

## Renaissance in Europe and Development of Science

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### EXERCISE Q.1 [PAGE 9]

#### Exercise Q.1 | Q 1.1 | Page 9

Choose the correct alternative and rewrite the statement.

In 1440 \_\_\_\_\_ started the printing press.

1. James Watt
2. **Gutenberg**
3. Aristotle
4. Homer

**Solution:** In 1440 Gutenberg started the printing press.

#### Exercise Q.1 | Q 1.2 | Page 9

Choose the correct alternative and rewrite the statement.

In 1609 \_\_\_\_\_ made a modified telescope

1. John Key
2. Copernicus
3. **Galileo**
4. Kepler

**Solution:** In 1609 Galileo made a modified telescope

#### Exercise Q.1 | Q 1.3 | Page 9

Choose the correct alternative and rewrite the statement.

\_\_\_\_\_ was the first explorer to circumnavigate the African continent.

1. Henry the Navigator polo
2. Marco
3. **Bartholomew Dias**
4. Columbus

**Solution:** Bartholomew Dias was the first explorer to circumnavigate the African continent.

#### Exercise Q.1 | Q 2 | Page 9

Find the incorrect pair from group 'B', and write the corrected ones.

| Group 'A'   | Group 'B'      |
|-------------|----------------|
| 1. John Kay | Flying shuttle |

|                      |              |
|----------------------|--------------|
| 2. Samuel Crompton   | Cotton gin   |
| 3. Edmund Cartwright | Power loom   |
| 4. James Watt        | Steam engine |

**Solution: Samuel Crompton - Spinning Mule**

**EXERCISE Q.2 [PAGE 9]**

**Exercise Q.2 | Q 1 | Page 9**

**Write the name of historical place/person/event:**

Father of the empirical science - \_\_\_\_\_

**Solution:** Father of the empirical science - Galileo

**Exercise Q.2 | Q 2 | Page 9**

**Write the name of a historical place/person/event:**

A scientist who told the world that the center of our planetary system is the "Sun' and not the "Earth'- \_\_\_\_\_

**Solution:** A scientist who told the world that the center of our planetary system is the "Sun' and not the "Earth'- Nicolaus Copernicus

**Exercise Q.2 | Q 3 | Page 9**

**Write the name of historical place/person/event:**

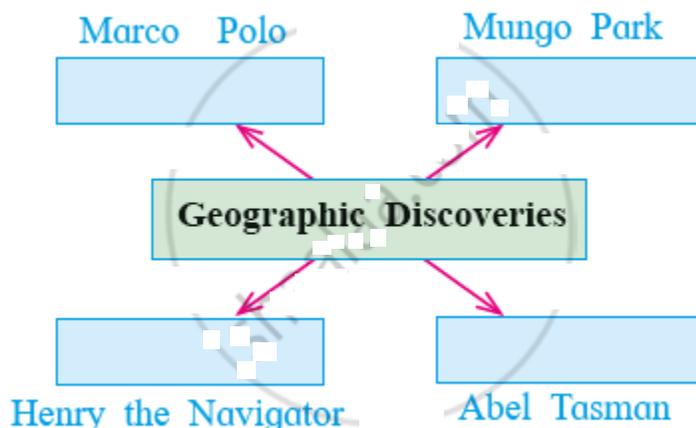
The treatise written by Varahamihira - \_\_\_\_\_

**Solution:** The treatise was written by Varahamihira - BrihatSamhita

**EXERCISE Q.3 [PAGE 9]**

**Exercise Q.3 | Q 1 | Page 9**

**Complete the concept map.**



**Solution:**

|                                 |             |
|---------------------------------|-------------|
| Marco Polo                      | Mungo park  |
| China                           | Niger       |
| ↖                               | ↗           |
| <b>Geographical Discoveries</b> |             |
| ↙                               | ↘           |
| Madeira and Azores              | New Zealand |
| Hendry the Navigator            | Abel Tasman |

### EXERCISE Q.4 [PAGE 9]

#### Exercise Q.4 | Q 1 | Page 9

#### Write short Note:

European Crusades.

#### Solution:

- (i)The two cities of Jerusalem and Bethlehem considered holy by the Jews, Christians, and Muslims were under the Islamic rule in the 11th century.
- (ii)Christians of Europe wanted to regain hold over these cities and fought several wars known as 'Crusades'.
- (iii)The common people in Europe were highly inspired to be part of such religious wars.
- (iv)When the Pope announced that the sins of those who took part in such wars would be forgiven and would immediately go to Heaven, there was spontaneous participation by the common people in the crusades.
- (v)Besides social and political circumstances, the Roman emperors were also trying to bring Syria and Asia Minor under their control.
- (vi)Moreover, the rich merchants in Genoa and Venice in Italy were looking for Central Asian markets to establish their trade.
- (vii) The first crusade started in 1096 C.E.
- (viii) A second call for the crusade was given by Pope Eugenius III who sought help from the French King Louis VII and the German King Conrad III
- (ix)The crusades were ultimately defeated by the Turks and in 1187 C.E. Saladin, the Sultan of Egypt defeated the crusades by conquering Jerusalem.
- (x)However, the crusades failed for several reasons such as the attitude of the Pope

and the European rulers common people losing faith, rift between the Pope and the European kings etc

### Exercise Q.4 | Q 2 | Page 9

**Write short Note:**

Metallurgy in Europe

**Solution:**

- (i) England had a number of iron mines.
- (ii) Therefore, it was necessary to advance the technique of smelting iron to acquire purified iron from it.
- (iii) The fuel for iron furnaces was replaced from wood to coal.
- (iv) Special machines were made to keep the furnaces at a set temperature and to maintain its aeration.
- (v) In 1865, the process of producing steel from molten iron was invented and the nature of the iron industry underwent a major transformation.
- (vi) At about the same time, a method was adopted to pour the molten metal into casts for making iron bars (for e.g. rails).

### EXERCISE Q.5 [PAGE 9]

#### Exercise Q.5 | Q 1 | Page 9

**Explain the following statement with reason.**

The European renaissance is supposed to have reached its zenith in the 15th - 16th centuries.

**Solution:**

1. The European Renaissance began in the 14th century C.E.
2. It reached its zenith in the 15th and 16th centuries.
3. These three centuries laid the foundations of a culture based on rationalism and science.
4. This age gave a new direction to human intellect genius and way of life.
5. People started writing poetry, drama, and fiction.
6. Novel experiments were conducted in the field of science.
7. In the pre-renaissance period, the thought about the existence of the universe revolved around 'God'.
8. In short, in this period new inventions, machinery, art, drama, literature, and geographical discoveries have taken place.

#### Exercise Q.5 | Q 2 | Page 9

**Explain the following statement with reason.**

The 'Industrial Revolution' first began in England.

**Solution:**

'Industrial Revolution' indicates the transition from manual production to mechanized production.

1. In England, the atmosphere was suitable for the industrial revolution.
2. Large amounts of iron ore and coal were available.
3. The humid climate of England was suitable for producing yarn.
4. These conditions proved to be favorable for the textile industry in England.
5. England had also established a large number of colonies by then so England could obtain raw material at cheap rates from these colonies.
6. England could also export the processed goods and sell it in their colonies with large profit margins using their navy.
7. The availability of cheap labor made it possible for them to maintain an optimum level of costs.
8. These factors prepared the ground for the industrial revolution in England thus giving a boost to its economy.

Because of the above reasons the Industrial Revolution first began in England.

**EXERCISE Q.6 [PAGE 9]**

**Exercise Q.6 | Q 1 | Page 9**

**State your opinion.**

The European natural scientists of the 17th century laid the foundations of modern science.

**Solution:** The scientists of the 17th century emphasized on the following things :

1. To prove that scientific principles established by empirical experiments are true despite time and space.
  2. To convert the emergent scientific rules into scientific formulae.
  3. To create new scientific parlance and so on.
- These efforts helped in the progress of science.

**Exercise Q.6 | Q 2 | Page 9**

**State your opinion.**

The economy based on surplus production supported economic nationalism and also imperialism

**Solution:**

1. Economic nationalism began the vicious circle of continuously capturing new market places, searching for sources of a cheap supply of raw material, to maintain an unbroken chain supply of raw material, to attract more and more investors, to safeguard their investments. This resulted in the limitless exploitation of the colonies.
2. Extreme nationalism, industrialization, concepts of racial superiority, aggressive colonial policies further supported the growth of imperialism.
3. The result was the immense expanse of the empires like England, France, Belgium, Germany, etc.

**EXERCISE Q.7 [PAGE 9]****Exercise Q.7 | Q 1 | Page 9****Answer the following questions in detail.**

Explain the causes and effects of European crusades.

**Solution:****1. European Crusades:**

- (i) The two cities of Jerusalem and Bethlehem considered holy by the Jews, Christians, and Muslims were under the Islamic rule in the 11th century.
- (ii) Christians of Europe wanted to regain hold over these cities and fought several wars known as 'Crusades'.
- (iii) The common people in Europe were highly inspired to be part of such religious wars.
- (iv) When the Pope announced that the sins of those who took part in such wars would be forgiven and would immediately go to Heaven, there was spontaneous participation by the common people in the crusades.
- (v) Besides social and political circumstances, the Roman emperors were also trying to bring Syria and Asia Minor under their control.
- (vi) Moreover, the rich merchants in Genoa and Venice in Italy were looking for Central Asian markets to establish their trade.
- (vii) The first crusade started in 1096 C.E.
- (viii) A second call for the crusade was given by Pope Eugenius III who sought help

from the French King Louis VII and the German King Conrad III

(ix) The crusades were ultimately defeated by the Turks and in 1187 C.E. Saladin, the Sultan of Egypt defeated the crusades by conquering Jerusalem.

(x) However, the crusades failed for several reasons such as the attitude of the Pope and the European ruler's common people losing faith, a rift between the Pope and the European kings, etc.

## 2. **The crusades had far-reaching effects:**

(i) According to some historians, the crusades led to the end of feudalism in Europe.

(ii) The faith in the Pope began to decline.

(iii) The contact with the regions in Central Asia led to increased trade and new venues were opened for cities in Italy and Germany.

(iv) It led to the rise of a new class of traders.

(v) The European warfare went through many changes for e.g. they acquired expertise in building forts, managing the forts as military outposts, building bridges, etc.

(vi) The European kings levied new taxes that were added to the royal treasury.

(vii) The Europeans were introduced to newer types of plants, fruits, perfumes, etc.

(viii) The Europeans came in contact with the Arabs and adopted many Arabic words in Alchemy, Music, and Commerce.

### **Exercise Q.7 | Q 2 | Page 9**

#### **Answer the following questions in detail.**

Give detailed information of the development of science and scientific inventions during the renaissance period.

**Solution:** The scientists of the 17th century emphasized on the following things:

1. To prove that scientific principles established by empirical experiments are true despite time and space.
2. To convert the emergent scientific rules into scientific formulae.
3. To create new scientific parlance and so on.  
These efforts helped in the progress of science.
4. Compass, the barometer, telescope, and thermometer were invented during this period.
5. Microscopes were invented to observe various types of micro-organisms.
6. Robert Boyle, an alchemist discovered that that the absolute pressure and the volume of a gas are inversely proportional.
7. The research in physics was more focused on heat and sound.
8. In zoology, a methodology is known as 'Taxonomy' was developed to classify animals.

9. Benjamin Franklin's research was on lightning and electricity. He coined many technical terms that are used in science even today.