

PART ONE - WHILE LISTENING

- **This part of the exam aims at testing your ability to listen to a discussion and answer questions at the same time.**
- **You are going to listen to a student and a university tutor talking about the discoveries of DNA. The student is going to write an essay about this topic and is consulting her tutor before she/he hands it in.**
- **Answer the following questions while you listen and give short answers. At the end of the discussion, you will be given 5 minutes to check your answers.**
- **You will hear the discussion only ONCE.**
- **Now you have 3 minutes to read the questions before the discussion begins.**
- **The questions are IN THE SAME ORDER as the information occurs in the discussion.**

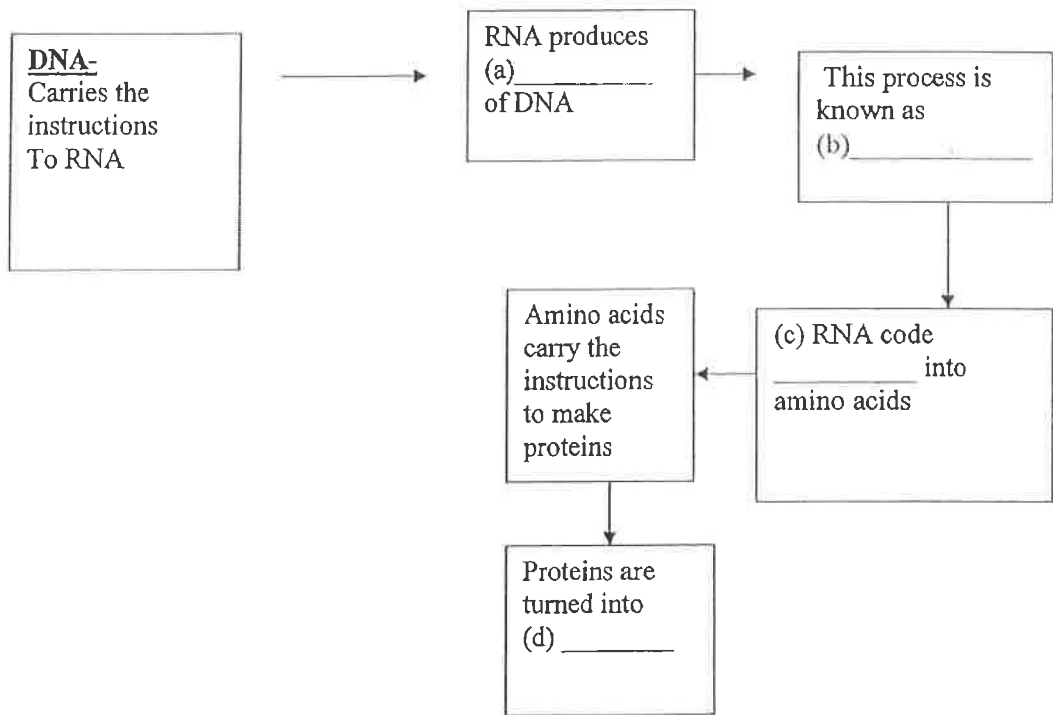
1. What was the definition of DNA given by Dr Roberts in her lecture?

2. Why does Dr Roberts reject the idea that we will be an exact copy of our parents?

3. Why was Miescher not interested in DNA at first?

4. What characteristics of amino acids made people believe that they were the hereditary material?

5. Fill in the missing information in the process below:



6. What explanation does the tutor give to the student for the confusion over Frederick Griffith's experiment?

7. What was the initial aim of Griffith's research?

8. What is the definition of *strain* given by Dr Roberts?

9. Fill in the table with the details of Griffith's experiments:

Experiment	Strain(s) injected	Outcome for mice
1	R	Didn't die
2	S	(a)
3	(b)	(c)
4	(d)	Died

10. What conclusion did Griffith finally reach to explain the reason for the death of the mice in the fourth experiment?

11. Give two reasons why Avery's discovery was not recognized as groundbreaking:

a. _____

b. _____

12. Why did Avery never receive the Nobel Prize for his work involving DNA?

_____/16

PART TWO – LECTURE AND NOTE-TAKING

- This part of the exam aims at testing your note-taking ability from a lecture.
- You are going to listen to a lecture about the history of cartography, making maps. Take notes on the following pages as you listen to the lecture. Your notes will not be marked.
- At the end of the lecture you will be given questions which you have to answer by using the notes you have made. You will have 15 minutes to answer the questions.
- Listen to the lecture and take notes. Note down the important information as well as examples.
- You will hear the lecture only ONCE.
- You now have 1 minute to look at the note-taking headings before the lecture starts.

You may use this page and the following two pages to take notes.

NOTES

The development of cartography(map-making)

- **Ancient times**

- Ancient Greeks

- The Middle Ages

Ocean maps / navigational charts

- The Renaissance era

The Importance of maps

PART TWO – LECTURE AND NOTE-TAKING - QUESTIONS

THE HISTORY OF CARTOGRAPHY

Answer the following questions by using the notes you have made. You have 15 minutes to complete this part. Give precise answers. You will lose points if you include irrelevant information in your answer. (1 point each; 16 points)

1. What did the earliest map produced in Catalhoyuk show?

2. The purpose of the ancient maps showing local features was _____

3. Maps from ancient Egypt helped Egyptians to _____

_____ after the annual floods of the Nile.

4. Why weren't the ancient world maps realistic?

5. Write TWO things that a cartographer needed to know in order to produce an accurate world map. (0.5 pt each; 1 point)

a) _____

b) _____

6. In what way did Greek philosophers like Aristotle contribute to the development of cartography?

7. Why is Ptolemy's book "*Geographia*" important in the history of cartography?

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8. What was one flaw of Ptolemy's maps?

9. There wasn't any development in cartography in the Middle Ages because _____

10. How were later maps in the Middle Ages different from the earlier ones in the same period?

11. In which ways did navigational charts help voyagers? Write TWO. (1 pt each; 2 points)

a. _____

b. _____

12. What was the reason behind the increased interest in scientific and detailed world maps after the Middle Ages?

13. In the 17th and 18th centuries, world maps and navigational charts helped European countries to _____

14. Why were maps and charts protected so carefully in the past?

15. The method of lead weighting was a very effective method in destroying the maps and navigational charts because _____

PART ONE – SKIMMING

Duration:20 minutes

- This part of the exam aims to test your ability to locate main ideas in a text. The text is about the requirements necessary for life in the universe.
- Which paragraphs match with the following headings? Write the paragraph number beside the correct heading. The headings are not in the same order as the information in the text. One of the answers is given as an example.
- It may be useful to spend a few minutes previewing the text before you begin answering the questions.
- Each question is worth 1 point.

Paragraph
Number

Heading

10	<i>e.g. The meteorites and comets as a source of organic molecules.</i>
	a) The unique conditions on Earth which make life possible.
	b) Why the position of a planet affects its ability to support life.
	c) An evaluation of the three requirements for life.
	d) The creation of elements when solar systems appear.
	e) The necessity of the existence of elements in molecules.
	f) The advantage of water in solid form over the other liquids.
	g) The necessity of a continuous chemical activity for life.
	h) The way in which water separates charges in molecules.

ENVIRONMENTAL REQUIREMENTS FOR LIFE

1. The search for life elsewhere in our solar system is a challenging task. This is mainly because there are many places to look including other planets and their moons, and thousands of known asteroids and comets. A strategy is needed to help focus the efforts on the worlds most likely to be habitable. The first step in such a strategy is to determine where it is more logical to search for life. Therefore it is important to begin the search by discussing the environmental requirements that we expect to be necessary for life on any world.
2. Today there is enough evidence to be confident that no other advanced civilization has ever arisen in our solar system. For our solar system at least, we are looking primarily for microbes or other simple life. Still, the discovery of life of any kind would be profound, both to our understanding of biology and to philosophical considerations of our place in the universe. Even if we don't find life in our own solar system, the search itself will teach us much about the characteristics that can make a planet habitable and will thereby help us when we extend the search to other planetary systems.
3. There's no place like home at least, not within our own solar system. No world besides Earth has an atmosphere that we could breathe or abundant surface water that we could drink. No other world has a combination of surface temperature and pressure under which we could survive outside without a space suit. Few worlds have atmospheres that offer any protection from dangerous ultraviolet radiation from the Sun or from high energy particles from space. Indeed, without undertaking major engineering projects to build self-contained environments (or greatly altering the basic conditions of a planet through "terraforming"), there is not much hope of long-term survival on any other world in our solar system.
4. However, it is important to bear in mind that the idea of 'habitability' is used to refer to an environment in which life of *some* kind might survive, not necessarily human life. This greatly broadens the possibilities. Even the past and present life on Earth has managed to thrive in a far greater variety of environments than human beings can endure since its formation. In order to identify potentially habitable worlds in our solar system, we must specify the range of environments that we can consider acceptable for life.

Where to find the building blocks of life

5. Perhaps the most obvious requirement for life is a set of chemical elements with which to make the components of cells. Life on Earth uses about 25 of the 92 naturally occurring chemical elements, although just four of these elements-oxygen, carbon, hydrogen, and nitrogen-make up about 96% of the mass of living organisms. Thus, a first requirement for life might be the presence of most or all of the elements used by life.
6. The need for chemical elements probably can be met by almost any world. This is because essentially all chemical elements besides hydrogen and helium were produced by stars. Although all of these "heavy elements" are quite rare compared to hydrogen and helium, they are found just about everywhere. Moreover, the elements oxygen, carbon, and nitrogen-arguably the most crucial elements for life-are the third-, fourth-, and sixth-most-abundant elements in the universe, respectively. The proportions of heavy elements varies. While they make up about 2 % of the chemical content (by mass) of our solar system, they make up less than 0.1 % of the mass in some very old star systems. Nevertheless, every star system has at least some amount of all the elements used by life.

7. The nature of solar system formation gives scientists an additional reason to expect the elements of life to be common on other worlds. According to the nebular theory of solar system formation, the planets were built when solid particles condensed from gas in the solar nebula, and these particles then accreted into planetesimals and ultimately into planets, moons, asteroids, and comets. The first step in this process—condensation—affects only the heavier elements or hydrogen compounds containing heavy elements because pure hydrogen and helium always remain gaseous. As long as condensation and accretion can occur during the formation, the resulting worlds are expected to contain the elements needed for life. It is important to remember that this basic argument does not change even if we allow for life quite different from life on Earth.
8. Life on Earth is carbon-based; therefore, there is a good reason to think that life elsewhere would also be carbon-based. However, it is impossible to rule out the possibility of life with another chemical basis. The set of elements (or their relative proportions) used by life based on some other element might be somewhat different from that used by carbon-based life on Earth. However, the elements are still products of stars that should be found everywhere. No matter what kind of life we are looking for, we are likely to find the necessary elements on almost every planet, moon, asteroid, and comet in the universe.
9. A more important requirement is the presence of basic chemical elements in molecules that can be used as ready-made building blocks for life. Remember that the early Earth probably had at least moderate abundances of amino acids and other complex molecules. Earth's organic molecules likely came from some combination of three sources: chemical reactions in the atmosphere, chemical reactions near deep-sea vents in the oceans, and molecules brought to Earth from space. The first two sources can occur only on worlds with atmospheres or oceans, respectively, but the third source should have brought similar molecules to nearly all worlds in our solar system.
10. Studies of meteorites and comets suggest that organic molecules are widespread among both asteroids and comets. Because every world was pelted by asteroids and comets during its early history, every world should have received at least some organic molecules; interplanetary dust may also have contained organic molecules that rained down on young worlds. However, organic molecules tend to be destroyed by solar radiation on surfaces unprotected by atmospheres. Moreover, while these molecules might stay intact beneath the surface as they evidently do on asteroids and comets they probably cannot react with each other unless some kind of liquid or gas is available to move them about. Thus, given that it makes sense to start the search for life with worlds on which organic molecules are likely to be involved in chemical reactions, it would be wise to concentrate on worlds that have either an atmosphere, or a surface or subsurface liquid medium such as water, or both.

Where to find energy for life

11. In addition to a source of molecular building blocks, life requires an energy source to fuel metabolism. Life on Earth uses a wide variety of energy sources. Some organisms get energy directly from sunlight through photosynthesis. Others get energy by consuming organic molecules (for example, by eating photosynthetic organisms) or through chemical reactions with inorganic compounds of iron, sulphur, or hydrogen. All these energy sources are abundant and infinite. Living organisms—be it tiny or big—depend on them to continue their existence.

12. Sunlight is available everywhere in our solar system, though it becomes much weaker with increasing distance from the Sun. The energy available in sunlight decreases with the square of the distance from the Sun. For example, if we a leaf of a particular size was put on a world twice as far from the Sun as Earth, the leaf would receive only one-fourth as much energy as the same leaf on Earth (over the same period of time). At 10 times Earth's distance from the Sun—roughly the distance of Saturn—it would receive only $1/10^2 = 1/100$ of the energy it would receive on Earth. Photosynthetic life on such a world would have to be either much larger than life on Earth (giving it a larger surface area for collecting light), much more efficient at collecting solar energy, or much slower in its metabolism and reproduction. For the far outer solar system, sunlight almost certainly is too weak to support life.
13. Chemical energy sources are not enough to create life because there have to be constant chemical reactions to sustain life. These reactions can occur under a wide variety of circumstances, but only if the potential reactants are brought into contact with each other. This means that the ongoing reactions needed to provide energy for life can occur only on worlds where materials are being continually mixed. On a practical level, this probably requires either an atmosphere to mix gases or a liquid medium to mix materials on or below a world's surface the same requirements we found for obtaining the building blocks of life.

Need for liquid water

14. In addition to a source of building blocks and a source of energy, there is one more ingredient that is essential to all life on Earth: liquid water. Water plays at least three vital roles for life on Earth. It dissolves organic molecules, making them available for chemical reactions within cells; it allows for the transport of chemicals into and out of cells; and it is involved directly in many of the metabolic reactions that occur in cells. It is difficult to imagine life in the absence of a liquid substance to play these roles. But could these roles be fulfilled by some liquid other than water?
15. No one knows whether other liquids could support life in the absence of liquid water, but there are a number of constraints to consider. For example, a substance that might fulfil the roles of water must, like water, be fairly common. On Earth, the only liquid besides water commonly found is molten rock, which is so hot that it is difficult to imagine life surviving within it. However, several other common substances such as ammonia, methane, and ethane might take liquid form on colder worlds.
16. Considering other liquids, water has at least three advantages that make it seem far more suitable as a liquid medium of life. First, water remains liquid over a wider and higher range of temperatures. (The liquid range for ethane is almost as wide, but at much lower temperatures.) A wider range makes it more likely that the substance can stay liquid through changes in the weather or climate. A higher temperature range facilitates chemical reactions. As a general rule, chemical reactions proceed more rapidly at higher temperatures because the molecules themselves move more rapidly. Typically, the rate of a given chemical reaction doubles with each 10 degree Celsius increase in temperature. Thus, chemical reactions in water should generally proceed much more rapidly than similar reactions in liquid ammonia, methane, or ethane. Any life using these other liquids would therefore need to have a much slower metabolism than life on Earth. The slower rate of reactions may also make it less likely that life would arise in the first place in these other liquids, because the origin of life probably requires

- many complex chemical reactions.
17. The second advantage of liquid water is the way water freezes. Most substances are denser as solids than as liquids, but water is a rare exception. Ice is less dense than liquid water, which is why ice floats. This property helps life survive on Earth. In the winter, when surface temperatures are low enough for water to freeze, floating ice forms a layer on the tops of lakes and seas. This layer of ice insulates the water beneath, allowing it to remain liquid-which allows life to survive within it. The flotation of solid ice also contributes to long-term climate stability. Because ice floats, a cool period thickens the insulating layer of ice on the surfaces of lakes and oceans, making it less likely that they will freeze completely. No other liquid shares this property with water. That is, all the others sink when frozen.
 18. The third advantage of liquid water over the other liquids comes from the way that an electrical charge is distributed within water molecules. Within individual water molecules, the electrons tend to be distributed in a way that makes one side have a net positive charge and the other side have a net negative charge. Molecules with such charge separation are called *polar* molecules; the term *polar* comes from the positive and negative charges being concentrated at opposite ends, or "poles," of the molecule's axis and not from anything related to temperature. This charge separation affects the way in which water dissolves other substances. Molecules and salts that also have charge separations dissolve in water easily. Molecules that do not have any charge separation such as molecules of oil do not dissolve in water. On Earth, the charge separation property of water is critical to life. Living cells have membranes that do not dissolve in water, so the membranes effectively protect the interior contents of cells. If we place living cells in liquid ethane, methane, or ammonia-molecules with less charge separation than water-their membranes may come apart.
 19. To sum up, three advantages of water over other liquid candidates for life are: (1) a wider and higher range of temperatures over which it remains liquid; (2) the fact that solid water floats; and (3) the fact that the charge separation of water molecules allows for types of chemical bonds that are not possible with the other liquids. These advantages make a strong case for the need for liquid water as a basis for life, but the case is not definitive. For example, it is possible to imagine circumstances under which the third advantage might be turned around. If life elsewhere had cell membranes made of molecules with different charge separation properties, they might dissolve in water but not in ammonia, methane, or ethane. It is not known yet if this is possible, but if it is, then life might exist in one of those other liquids while finding water to be poisonous or too hot.
 20. It is important to bear in mind that while water clearly is an excellent medium for supporting life, scientists do not know yet if other liquids could also support life. It is difficult to tell whether the advantages of water are truly universal or are specific only to terrestrial life. Given this uncertainty, along with the fact that other liquids probably exist on (or within) some of the worlds in our solar system, it would be wrong to think that those worlds do not have the potential to support life. In general, however, water is much more abundant than other liquids both in our solar system and elsewhere (largely due to the fact that oxygen is the third-most abundant element in the universe, after hydrogen and helium), so it remains our prime candidate for a liquid medium.
 21. To summarize, the environment must satisfy three major requirements:
 1. It must have a source of molecules from which to build living cells.
 2. It must have a source of energy to fuel metabolism.

3. It must have a liquid medium most likely liquid water for transporting the molecules of life.
22. When each requirement is analysed in detail, which one is more essential for life to begin? The first requirement is probably met by most if not all worlds. The second requirement is somewhat more limiting, but there are still plenty of worlds that should have sufficient sunlight or chemical energy for life. The third requirement—the need for a liquid—is probably the most essential. Moreover, any world that meets this third requirement stands a good chance of meeting the first two as well. A liquid like water can facilitate chemical reactions with inorganic planetary materials, which offers at least a potential source of energy for life and, indeed, a source used by many microbes on Earth. Thus, based on the current understanding of life, it is possible to consolidate the requirements into a single "litmus test" for habitability: A world can be habitable only if it has a liquid medium, probably meaning liquid water but possibly including one of the other liquids.
23. This requirement for a liquid certainly narrows the possibilities for life in our solar system, but not as much as one might at first guess. The wide variety of habitats where there is both liquid water and life on Earth, including the deep ocean and in rocks buried deep underground, tells us that habitability requires only the presence of a liquid somewhere, not necessarily on the surface. A large fraction of the worlds in our solar system have probably met this condition at least at some point in the past, and many still do.
24. There are at least two important drawbacks to the arguments of the possibility of life in the universe. First, it may be necessary to distinguish between the ability of a world to support an origin of life and its ability to support life that might have arrived from elsewhere. For example, while most scientists have concluded that life could not have arisen indigenously in Jupiter's atmosphere, some scientists have imagined organisms that could survive there if they somehow arrived from somewhere else. Second, it is important to note that everything scientists know about life comes from the study of life on only a single world—our own. For instance, as mentioned before, it is difficult to know whether the advantages of water as a liquid medium are truly universal or specific to life on Earth. Other apparent attributes of life may similarly be less crucial elsewhere than they are on Earth. It is therefore possible that the discussions of habitability are based on too narrow a view of life, in which case our litmus test may be too narrow as well. Indeed, science fiction writers have imagined all sorts of bizarre life-forms existing under conditions far outside those we have examined here. Nature might be even more inventive. Nevertheless, a search for life must start somewhere, and it makes sense to begin by looking for the conditions that seem most likely to support life. If it turns out that the initial search is too narrow, we can always expand it in the future.

PART TWO – DETAILED READING QUESTIONS (25%)

Duration: 65 minutes

- This part of the exam aims to test:
 - your ability to identify the main ideas and important details of two texts with a similar theme,
 - your understanding of the relationship between two texts.
- There are three tasks:
 - Task 1 – Answer questions 1-5 about **Text A**.
 - Task 2 – Answer questions 1-5 about **Text B**.
 - Task 3 – Complete a short paragraph that compares some of the information from **Text A** and **Text B**.

- All questions are worth 1 point unless indicated otherwise.
- The questions are in the same order as the answers in the text.

Task 1: Read **Text A** below and answer questions 1-5.

1. What was one reason that forced the tsar to create the Duma?

2. What was the result of the leaders' incompetence in conducting the war?

3. What were the expectations of the lower classes from the Provisional Government?

4. What triggered the lower classes to withdraw their support from the Provisional Government?

5. Why did the Provisional Government's rule of law fail with the lower classes?

TOTAL: ____ / 5

Task 2: Read Text B below and answer questions 1-5.

1. What was the main problem with Reza Shah's modernization attempts?

2. What was the main reason why religious groups were against the White Revolution?

3. Why was the land reform unsuccessful?

4. Why did the Majles, the Iranian parliament, fail to offer any real political participation?

5. How did the new Islamic government control political opposition in Iran after the revolution?

TOTAL: ____ / 5

Task 3

- The paragraph below highlights the similarities between the Bolshevik Revolution in Russia and the Islamic Revolution in Iran. Use the information from one, or both, of the texts to complete the paragraph.
- The first question has been done for you.
- Each answer is worth 0.5 point.

The revolutions in Russia and Iran followed similar processes, despite the fact that their revolutions took place 60 years apart. Before they experienced the revolution, both countries had been under the (eg.) authoritarian rule of a monarch for a very long time: a tsar in Russia and a shah in Iran. Both countries were heavily depended on (1) _____ as the main economic activity. In both countries, the ruler had absolute authority despite the presence of a/an (2) _____, which did nothing more than help the tsar or the shah to keep his hold on the people. Any (3) _____ activity or opposition was repressed. Both Russian and Iranian monarchs had begun a (4) _____ to catch up with the Western world. However, the failure of the government in the war and the economic problems caused the tsar lose the support of his people in Russia. In Iran, the main cause was the failure of land reform and subsequent immigration to cities, where unemployed poor farmers faced even more difficult conditions. This combined with the dissatisfaction of (5) _____, who had lost both power and income with the shah's reforms. Under such circumstances, people sought an alternative administration; Bolsheviks in Russia in and Islamists in Iran. After the revolutions, in both countries the new rulers managed to eliminate the other powers they worked with for the revolution and eventually the new regimes became a/an (6) _____ where the ruling group started implementing their own revolutionary agenda and suppressing any opposition. It is remarkable that in these two countries the revolutionary forces managed to attract the support of a variety of political groups and then managed to discard them.

TOTAL: _____ / 3

TEXT A

The Bolshevik Revolution in Russia

1. On the eve of World War I, Russia remained one of the most politically antiquated regimes in Europe. An autocratic system of government gave nearly unlimited power to the tsar, who expected obedience and respect from his 163 million subjects. The population under his rule included representatives of nearly seventy non-Russian ethnic groups dispersed over more than eight million square miles of territory. The overwhelming majority of the population relied on agriculture for their livelihood, although modernization programs in the late nineteenth century had stimulated urbanization and social diversification, and increased the ranks of professionals and the industrial working class. While supporting economic modernization, the government remained hostile to any form of independent civic organization or political activity.
2. The growing tensions between the population and a regime determined to avoid political reform burst into the open in 1905, as the autocracy were held responsible for the defeat in the Russo-Japanese war. The country erupted in revolution after the army group guarding the Tsar's Winter Palace opened fire on unarmed demonstrators. Faced with widespread rebellion in the countryside, paralyzing strikes in the cities, and liberal professionals' demands for civil and religious liberties, Tsar Nicholas II had to agree to the establishment of a parliament. For the next decade, the Tsar and the Duma, as the new parliament was called, repressed political radicalism and introduced reforms to transform the communally oriented peasantry into freeholding farmers. All this reduced the political power of the lower classes, but it also enhanced the appeal of rebellious political parties — such as the Bolsheviks — among workers.
3. World War I brought out the broader structural deficiencies of Russia's industry and modernization programs. Russia mobilized rapidly and intensively for a war everyone hoped would be brief, but which proved long and exhausting. Besides, patriotic support disappeared due to enormous errors in the military and political spheres. In the fall of 1914, crushing defeats in battle drove the Russian forces out of East Prussia and in 1915, Austro-German forces pushed the Russians out of eastern Poland, at a cost of nearly one million Russian casualties and another million prisoners.
4. Under these conditions, peasants who had been called into the army to fight in the war became much more susceptible to political radicalism than those who stayed on the land. In urban areas, people's dissatisfaction increased as the cost of living rose and problems with food supply and speculation intensified. Both the bottom and top of society recognized the inability of the tsar and his officials to conduct the war effectively.
5. Offended by critiques of the war effort, Nicholas II assumed personal control over military operations in the fall of 1915. He was, therefore, personally identified with military defeat and incompetence, which caused him to lose authority the next eighteen months. Rather than relying more on politicians and the public, he handed over control of the home front to his wife, Alexandra, and her confidante, the degenerate monk Grigorii Rasputin, as he himself went to the front. In the course of 1916, Nicholas II appointed four prime ministers. The murder of Rasputin by a group of court conspirators in December 1916 had little effect on the course of events but served as a good indicator of how desperate the situation had become.
6. In January and February of 1917, various groups united against the regime. For the rich classes, the autocracy's inability to conduct the war caused widespread hostility and concern for the country's future. The lower levels of society, in the army, in cities, and in the countryside were running out of tolerance of long-term deprivation and rationing. After more

than a year of relatively little labor unrest, strikes again swept the country. The majority of the strikes linked economic troubles to political concerns and agendas. On International Women's Day, women textile workers protested against shortages while standing in line for bread, which soon turned into a wave of riots and demonstrations. Soldiers sent to stop the disturbances sided with the protesters instead. Meanwhile, workers throughout the city formed councils (Soviets) on the model of 1905.

7. On March 2, the tsar accepted the advice of his generals and cabinet, abdicated. Liberal, conservative, and non-Marxist members of the fourth Duma quickly organized a provisional government. Headed by Prince Giorgii Lvov, the new cabinet included people who supported the Socialist Revolutionary Party. The Bolshevik Soviets agreed to support the Provisional Government as long as it was provisional and dual (i.e. shared power with the Soviet).

8. Over the next six months, the contradictory expectations of different social groups worked themselves out in complex ways. The upper levels of society hoped for a revitalized war effort and the formation of a modern government. Ordinary workers and peasants, in contrast, saw the developments in February as an end of the war as well as an end to oppression and exploitation. The Provisional Government attempted to strengthen its authority, but the tensions proved overwhelming. The period between March and April revealed the instability of the "dual power" structure, as well as the contradictory goals of different social groups. During these months, the liberal-leaning Provisional Government's commitment to a "rule of law" proved to be too weak for a society with a long history of authoritarian rule. Because it was unable and unwilling to use strict measures to strengthen its control, the Provisional Government made some concessions to the workers, peasants, and soldiers who formed the majority in Bolshevik Soviets. These included increased wages, the adoption of an eight-hour workday, and the legalization of trade unions and factory committees. The formation of soldiers' committees created a secondary network for communication and authority within the military, further destroying the formal command structure.

9. Russia's participation in the war remained the most urgent and controversial issue. In April, the Bolshevik leader, Vladimir Lenin, returned to Russia and called for an immediate peace, land reform, the nationalization of wealth, and the formation of a Soviet Republic. The radicalism of Lenin's program was in disagreement with the government's plan to continue the war. The prime minister was dismissed and a coalition formed to bring moderate Socialists into the Provisional Government. From that point on, the Bolsheviks, led by Vladimir Lenin, emerged as the political party with the most consistent and convincing message.

10. Economic chaos and collapse contributed to the instability and subsequent reorganizations of the Provisional Government over the next few months. The stock market and internal markets collapsed and inflation outstripped the wage gains workers won in the first weeks after the February Revolution. As the economy became worse, many lost their jobs. For peasants, the main objective was land reform. The addition of moderate Socialists from the Menshevik and Socialist Revolutionary Party to the governing coalition raised the peasants' expectations that land reform would be made, and their frustrations intensified when nothing happened.

11. The deepening economic crisis affected workers, soldiers, and peasants and the Bolsheviks were able to profit from the mistakes of their fellow Socialists. The army, which consisted mainly of peasants, shifted its support from the Provisional Government to Bolsheviks. Elections in September returned a Bolshevik majority in the Petrograd Soviet, and Lenin's followers seized power.