

IELTS Academic Reading Sample 165 - The Rocket From East To West

You should spend about 20 minutes on Questions 1-14, which are based on following reading passage:

THE ROCKET - FROM EAST TO WEST

A The concept of the rocket, or rather the mechanism behind the idea of propelling an object into the air, has been around for well over two thousand years. However, it wasn't until the discovery of the reaction principle, which was the key to space travel and so represents one of the great milestones in the history of scientific thought, that rocket technology was able to develop. Not only did it solve a problem that had intrigued man for ages, but, more importantly, it literally opened the door to exploration of the universe.

B An intellectual breakthrough, brilliant though it may be, does not automatically ensure that the transition is made from theory to practice. Despite the fact that rockets had been used sporadically for several hundred years, they remained a relatively minor arte-fact of civilization until the twentieth century. Prodigious efforts, accelerated during two world wars, were required before the technology of primitive rocketry could be translated into the reality of sophisticated astronauts. It is strange that the rocket was generally ignored by writers of fiction to transport their heroes to mysterious realms beyond the Earth, even though it had been commonly used in fireworks displays in China since the thirteenth century. The reason is that nobody associated the reaction principle with the idea of traveling through space to a neighbouring world.

C A simple analogy can help us to understand how a rocket operates. It is much like a machine gun mounted on the rear of a boat. In reaction to the backward discharge of bullets, the gun, and hence the boat, move forwards. A rocket motor's 'bullets' are minute, high-speed particles produced by burning propellants in a suitable chamber. The reaction to the ejection of these small particles causes the rocket to move forwards. There is evidence that the reaction principle was applied practically well before the rocket was invented. In his *Noctes Atticae* or Greek Nights, Aulus Gellius describes 'the pigeon of Archytas', an invention dating back to about 360 BC. Cylindrical in shape, made of wood, and hanging from string, it was moved to and fro by steam blowing out from small exhaust ports at either end. The reaction to the discharging steam provided the bird with motive power.

D The invention of rockets is linked inextricably with the invention of 'black powder'. Most historians of technology credit the Chinese with its discovery. They base their belief on studies of Chinese writings or on the notebooks of early Europeans who settled in or made long visits to China to study its history and civilisation. It is probable that, sometime in the tenth century, black powder was first compounded from its basic ingredients of saltpetre, charcoal and sulphur. But this does not mean that it was immediately used to propel rockets. By

the thirteenth century, powder propelled fire arrows had become rather common. The Chinese relied on this type of technological development to produce incendiary projectiles of many sorts, explosive grenades and possibly cannons to repel their enemies. One such weapon was the 'basket of fire' or, as directly translated from Chinese, the 'arrows like flying leopards'. The 0.7 metre-long arrows, each with a long tube of gunpowder attached near the point of each arrow, could be fired from a long, octagonal-shaped basket at the same time and had a range of 400 paces. Another weapon was the 'arrow as am flying sabre', which could be fired from crossbows. The rocket, placed in a similar position to other rocket-propelled arrows, was designed to increase the range. A small iron weight was attached to the 1.5m bamboo shaft, just below the feathers, to increase the arrow's stability by moving the centre of gravity to a position below the rocket. At a similar time, the Arabs had developed the 'egg which moves and burns'. This 'egg' was apparently full of gunpowder and stabilised by a 1.5m tail. It was fired using two rockets attached to either side of this tail.

E It was not until the eighteenth century that Europe became seriously interested in the possibilities of using the rocket itself as a weapon of war and not just to propel other weapons. Prior to this, rockets were used only in pyrotechnic displays. The incentive for the more aggressive use of rockets came not from within the European continent but from far-away India, whose leaders had built up a corps of rocketeers and used rockets successfully against the British in the late eighteenth century. The Indian rockets used against the British were described by a British Captain serving in India as 'an iron envelope about 200 millimetres long and 40 millimetres in diameter with sharp points at the top and a 3m-long bamboo guiding stick'. In the early nineteenth century the British began to experiment with incendiary barrage rockets. The British rocket differed from the Indian version in that it was completely encased in a stout, iron cylinder, terminating in a conical head, measuring one metre in diameter and having a stick almost five metres long and constructed in such a way that it could be firmly attached to the body of the rocket. The Americans developed a rocket, complete with its own launcher, to use against the Mexicans in the mid-nineteenth century. A long cylindrical tube was propped up by two sticks and fastened to the top of the launcher, thereby allowing the rockets to be inserted and lit from the other end. However, the results were sometimes not that impressive as the behaviour of the rockets in flight was less than predictable. Since then, there has been huge developments in rocket technology, often with devastating results in the forum of war. Nevertheless, the modern day space programs owe their success to the humble beginnings of those in previous centuries who developed the foundations of the reaction principle. Who knows what it will be like in the future?

Questions 1-4

Reading passage 11 has six paragraphs labelled A-F.

Choose the most suitable headings for paragraphs B-E from the list of headings below.

Write the appropriate numbers (i-ix) in boxes 1-4 on your answer sheet.

List of Headings

- i** How the reaction principle works
- ii** The impact of the reaction principle
- iii** Writer's theories of the reaction principle
- iv** Undeveloped for centuries
 - v** The first rockets
 - vi** The first use of steam
 - vii** Rockets for military use
 - viii** Developments of fire
- ix** What's next?

Example **Paragraph A** **Answer ii**

1. Paragraph **B**
2. Paragraph **C**
3. Paragraph **D**
4. Paragraph **E**

Questions 5 and 6

Choose the appropriate letters **A-D** and write them in boxes 5 and 6 on your answer sheet.

5 The greatest outcome of the discovery of the reaction principle was that

- A rockets could be propelled into the air.
- B space travel became a reality.
- C a major problem had been solved.
- D bigger rockets were able to be built.

6 According to the text, the greatest progress in rocket technology was made

- A from the tenth to the thirteenth centuries.
- B from the seventeenth to the nineteenth centuries.
- C from the early nineteenth to the late nineteenth century.
- D from the late nineteenth century to the present day.

Questions 7-10

From the information in the text, indicate who **FIRST** invented or used the items in the list below.

Write the appropriate letters **A-E** in boxes **7-10** on your answer sheet.

NB You may use any letter more than once.

Example

rockets for displays

Answer

A

7 black powder

8 rocket-propelled arrows for fighting

9 rockets as war weapons

10 the rocket launcher

FIRST invented or used by

A the Chinese

B the Indians

C the British

D the Arabs

E the Americans

Questions 11-14

Look at the drawings of different projectiles below, **A-H**, and the names of types of projectiles given in the passage, Questions **11-14**. Match each name with one drawing.

Write the appropriate letters **A-H** in boxes **11-14** on your answer sheet.

Example

The Greek 'pigeon of Archytas'

Answer

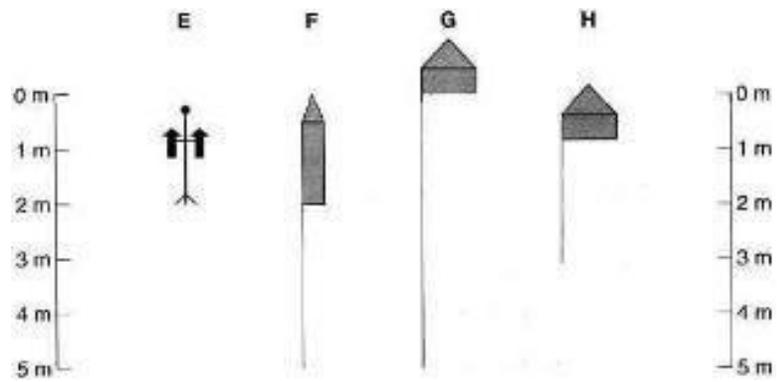
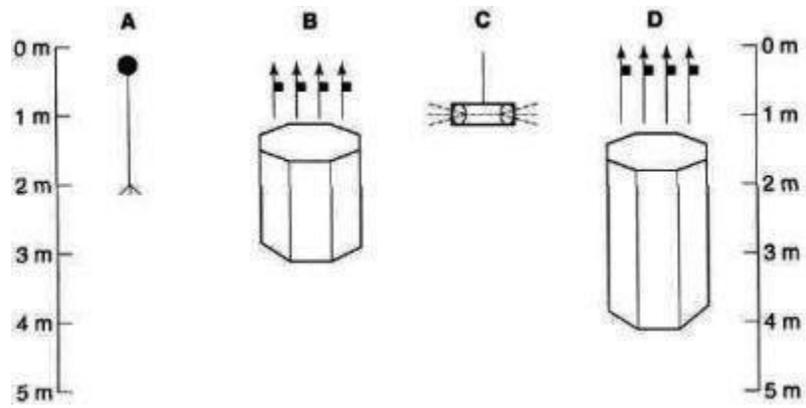
C

11 The Chinese 'basket of fire'

12 The Arab 'egg which moves and burns'

13 The Indian rocket

14 The British barrage rocket



Answer:

1. iv 2. i 3. v 4. vii 5. B 6. D 7. A 8. A 9. B 10. E 11. B 12. E 13. F 14. G

IELTS Academic Reading Sample 166 - Absenteeism In Nursing

You should spend about 20 minutes on Questions 1-13 which are based on Reading Passage 166 below.

ABSENTEEISM IN NURSING: A LONGITUDINAL STUDY

Absence from work is a costly and disruptive problem for any organisation. The cost of absenteeism in Australia has been put at 1.8 million hours per day or \$1400 million annually. The study reported here was conducted in the Prince William Hospital in Brisbane, Australia, where, prior to this time, few active steps had been taken to measure, understand or manage the occurrence of absenteeism.

Nursing Absenteeism

A prevalent attitude amongst many nurses in the group selected for study was that there was no reward or recognition for not utilising the paid sick leave entitlement allowed them in their employment conditions. Therefore, they believed they may as well take the days off — sick or otherwise. Similar attitudes have been noted by *James (1989)*, who noted that sick leave is seen by many workers as a right, like annual holiday leave.

Miller and Norton (1986), in their survey of 865 nursing personnel, found that 73 per cent felt they should be rewarded for not taking sick leave, because some employees always used their sick leave. Further, 67 per cent of nurses felt that administration was not sympathetic to the problems shift work causes to employees' personal and social lives. Only 53 per cent of the respondents felt that every effort was made to schedule staff fairly. In another longitudinal study of nurses working in two Canadian hospitals, *Hackett Bycio and Guion (1989)* examined the reasons why nurses took absence from work. The most frequent reason stated for absence was minor illness to self. Other causes, in decreasing order of frequency, were illness in family, family social function, work to do at home and bereavement.

Method

In an attempt to reduce the level of absenteeism amongst the 250 Registered and Enrolled Nurses in the present study, the Prince William management introduced three different, yet potentially complementary, strategies over 18 months. *Strategy 1: Non-financial (material) incentives* : Within the established wage and salary system it was not possible to use hospital funds to support this strategy. However, it was possible to secure incentives from local businesses, including free passes to entertainment parks, theatres, restaurants, etc. At the end of each roster period, the ward with the lowest absence rate would win the prize. *Strategy 2 Flexible fair rostering*: Where possible, staff were given the opportunity to determine their working schedule within the limits of clinical needs. *Strategy 3: Individual absenteeism* : and Each month, managers would

analyse the pattern of absence of staff with excessive sick leave (greater than ten days per year for full-time employees). Characteristic patterns of potential 'voluntary absenteeism' such as absence before and after days off, excessive weekend and night duty absence and multiple single days off were communicated to all ward nurses and then, as necessary, followed up by action.

Results

Absence rates for the six months prior to the Incentive scheme ranged from 3.69 per cent to 4.32 per cent. In the following six months they ranged between 2.87 per cent and 3.96 per cent. This represents a 20 per cent improvement. However, analysing the absence rates on a year-to-year basis, the overall absence rate was 3.60 per cent in the first year and 3.43 per cent in the following year. This represents a 5 per cent decrease from the first to the second year of the study. A significant decrease in absence over the two-year period could not be demonstrated.

Discussion

The non-financial incentive scheme did appear to assist in controlling absenteeism in the short term. As the scheme progressed it became harder to secure prizes and this contributed to the program's losing momentum and finally ceasing. There were mixed results across wards as well. For example, in wards with staff members who had long-term genuine illness, there was little chance of winning, and to some extent the staffs on those wards were disempowered. Our experience would suggest that the long-term effects of incentive awards on absenteeism are questionable.

Over the time of the study, staff were given a larger degree of control in their rosters. This led to significant improvements in communication between managers and staff. A similar effect was found from the implementation of the third strategy. Many of the nurses had not realised the impact their behaviour was having on the organisation and their colleagues but there were also staff members who felt that talking to them about their absenteeism was 'picking' on them and this usually had a negative effect on management—employee relationships.

Conclusion

Although there has been some decrease in absence rates, no single strategy or combination of strategies has had a significant impact on absenteeism per se. Notwithstanding the disappointing results, it is our contention that the strategies were not in vain. A shared ownership of absenteeism and a collaborative approach to problem solving has facilitated improved cooperation and communication between management and staff. It is our belief that this improvement alone, while not tangibly measurable, has increased the ability of management to manage the effects of absenteeism more effectively since this study.

[“ This article has been adapted and condensed from the article by G. William and K. Slater (1996), 'Absenteeism in nursing: A longitudinal study', Asia Pacific Journal of Human Resources, 34(1): 111-21. Names and other details have been changed and report findings may have been given a different emphasis from the

original. We are grateful to the authors and Asia Pacific Journal of Human Resources for allowing us to use the material in this way. "]

Questions 1-7

Do the following statements agree with the information given in Reading Passage In boxes 1-7 on your answer sheet write:

YES if the statement agrees with the information

NO if the statement contradicts the information

NOT GIVEN if there is no information on this in the passage

- 1) The Prince William Hospital has been trying to reduce absenteeism amongst nurses for many years.
- 2) Nurses in the Prince William Hospital study believed that there were benefits in taking as little sick leave as possible.
- 3) Just over half the nurses in the 1986 study believed that management understood the effects that shift work had on them.
- 4) The Canadian study found that 'illness in the family' was a greater cause of absenteeism than 'work to do at home'.
- 5) In relation to management attitude to absenteeism the study at the Prince William Hospital found similar results to the two 1989 studies.
- 6) The study at the Prince William Hospital aimed to find out the causes of absenteeism amongst 250 nurses.
- 7) The study at the Prince William Hospital involved changes in management practices.

Questions 8-13

Complete the notes below.

Choose **ONE OR TWO WORDS** from the passage, for each answer.

Write your answers in boxes 8-13 on your answer sheet.

In the first strategy, wards with the lowest absenteeism in different periods would win prizes donated by

(8)

In the second strategy, staff were given more control over their**(9)**.....

In the third strategy, nurses who appeared to be taking **(10)**..... sick leave or **(11)**.....were identified and counseled.

Initially, there was a **(12)**.....per cent decrease in absenteeism.

The first strategy was considered ineffective and stopped.

The second and third strategies generally resulted in better **(13)**..... among staff.

Answer:

1. NO 2. NO 3. NO 4. YES 5. NOTGIVEN 6. NO 7. YES 8. (local) busunesses 9.(work/working) schedule/ rostering/ roster(s) 10. excessive 11. voluntary absence / absenteeism 12. twenty / 20 13. communication

IELTS Academic Reading Sample 167 - Paper Recycling

You should spend about 20 minutes on Questions 30-41 which are based on the Reading Passage below.

PAPER RECYCLING

A Paper is different from other waste produce because it comes from a sustainable resource: trees. Unlike the minerals and oil used to make plastics and metals, trees are replaceable. Paper is also biodegradable, so it does not pose as much threat to the environment when it is discarded. While 45 out of every 100 tonnes of wood fibre used to make paper in Australia comes from waste paper, the rest comes directly from virgin fibre from forests and plantations. By world standards this is a good performance since the world-wide average is 33 per cent waste paper. Governments have encouraged waste paper collection and sorting schemes and at the same time, the paper industry has responded by developing new recycling technologies that have paved the way for even greater utilization of used fibre. As a result, industry's use of recycled fibres is expected to increase at twice the rate of virgin fibre over the coming years.

B Already, waste paper constitutes 70% of paper used for packaging and advances in the technology required to remove ink from the paper have allowed a higher recycled content in newsprint and writing paper. To achieve the benefits of recycling, the community must also contribute. We need to accept a change in the quality of paper products; for example stationery may be less white and of a rougher texture. There also needs to be support from the community for waste paper collection programs. Not only do we need to make the paper available to collectors but it also needs to be separated into different types and sorted from contaminants such as staples, paperclips, string and other miscellaneous items.

C There are technical limitations to the amount of paper which can be recycled and some paper products cannot be collected for re-use. These include paper in the form of books and permanent records, photographic paper and paper which is badly contaminated. The four most common sources of paper for recycling are factories and retail stores which gather large amounts of packaging material in which goods are delivered, also offices which have unwanted business documents and computer output, paper converters and printers and lastly households which discard newspapers and packaging material. The paper manufacturer pays a price for the paper and may also incur the collection cost.

D Once collected, the paper has to be sorted by hand by people trained to recognise various types of paper. This is necessary because some types of paper can only be made from particular kinds of recycled fibre. The sorted paper then has to be repulped or mixed with water and broken down into its individual fibres. This mixture is called stock and may contain a wide variety of contaminating materials, particularly if it is made from mixed waste paper which has had little sorting. Various machineries are used to remove other materials from

the stock. After passing through the repulping process, the fibres from printed waste paper are grey in colour because the printing ink has soaked into the individual fibres. This recycled material can only be used in products where the grey colour does not matter, such as cardboard boxes but if the grey colour is not acceptable, the fibres must be de-inked. This involves adding chemicals such as caustic soda or other alkalis, soaps and detergents, water-hardening agents such as calcium chloride, frothing agents and bleaching agents. Before the recycled fibres can be made into paper they must be refined or treated in such a way that they bond together.

E Most paper products must contain some virgin fibre as well as recycled fibres and unlike glass, paper cannot be recycled indefinitely. Most paper is down-cycled which means that a product made from recycled paper is of an inferior quality to the original paper. Recycling paper is beneficial in that it saves some of the energy, labour and capital that go into producing virgin pulp. However, recycling requires the use of fossil fuel, a non-renewable energy source, to collect the waste paper from the community and to process it to produce new paper. And the recycling process still creates emissions which require treatment before they can be disposed of safely. Nevertheless, paper recycling is an important economical and environmental practice but one which must be carried out in a rational and viable manner for it to be useful to both industry and the community.

Questions 30-36

Complete the summary below of the first two paragraphs of the Reading Passage.

Choose **ONE OR TWO WORDS** from the Reading Passage for each answer.

Write your answers in boxes 30-36 on your answer sheet.

SUMMARY

Example

From the point of view of recycling, paper has two advantages over minerals andoil..... in that firstly it comes from a resource which is (30)and secondly it is less threatening to our environment when we throw it away because it is (31)..... Although Australia's record in the re-use of waste paper is good, it is still necessary to use a combination of recycled fibre and (32) to make new paper. The paper industry has contributed positively and people have also been encouraged by..... (33)to collect their waste on a regular basis. One major difficulty is the removal of ink from used paper but (34)..... are being made in this area. However, we need to learn to accept paper which is generally of a lower (35) than before and to sort our waste paper by removing (36)before discarding it for collection.

Look at paragraphs **C**, **D**, and **E** and, using the information in the passage, complete the flow chart below. Write your answers in boxes **37-41** on your answer sheet. Use **ONE OR TWO WORDS** for each answer.

Waste Paper collected from:
Factories
Retail stores
(37).....
paper converted and printers
Households

The Paper is then
(38).....



and

(39)
by adding water



The fibres are then
(41)



Chemicals are added in order to
(40)

Answer:

30. sustainable 31. biodegradable 32. virgin fibre/ pulp 33. governments/ the
government 34. advances 35. quality 36. contaminants 37. offices 38. sorted 39. (re)pu
lped 40. de-ink/ remove ink/ make white 41. refined

IELTS Academic Reading Sample 168 - Changing Our Understanding of Health

You should spend about 20 minutes on Questions **14-27** which are based on Reading Passage sample 168 below.

Questions 14-18

Reading passage 8 has six paragraphs **B-F** from the list of headings below. Choose the most suitable headings for paragraphs **B-F** from the list of headings below.

Write the appropriate numbers (**i-ix**) in boxes **14-18** on your answer sheet.

NB *There are more headings than paragraphs, so you will not use them all.*

List of Headings

- i) Ottawa International Conference on Health Promotion
- ii) Holistic approach to health
- iii) The primary importance of environmental factors
- iv) Healthy lifestyles approach to health
- v) Changes in concepts of health in Western society
- vi) Prevention of diseases and illness
- vii) Ottawa Charter for Health Promotion
- viii) Definition of health in medical terms
- ix) Socio-ecological view of health

- 14. Paragraph **B**
- 15. Paragraph **C**
- 16. Paragraph **D**
- 17. Paragraph **E**
- 18. Paragraph **F**

Changing Our Understanding of Health

A

The concept of health holds different meanings for different people and groups. These meanings of health have also changed over time. This change is no more evident than in Western society today, when notions of health and health promotion are being challenged and expanded in new ways.

B

For much of recent Western history, health has been viewed in the physical sense only. That is, good health has been connected to the smooth mechanical operation of the body, while ill health has been attributed to a breakdown in this machine. Health in this sense has been defined as the absence of disease or illness and is seen in medical terms. According to this view, creating health for people means providing medical care to treat or prevent disease and illness. During this period, there was an emphasis on providing clean water, improved sanitation and housing.

C

In the late 1940s the World Health Organisation challenged this physically and medically oriented view of health. They stated that 'health is a complete state of physical, mental and social well-being and is not merely the absence of disease' (WHO, 1946). Health and the person were seen more holistically (mind/body/spirit) and not just in physical terms.

D

The 1970s was a time of focusing on the prevention of disease and illness by emphasising the importance of the lifestyle and behaviour of the individual. Specific behaviours which were seen to increase risk of disease, such as smoking, lack of fitness and unhealthy eating habits, were targeted. Creating health meant providing not only medical health care, but health promotion programs and policies which would help people maintain healthy behaviours and lifestyles. While this individualistic healthy lifestyles approach to health worked for some (the wealthy members of society), people experiencing poverty, unemployment, underemployment or little control over the conditions of their daily lives benefited little from this approach. This was largely because both the healthy lifestyles approach and the medical approach to health largely ignored the social and environmental conditions affecting the health of people.

E

During 1980s and 1990s there has been a growing swing away from seeing lifestyle risks as the root cause of poor health. While lifestyle factors still remain important, health is being viewed also in terms of the social, economic and environmental contexts in which people live. This broad approach to health is called the socio-

ecological view of health. The broad socio-ecological view of health was endorsed at the first International Conference of Health Promotion held in 1986, Ottawa, Canada, where people from 38 countries agreed and declared that:

The fundamental conditions and resources for health are peace, shelter, education, food, a viable income, a stable eco-system, sustainable resources, social justice and equity. Improvement in health requires a secure foundation in these basic requirements. (WHO, 1986) .

It is clear from this statement that the creation of health is about much more than encouraging healthy individual behaviours and lifestyles and providing appropriate medical care. Therefore, the creation of health must include addressing issues such as poverty, pollution, urbanisation, natural resource depletion, social alienation and poor working conditions. The social, economic and environmental contexts which contribute to the creation of health do not operate separately or independently of each other. Rather, they are interacting and interdependent, and it is the complex interrelationships between them which determine the conditions that promote health. A broad socio-ecological view of health suggests that the promotion of health must include a strong social, economic and environmental focus.

F

At the Ottawa Conference in 1986, a charter was developed which outlined new directions for health promotion based on the socio-ecological view of health. This charter, known as the Ottawa Charter for Health Promotion, remains as the backbone of health action today. In exploring the scope of health promotion it states that:

Good health is a major resource for social, economic and personal development and an important dimension of quality of life. Political, economic, social, cultural, environmental, behavioural and biological factors can all favour health or be harmful to it. (WHO, 1986) .

The Ottawa Charter brings practical meaning and action to this broad notion of health promotion. It presents fundamental strategies and approaches in achieving health for all. The overall philosophy of health promotion which guides these fundamental strategies and approaches is one of 'enabling people to increase control over and to improve their health' (WHO, 1986).

Questions 19-22

Using **NO MORE THAN THREE WORDS** from the passage, answer the following questions

Write your answers in boxes **19-22** on your answer sheet.

19. In which year did the World Health Organization define health in terms of mental, physical and social well-being?
20. Which members of society benefited most from the healthy lifestyles approach to health?
21. Name the three broad areas which relate to people's health, according to the socio-ecological view of

health.

22. During which decade were lifestyle risks seen as the major contributors to poor health?

Questions 23-27

Do the following statements agree with the information in Reading Passage 8?

In boxes 23-27 on your answer sheet write

YES if the statement agrees with the information.

NO if the statement contradicts the information.

NOT GIVEN if there is no information on this in the passage.

23 Doctors have been instrumental in improving living standards in Western society.

24 The approach to health during the 1970s included the introduction of health awareness programs.

25 The socio-ecological view of health recognises that lifestyle habits and the provision of adequate health care are critical factors governing health.

26 The principles of the Ottawa Charter are considered to be out of date in the 1990s.

27 In recent years a number of additional countries have subscribed to the Ottawa Charter.

Answer:

14. viii

15. ii

16. iv

17. ix

18. vii

19. 1946

20. (the) wealthy (members) (of) (society)

21. social, economic, environmental

22. (the) 1970s

23. NOT GIVEN

24. YES

25. NO

26. NO

27. NOT GIVEN