



О. Г. Шостак, Л. М. Конопляник

# PROFESSIONAL ENGLISH

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## OF THE CONSTRUCTION INDUSTRY



МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
Національний авіаційний університет

О.Г. Шостак, Л.М. Конопляник

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# MODULE I

## BUILDING MATERIALS

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### Unit 1. Stone and Rocks

#### Active vocabulary

|  |   |
|--|---|
| 1. Adaptability [ə, dæptə'bɪlɪtɪ]              | пристосовність                                  |
| 2. Availability [ə, veɪlə'bɪlɪtɪ]              | наявність, доступність                          |
| 3. Basalt ['bæso:lt]                           | базальт   |
| 4. Brick [brɪk]                                | цеглина, цегла                                  |
| 5. Brittleness ['brɪtnɪs]                      | крихкість, ламкість                             |
| 6. Cement [sə'ment]                            | цемент  |
| 7. Chalk [tʃɔ:k]                               | крейда  |
| 8. Coarse-grained [, kɔ:s'greɪnd]              | грубозернистий                                  |
| 9. Concrete ['kɒŋkri:t]                        | бетон   |
| 10. Crushed rock [krʌʃt'rɒk]                   | щебінь  |
| Crushed stone [krʌʃt'stəʊn]                    |   |
| 11. Diorite ['daɪəraɪt]                        | діорит  |
| 12. Dolerite ['dɒləraɪt]                       | долерит, кристалічний базальт                   |
| 13. Dolomite ['dɒləmaɪt]                       | доломіт   |
| 14. Dressing ['dresɪŋ]                         | обробка, облицювання, обтісування               |
| 15. Durability [ˌdʒʊərə'bɪlɪtɪ]                | стійкість, тривалість                           |
| 16. Fire resistance ['faɪə rɪ'zɪstəns]         | вогнестійкість                                  |
| 17. Gabbro ['gæbrəʊ]                           | габро   |
| 18. Gneiss [naɪs]                              | гнейс   |
| 19. Granite ['grænaɪt]                         | граніт  |
| 20. Granular ['grænɪjələ]                      | зернистий, гранульований                        |
| 21. Gypsum ['dʒɪps(ə)m]                        | (природний) гіпс                                |
| 22. Hardness ['hɑ:dnɪs]                        | твердість                                       |
| 23. Igneous rock ['ɪɡniəs'rɒk]                 | вулканічна порода                               |
| 24. Lime [laɪm]                                | вапно   |
| 25. Limestone ['laɪmstəʊn]                     | вапняк  |
| 26. Marble ['mɑ:bl]                            | мармур  |
| 27. Metamorphic rock<br>[ˌmetə'mɔ:fɪk'rɒk]     | метаморфічна порода                             |
| 28. Mortar ['mɔ:tə]                            | будівельний розчин, вапняний розчин             |
| 29. Natural material<br>[ˌnætʃərəl mə'tɪəriəl] | природний матеріал                              |
| 30. Parapet ['pærəpɪt]                         | парапет, перила, поруччя                        |
| 31. Quarry ['kwɔ:ri]                           | видобувати ( <i>камінь із кар'єру</i> ); кар'єр |

|   |  |
|---|--|
| 32. Quarrying ['kwɔːrɪŋ]                    | видобування (каменю)                                 |
| 33. Quartz [kwɔːts]                         | кварц  |
| 34. Rock [rɒk]                              | гірська порода                                       |
| 35. Rubble ['rʌbl]                          | бут  |
| 36. Sandstone ['sændstəʊn]                  | піщаник, пісковик                                    |
| 37. Schist [ʃɪst]                           | сланець  |
| 38. Sedimentary rock<br>[,sedɪ'mentəri'rɒk] | осадова порода                                       |
| 39. Slate [sleɪt]                           | сланець  |
| 40. Steel [sti:l]                           | сталь  |
| 41. Stone [stəʊn]                           | камінь   |
| 42. Strength [streŋθ]                       | міцність, сила                                       |
| 43. Substance ['sʌbstəns]                   | речовина, субстанція                                 |
| 44. Syenite ['saɪnaɪt]                      | сієніт   |
| 45. Synthetics [sɪn'tetɪks]                 | синтетичні матеріали                                 |
| 46. Tensile strength ['tensail'streŋθ]      | межа міцності на розтяг (розрив)                     |
| 47. Timber ['tɪmbə]                         | лісоматеріал; будівельний ліс, деревина              |
| 48. Travertine ['trævətɪn]                  | травертин, вапнистий туф                             |
| 49. Tuff [tʌf]                              | (вулканічний) туф                                    |
| 50. Weathering ['weð(ə)rɪŋ]                 | вивітрювання, руйнування під впливом атмосферних дій |

### Pre-reading task

*Exercise 1. Read the information below and match the names of the materials with photographs.*

glass stone brick timber steel cement



1. \_\_\_\_\_



2. \_\_\_\_\_



3. \_\_\_\_\_



4. \_\_\_\_\_



5. \_\_\_\_\_



6. \_\_\_\_\_

Building materials can be divided into two main groups: natural and man-made. Stone and wood (timber) are natural materials, used by man since ancient times. Man-made materials include brick, cement, concrete, steel, glass, metal and more modern materials including plastic and synthetics.

## Reading

*Exercise 2. Read, translate the text and write a list of advantages and disadvantages offered by stone.*

### STONE



*Fig. 1.1. Building stone.*

The history of mankind began with the Stone Age marked by the use of tools and weapons made of stone. Before that, the difference between animals and homosapiens was largely physical. But once human beings started using stones, the world of both changed entirely.

**Stone** (Fig. 1.1) is the natural, hard substance formed from minerals and earth material which are present in rocks. **Rock** is the portion of the earth's crust without definite shape and structure. Almost all rocks have a definite chemical composition and are made up of minerals and organic matter. Some of the rock-forming minerals are quartz, dolomite, etc. The various types of rocks from which building stones are usually derived are granite, basalt, marble, slate, sandstone and limestone.

Use of stone in building construction is traditional in the places where it is produced, although even there its high cost limits its use. Stone has been used in the construction of most of the important structures since prehistoric age. Most of the forts all over the world, the Taj Mahal in India, the famous pyramids of Egypt and the Great Wall of China are only a few examples. Stone has also been extensively used in almost all the elements of building structures, as load carrying units and for enhancing the beauty and elegance of the structure. But stone has gradually lost importance with the advent of cement and steel. The major disadvantages of stone which overshadow its use are the difficulties in its quarrying or transportation and dressing which

consume a lot of time. The quarrying process is the only operation involved in the production of natural stone. The open part of the natural rock from which useful stone is obtained is known as *quarry*.

The advantages of stone are its durability and strength, hardness, resistance to fire and weathering, and its adaptability to sculptural treatment. But stone has poor tensile strength.

Use of stone as building material depends on the nature of the work, type of the structural element in which it is used and its quality, availability and transportation cost. For structural purpose granite, sandstone, limestone, marble and slate are most useful. Stones are used to erect the foundation and walls of buildings, dams, bridges, etc. Tunnels and above-water elements of bridges are built of granite, diorite, gabbro and basalt. Elements of stairs and parapets are manufactured from granite, marble, limestone, tuff, etc. Marble is used in construction industry for aesthetic purposes and strength.

Stone walls are one of the oldest construction methods known to mankind. The first stone walls were made laying up stones without any mortar. With this method stones are held together by gravity. These walls are usually larger at the base. In Ireland and north-eastern UK counties this kind of wall was made by farmers to create fences. It was quite a long and labour-intensive method, but with no costs. When cement appeared, the first mortared stone walls were created, where cement paste fills the gaps between the stones (*from “Building Materials”*).

| Advantages | Disadvantages |
|------------|---------------|
| 1.         | 1.            |
| 2.         | 2.            |
| 3.         | 3.            |
| 4.         | 4.            |
| 5.         | 5.            |

*Exercise 3. Match the terms in the box with the appropriate definition.*

|                         |                 |                   |                       |                 |
|-------------------------|-----------------|-------------------|-----------------------|-----------------|
| <i>Tensile strength</i> | <i>Dressing</i> | <i>Weathering</i> | <i>Transportation</i> | <i>Strength</i> |
| <i>Quarry</i>           | <i>Rock</i>     | <i>Durability</i> | <i>Mortar</i>         | <i>Stone</i>    |

1. \_\_\_\_\_ – a) a place where stone is dug out of the ground; b) to obtain stone from a stone pit by cutting, digging, etc.
2. \_\_\_\_\_ – hard substance that rocks are made of, often used as a building material.



3. \_\_\_\_\_ – a mixture of cement or lime or both with sand and water, used as a bond between bricks or stones or as a covering on a wall.
4. \_\_\_\_\_ – the solid mineral material forming part of the surface of the earth and other similar planets, exposed on the surface or underlying the soil.
5. \_\_\_\_\_ – the ability to withstand wear, pressure, or damage.
6. \_\_\_\_\_ – the conversion of a rough material into the one ready for use.
7. \_\_\_\_\_ – the capacity of an object or substance to withstand great force or pressure.
8. \_\_\_\_\_ – the act or process of moving people or things from one place to another.
9. \_\_\_\_\_ – the mechanical and chemical breakdown of rocks by the action of rain, snow, cold, etc.
10. \_\_\_\_\_ – a measure of the ability of a material to withstand a longitudinal stress, expressed as the greatest stress that the material can stand without breaking.

*Exercise 4. Match the words in columns A and B to make word combinations. Translate them into Ukrainian.*

| <b>A</b>       | <b>B</b>     | <b>Word combination</b> | <b>Translation</b> |
|----------------|--------------|-------------------------|--------------------|
| Stone          | paste        | _____                   | _____              |
| Chemical       | treatment    | _____                   | _____              |
| Construction   | stone        | _____                   | _____              |
| Sculptural     | mineral      | _____                   | _____              |
| Quarrying      | purpose      | _____                   | _____              |
| Natural        | construction | _____                   | _____              |
| Organic        | age          | _____                   | _____              |
| Building       | strength     | _____                   | _____              |
| Earth's        | cost         | _____                   | _____              |
| Transportation | matter       | _____                   | _____              |
| Aesthetic      | process      | _____                   | _____              |
| Cement         | industry     | _____                   | _____              |
| Rock-forming   | crust        | _____                   | _____              |
| Tensile        | composition  | _____                   | _____              |

*Exercise 5. Look for words in the text above to complete each of the groups of synonyms.*

1. Completely, utterly, fully, wholly, \_\_\_\_\_.
2. Part, \_\_\_\_\_.
3. Form, \_\_\_\_\_.
4. Different, diverse, \_\_\_\_\_.
5. To restrict, to bound, \_\_\_\_\_.
6. Widely, largely, to a great extent, \_\_\_\_\_.
7. Arrival, coming, beginning, \_\_\_\_\_.
8. Shortcoming, drawback, \_\_\_\_\_.
9. To construct, to raise, to build, \_\_\_\_\_.

*Exercise 6. A) Match the nouns 1–6 with the correct adjectives a–f.*

- |                     |                     |
|---------------------|---------------------|
| 1. Durability       | a) resistant to ... |
| 2. Strength         | b) hard             |
| 3. Hardness         | c) strong           |
| 4. Resistance to... | d) adaptable        |
| 5. Adaptability     | e) durable          |
| 6. Brittleness      | f) brittle          |

*B) Complete these sentences by choosing the correct words in bold.*

1. Modern materials such as steel, concrete and composites are now used to build bridges that are **strength/ strong** and **durability/ durable**.
2. For maximum **strength / strong** and **durability/ durable**, the stones should be fit together in an arch with no mortar because mortar before stone, reducing the lifespan of the bridges.
3. Asphalt is used in road construction because it is **strength / strong**.
4. Granite, an igneous rock formed from magnum, is **hardness / hard** and **brittleness / brittle**.
5. Because of its **hardness / hard**, granite is frequently used for buildings and monuments.
6. Granite is **resistance / resistant** to most acids, such as soft drinks and juices, as compared to marble.
7. Lightweight stone is **adaptability / adaptable** for use in yachts, elevator cabs, aviation and other locations.
8. The **strength / strong** of the material is very important.

*C) Write a paragraph about the main properties of stones using the words from exercise 6A.*

*Exercise 7. Translate the following word combinations and phrases into English. If you have any difficulties look for them in the text ( exercise 2).*

1. природна тверда речовина \_\_\_\_\_
2. без певної форми і структури \_\_\_\_\_
3. складатися з мінералів \_\_\_\_\_
4. різні типи гірських порід \_\_\_\_\_
5. обмежувати використання \_\_\_\_\_
6. фортеці у всьому світі \_\_\_\_\_
7. широко використовувати \_\_\_\_\_
8. поява цементу і сталі \_\_\_\_\_
9. залежати від характеру роботи \_\_\_\_\_
10. зводити фундамент і стіни \_\_\_\_\_
11. зроблений із граніту \_\_\_\_\_
12. без будівельного розчину \_\_\_\_\_
13. трудомісткий метод \_\_\_\_\_
14. заповнювати щілини між каменями \_\_\_\_\_

*Exercise 8. Answer the questions to the text in exercise 2.*

1. When did mankind start using stone?
2. What is stone?
3. What is rock?
4. What is the difference between stone and rock?
5. What rocks do you know from which building stones are derived?
6. How is stone used in construction?
7. Is stone the most popular building material today?
8. What limits the usage of stone as the building material?
9. What are the main properties of stone?
10. What types of stone are the most popular for structural purpose?
11. What types of stone are used for building tunnels and above-water elements of bridges?
12. What types of stone are used for the elements of stairs and parapets?
13. What is marble used for?
14. How were the first stone walls made?
15. When were the first mortared stone walls created?

*Exercise 9. Complete a dialogue with questions or answers.*

Q: \_\_\_\_\_?

A: The history of mankind began with the stone age.

Q: What is stone?

A: \_\_\_\_\_.

Q: \_\_\_\_\_?

A: Rocks include granite, basalt, marble, slate, sandstone and others.

Q: What examples of stone constructions all over the world do you know?

A: \_\_\_\_\_.

Q: \_\_\_\_\_?

A: Stone is durable, strong and resistant to fire, and weathering.

Q: Was mortar used in the first stone walls?

A: \_\_\_\_\_.

Q: \_\_\_\_\_?

A: Stone is used to make foundations, walls of buildings, dams, bridges, etc.

*Exercise 10. Read the text below and complete it with clauses a–g.*

*a) granite, basalt, diorite, dolerite and syenite are*

*b) igneous or sedimentary rocks*

*c) a result of solidification of molten mass*

*d) on the basis of geological classification,*

*e) metamorphic rocks include*

*f) are stronger and more resistant*

*g) have become pressed*

## CLASSIFICATION OF ROCKS

Natural stone materials include different rocks. \_\_\_\_\_, rocks are classified as igneous, sedimentary and metamorphic.

**Igneous rocks** are of volcanic origin and are formed as \_\_\_\_\_ that lie below or above the earth's surface. Igneous rocks are formed from liquid rock from volcanoes that becomes solid as it gets cold. The specific characteristics of this rock type is a full-crystalline and uniform granular structure. They are cracked, crushed and polished quite well. \_\_\_\_\_ examples of igneous rocks.

**Sedimentary rocks** are rocks that are formed from substances that have been left by water, wind, or ice and \_\_\_\_\_ together through time. This group includes sandstone, limestone, dolomite, gypsum, chalk and others. As compared to limestone, dolomites \_\_\_\_\_ to weathering.

**Metamorphic rocks** are formed from \_\_\_\_\_ as a result of the action of the earth movements, temperature changes, liquid pressures, etc. \_\_\_\_\_ slate, marble, gneiss and different schists, the latter being used mainly for making crushed rocks.

*Exercise 11. Place the following rocks which were mentioned in the text above into the correct spaces.*

**Limestone, Gypsum, Slate, Granite,  
Basalt, Marble, Dolomite, Chalk, Sandstone**

|   |  |  |
|---|--|--|
| _____ a dark-green or black rock formed when hot liquid rock from a volcano becomes solid   | _____ a type of dark grey stone that breaks easily into flat thin pieces   | _____ a type of soft white stone; a white sedimentary rock consisting of nearly pure calcium carbonate   |
| _____ a hard smooth metamorphic rock from the recrystallization of a limestone; it is used for building and making statues; it is white with dark lines           | _____ a type of pale yellow stone used for building, made from sand that has become hard over many years                             | _____ a type of white or grey stone containing calcium, used for building and making cement  |
| _____ a common, coarse-grained, light-colored, hard igneous rock that consists chiefly of quartz, microcline and mica, and is used in monuments and for building. | _____ a sedimentary rock; a limestone or marble rich in magnesium carbonate; it is used as an ornamental stone, a concrete aggregate | _____ a chemical sedimentary rock; a colourless or white mineral sometimes tinted by impurities, found in beds as an evaporate; it is used as an ornamental material |

**Video watching “Egypt’s Pyramids” (Video 1.1).**

*Exercise 12. A) Watch the video about Egypt's ancient pyramids (Fig. 1.2) taken from ‘National Geographic’ and answer the questions below (<https://video.nationalgeographic.com/video/destinations/egypt-pyramids-dest?source=searchvideo>). Pay attention to some words:*

1. Extraordinary [ɪk'strɔ:dn(ə)rɪ] – незвичайний
2. Sight [saɪt] – визначне місце

3. Site [saɪt] – місце
4. Giza – м. Гіза
5. Cairo ['kaɪrəʊ] – м. Каїр (Єгипет)
6. Egyptian ruler [ɪ'dʒɪp(ə)n'tu:lə] – єгипетський правитель
7. Hassle-free ['hæslfrɪ:] – легкодоступний
8. Grandeur ['grændʒə] – велич, величність, грандіозність
9. Tomb [tu:m] – гробниця
10. Temple ['temp(ə)l] – храм
11. Holy ['həʊli] – священний, святий
12. Pharaoh ['fæərəʊ] – фараон
13. The Pyramid of Khufu ['pɪrəˈmɪd əv 'ku:fu] – Піраміда Хеопса (Хуфу)
14. To reign [reɪn] – правити, царювати
15. Khafre ['kæfrɪ] – Хефрен (Хафра)
16. Menkaure [mən'kaureɪ] – Мікерін (Менкаура)
17. Necropolis [nek'rɒp(ə)lɪs] – некрополь, кладовище
18. Relief [rɪ'li:f] – рельєф (зображення)
19. To carve [kɑ:v] – вирізувати, висікати (з каменю)
20. Vantage point ['vɑ:ntɪdʒ'pɔɪnt] – вигідна позиція



Fig. 1.2. The Pyramids of Giza.

**Note:** A **site** is a specified place; a place where something is located or where something happened (e.g. a building site, an archeological site, the site of the battle, a camping site).

**Sight** has many meanings: 1) the ability to see; 2) one's field of vision; 3) something seen; 4) a place or thing worth seeing, an interesting place often visited by tourists.

Confusion sometimes occurs in sentences like this: *But Marks said he's most excited to go to New York and see the **sites** / **sights** with his friends.*

While some of the things Marks wants to see in New York may be historic sites or building sites, the correct word in this case would be *sights* – i.e., *places or things worth seeing*.

1. Where are the pyramids located?
2. How many years have the Pyramids at Giza attracted visitors?
3. What were the pyramids to the ancient Egyptians?
4. What is the height of the Great Pyramid of Khufu?
5. How many stone blocks were used for it?
6. What is the tomb of Khafre guarded by?
7. What material was used for the statue of the Great Sphinx?
8. What does the Great Sphinx look like?
9. How many pyramids were mentioned in the text? What are they?
10. What do hieroglyphs and carved reliefs depict?
11. When is it better to visit the Great Pyramid?

B) Watch the video again and fill in the gaps with the words.

Hi, I'm Patty Kim. We're <sup>1</sup> \_\_\_\_\_ Egypt, to one of the most extraordinary <sup>2</sup> \_\_\_\_\_ in the world – the <sup>3</sup> \_\_\_\_\_ at Giza just outside Cairo. Built to honor the ancient <sup>4</sup> \_\_\_\_\_, these iconic pyramids attract thousands of people every day. Now the crowds can be a little bit overwhelming, so here are a few tips to make your trip as hassle-free and as <sup>5</sup> \_\_\_\_\_ as it ought to be.

For over <sup>6</sup> \_\_\_\_\_ years the Pyramids at Giza have attracted visitors with their <sup>7</sup> \_\_\_\_\_, grandeur and <sup>8</sup> \_\_\_\_\_. Many secrets about these magnificent <sup>9</sup> \_\_\_\_\_ remain. Built to withstand eternity they seem with no hurry to reveal them. To the ancient Egyptians, the Pyramids were both <sup>10</sup> \_\_\_\_\_ and individual units within a vast <sup>11</sup> \_\_\_\_\_ network. They were holy sites tended by royal priests built to safeguard the worldly remains of the <sup>12</sup> \_\_\_\_\_ from thieves and transport them into the afterlife.

The largest, the Great Pyramid of Khufu, today stands almost <sup>13</sup> \_\_\_\_\_ feet tall. Thousands of workers labored to build the Pyramid to the Pharaoh Khufu who <sup>14</sup> \_\_\_\_\_ about 2500 B.C. Over two million <sup>15</sup> \_\_\_\_\_ were used, each averaging about two and a half tons. Despite its size experts believe it took perhaps only twenty years to complete.

The middle pyramid, the tomb of the Pharaoh Khafre, is guarded by the Great Sphinx which stands near the pyramid's causeway. Carved out of a single block of <sup>16</sup> \_\_\_\_\_ the two hundred and forty foot long statue combines the body of a <sup>17</sup> \_\_\_\_\_ and the head of a <sup>18</sup> \_\_\_\_\_, most likely the face of the Pharaoh Khafre himself.

The last of the three Great Pyramids is the tomb of Pharaoh Menkaure.

Many other tombs and temples are packed into this massive necropolis which is still a working <sup>19</sup> \_\_\_\_\_. Here scientists continue to make new discoveries that add to our knowledge of the Ancient Egypt. Many tombs are open for the public to view with hieroglyphs and <sup>20</sup> \_\_\_\_\_ depicting ancient Egyptian life.

If you're willing to make steep <sup>21</sup> \_\_\_\_\_ and navigate tight corners you can even explore the passageways of the Great Pyramid. Tickets to venturing site are limited to 300 people <sup>22</sup> \_\_\_\_\_. So show up earlier if you want the grand tour. The site itself is just outside of Cairo and is easily accessible by taxi or bus. To avoid the crowds





arrive in the early morning or early evening. Staying late also has its <sup>23</sup> \_\_\_\_\_. Find a good <sup>24</sup> \_\_\_\_\_ and you can watch the sun set over the pyramids. It's a sight that's been inspiring visitors for over 4000 years.

*Exercise 13. Almost all of the most famous buildings throughout the world are constructed or decorated with natural stones of some sort. It has long been a tradition to use rock in its many forms to build structures for a variety of uses. Coliseums, museums, grand castles, and many other structures were made using stone.*

*A) Some examples of the most beautiful stone constructions of the world are given below. First of all, match their names with the photographs and then with the texts below.*

**The U.S. Capitol** ['kæpɪt(ə)l]  
**The Colosseum** [ˌkɒlə'siːəm]

**The Taj Mahal** [ˌtɑːdʒmə'hɑːl]  
**The Landwasser Viaduct** ['vɪədʌkt]

|   |   |
|---|---|
| <p>1. _____</p>    | <p>2. _____</p>    |
| <p>3. _____</p>  | <p>4. _____</p>  |

A) \_\_\_\_\_

It is an incredibly impressive construction in Rome, Italy, which was opened in 80 A.D. during the reign of Titus. It's a vast amphitheatre and



big crowds used to go there to watch gladiators and fights between wild animals. It is made of stone and concrete, and although it was damaged by earthquakes in the 15<sup>th</sup> century, the main structure has survived for almost 2,000 years. It is an entirely free standing structure and its exterior was built using travertine.

B) \_\_\_\_\_

The building is among the most symbolically important and architecturally impressive buildings. It is a meeting place of the United States Congress, but it also houses an important collection of American art, and it is an architectural achievement in its own right. Its construction began in 1793 and was not completed until 1868 due to many problems. The exterior of this building as well as the interior floors, walls, columns and other elements were made from sandstone that was quarried from Aquia, Virginia. Because sandstone is a soft material, the exterior eventually wore down and most was either covered over or replaced with harder stone; but the interior features remain visible. In the 18<sup>th</sup> century, when some extensions of the building were constructed, marble took the place of sandstone. During the 1980s, 40 percent of the sandstone were replaced with limestone. Today it is a working office building as well as a tourist attraction visited by millions every year.

C) \_\_\_\_\_

It is a beautiful building that is found in Agra, India which was completed in 1648. Shah Jahan had it built as a mausoleum (a tomb) for his beloved wife Arjumand Banu who died in 1630. When her remains were moved here, she became known as Mumtaz Mahal.

This construction is a stunning representation of architectural design that combines Persian, Turkish, Islamic, and Indian styles for its interior and exterior design. It is a large complex that also includes a gateway, a garden, a mosque, and a guest house. The mausoleum is made entirely of white marble, inlaid with precious and semi-precious gems. The mosque and the guest house on either side of it were built from red sandstone. Marble elements can be found in various places on the interior of the mausoleum as well as in the gardens that surround the mausoleum.

D) \_\_\_\_\_

This stone arch bridge is located in Switzerland. It was built in 1902 as part of a railway track through the mountains. It has six high arches

which carry the train over a river. This bridge was built using revolutionary new methods. The construction of its main pillars in 1902 was considered a huge architectural feat, as this took place without scaffolding\* and solely two cranes. The wall of this construction is of natural dolomite lime. It is 142 meters long and at 65 meters high and it extends over the valley and inside a tunnel, the entrance of which is on a vertical rock wall.

\* Scaffolding ['skæfɪldɪŋ] – (будівельні) риштування (*Scaffolding is a temporary structure for holding workers and materials during the erection, repair, or decoration of a building or other constructions*).

*B) Read the following statements. Are they true or false?*

### **The U.S. Capitol**

1. was completed in the 19<sup>th</sup> century.
2. interior floors and walls which were made from sandstone.
3. doesn't have any elements built from limestone.
4. exterior which was made from sandstone needed replacing with harder stone

### **The Colosseum**

1. was a place where people watched fights.
2. was built in the 15<sup>th</sup> century.
3. is older than the other three structures.
4. is made of stone and concrete.
5. exterior was built from limestone.

### **The Taj Mahal**

1. combines different styles of design.
2. was built using sandstone and marble.
3. has marble elements only in interior.
4. was built in the 17<sup>th</sup> century.
5. has a mosque made of white marble.

### **The Landwasser Viaduct**

1. is a long, high bridge that carries a railway across a valley.
2. was built in the 19<sup>th</sup> century.
3. has six arches.
4. is located in Sweden.
5. has the wall made of natural dolomite lime.

## Grammar. Present Simple/ Present Continuous.

Exercise 14. Complete these conversations with the correct form of the verbs in brackets.

### Conversation 1

A: Hi, George. Good to see you.

B: Same to you, Tom.

A: So, why \_\_\_\_\_ (you/ to visit) the site? You normally \_\_\_\_\_ (to stay) in your office.

B: Well, I \_\_\_\_\_ (to look) for Andrew. I \_\_\_\_\_ (to have) a report for him.

A: I see. I \_\_\_\_\_ (to think) Andrew \_\_\_\_\_ (to have) his lunch at the moment.

B: Ah, OK. Do you know where \_\_\_\_\_ (he/ to be)?

A: He \_\_\_\_\_ (to train) some new builders today. They \_\_\_\_\_ (to work) with scaffolding in Building 4.

B: OK, thanks.

A: You're welcome.

### Conversation 2

A: Hi! Can I help you?

B: Yes, I \_\_\_\_\_ (to look) for Christina Goddard. She's an electrician.

A: Yes, I \_\_\_\_\_ (to know) Christina. Today she \_\_\_\_\_ (to work) in that building over there. She \_\_\_\_\_ (to install) a lighting system on the ground floor.

B: Thanks.

A: Just a moment. Isn't that her over there? In the blue jacket? She \_\_\_\_\_ (to carry) a box or something.

B: No, I \_\_\_\_\_ (not/ to see) her.

A: She \_\_\_\_\_ (to walk) past the blue portable cabin.

B: Yes, I \_\_\_\_\_ (to think) you're right. Thanks.

A: Don't mention it.

Exercise 15. In the text below Martin is giving information about people's roles on a construction site and shows some people working on site. Choose the correct verb forms to complete this text.

' ... So, we *have / are having* around 100 people on site every day. Today, most people *work/are working* on the basic structure of the building. The people in green jackets over there are concrete finishers from DKI Cement, the cement supplier. On this project, they *supervise /*

*are supervising* the unskilled labourers, who are all local people. Of course, there are always a lot of heavy equipment operators. They *handle / are handling* the cranes, the cement mixers, and so on. The drivers *bring / are bringing* in fresh loads of cement several times a day. Over there, painters *paint/are painting* the staircase, and the electricians *repair/are repairing* one of the generators.'

*Exercise 16. Complete this conversation using the present continuous or present simple (with the future meaning) of the verbs in brackets.*

A: Hi. What \_\_\_\_\_ (you / to do) tomorrow?  
\_\_\_\_\_ (you/to meet) the clients?

B: Yes, that's right. They \_\_\_\_\_ (to come) around nine o'clock because their airplane \_\_\_\_\_ (to arrive) at 8.30. I \_\_\_\_\_ (to give) a presentation first and then I \_\_\_\_\_ (to take) them to the site.

A: How \_\_\_\_\_ (you/to get) there? By car?

B: I usually \_\_\_\_\_ (to go) by car, but this time I \_\_\_\_\_ (to use) the minibus as there are seven people in the group.

A: What \_\_\_\_\_ (you/to plan) to show them? The foundations?

B: Yes. And then we \_\_\_\_\_ (to go) over to the storage area to look at the glass panels.

A: Where \_\_\_\_\_ (you/to have) lunch? I might join you.

B: In the Italian restaurant opposite the construction site.

*Exercise 17. Put the verbs in brackets into the correct form.*

1. Use of stone \_\_\_\_\_ (to depend) on the nature of the work, type of the structural element and its quality, availability and transportation cost.
2. They \_\_\_\_\_ (to transport) stone to the construction site at the moment.
3. The simplest and cheapest stonework \_\_\_\_\_ (to be) rubble.
4. Many stones \_\_\_\_\_ (to be) strong enough to provide monolithic supports.
5. The weight of stone usually \_\_\_\_\_ (to create) problems stability when loads push at an angle.
6. They \_\_\_\_\_ (to build) a unique stone bridge now.
7. The engineers \_\_\_\_\_ (to work) on the design at the moment.
8. Stone \_\_\_\_\_ (to be) strong and durable but it \_\_\_\_\_ (not/ to have) high tensile strength.
9. Natural stone \_\_\_\_\_ (to include) different rocks.
10. Look! They \_\_\_\_\_ (to pour) the mortar at the moment.
11. The cement \_\_\_\_\_ (to arrive) three times a day.

## Writing

*Exercise 18. Translate the sentences into English using active vocabulary.*

1. Природний камінь є одним з найпопулярніших будівельних і обробних матеріалів. 2. З давніх часів природний камінь застосовували для спорудження прекрасних палаців і храмів, для створення скульптур і статуй, для виготовлення підвіконь, підлоги і інших елементів інтер'єру. 3. У сучасному світі природний камінь практично не використовують як основний будівельний матеріал, він служить як обробний або декоративний матеріал. 4. Природний камінь служить прекрасним матеріалом для виготовлення різних декоративних сходів, підлоги, облицювання тощо. 5. Існує дуже велика різноманітність природного каменю: мармур, травертин, доломіт, вапняк, туф, граніт і інші. 6. Граніт відмінно переносить постійні зміни вологості і температури та істотно не змінює своїх розмірів. 7. Багато храмів і палаців збереглись тому, що вони були збудовані з міцного природного каменю. 8. Граніт часто використовується для облицювання великих будівель. 9. Велика китайська стіна – це найбільша споруда на Землі, збудована з різних матеріалів: цегли, граніту і різних місцевих пород.

## Speaking and writing

*Exercise 19. Prepare a short report about one of the stones (rocks) and tell your classmates about it. Listen to other students' reports and complete the table below.*

| Stone/ rock | Description | Properties | Use |
|-------------|-------------|------------|-----|
| 1.          |             |            |     |
| 2.          |             |            |     |
| 3.          |             |            |     |
| 4.          |             |            |     |
| 5.          |             |            |     |
| 6.          |             |            |     |