d – False
   e – True
   f – True

2. 1. a & c
    2. a & c
    3. b & c
    4. c & d

PASSAGE - 2 – Alloy

1. C
2. A,B
3. A
4. C

PASSAGE - 3 – Comprehending a speech

1. True or False
   a – False
   b – True
   c – False
   d – True
   e – False
   f – False
   g – False

2. Multiple Choice
   1 – c
   2 – d
   3 – c
   4 – b
   5 – a
   6 – c
   7 – b
PASSAGE – 1 – Biorhythms

1. TRUE OR FALSE

1 – True
2 – False
3 – True
4 – True
5 – False
6 – False
7 – True
8 – True
9 – False
10 – True

2. Multiple Choice

1 – d
2 – a
3 – c
4 – a
5 – b
6 – b
7 – a

3. Matching the words

1 – e
2 – f
3 – i
4 – j
5 – g
6 – k
7 – a
8 – b
9 – c
10 – h
4. Finding single words

1. Contemplative
2. Forage
3. Twilight
4. Species
5. Diminish
6. Experiment
7. Regulate
8. Periodicity

5. Complete the following summary of the passage.

People may grow contemplative when they are asked whether they know about their inner clocks or not. All creatures appear to exhibit a periodicity in their behaviour synchronizing with their environments. The most familiar biological clocks to human beings are the circadian ones that operate on a 24-hour basis. Rhythms tied to the 29 day cycle of the moon are known as circalunar, while others linked to 12.4 and 24.8 hour tides are known as circatidal. However, the most intriguing aspect of biorhythms is their ability to reign over us even when the environmental cues are removed. The cause for the occurrence of biological clocks with regularity has been questioned. Thousands of studies performed suggested the primary mechanism underlying behavioural periodicity is neural, although hormones are believed to play a supporting role.