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*Student**Class***Section 1 – Natural and Human-made Structures****1.1 Classifying Structural Forms**

1. A student who was studying for a rest remembered the different models the teacher used in class to identify the different kinds of structures. When the teacher made a tent-like position with the hands, the student remembered it represented a ...
  - A. **mass**
  - B. **shell**
  - C. **frame**
  - D. **solid**
  
2. Piling materials into a particular shape, or design makes a solid structure. The following are examples of natural solid structures ...
  - A. **dams and mountains**
  - B. **brick walls and coral reefs**
  - C. **ice sculptures and sand castles**
  - D. **mountains and coral reefs**
  
3. A frame structure like your skeleton is made of very strong materials so they can support the ...
  - A. **ligaments**
  - B. **cartilage**
  - C. **joints**
  - D. **organs**
  
4. Egg cartons, food cans, bottles and pipes are examples of ...
  - A. **manufactured shell structures**
  - B. **natural shell structures**
  - C. **manufactured frame structures**
  - D. **natural frame structures**
  
5. Spider webs are examples of structures that can hold up to 4000 times the weight of the spider that made it. The spider web is a ...
  - A. **solid frame structure**
  - B. **solid shell structure**
  - C. **natural shell structure**
  - D. **natural frame structure**
  
6. All of the following structures can be classified as manufactured, EXCEPT a ...
  - A. **jigsaw puzzle**
  - B. **spoon**
  - C. **feather**
  - D. **fishing net**
  
7. How a structure is put together, how it is shaped and the types of materials that are used to build it are all part of the structure's ...
  - A. **design**
  - B. **function**
  - C. **classification**
  - D. **stability**

## 1.2 The Function of Structures

1. Containing, sheltering, transporting, lifting ... are all words to describe a structure's ...
- A. **design**
  - B. **stability**
  - C. **function**
  - D. **aesthetics**

2.



*Inukshuit* is a unique symbol of Inuit culture, always pointing the way home. To anyone who encounters these manufactured structures (which come in many different forms and shapes) the greeting they convey is one of joy and happiness. Their purpose is to ...

- A. **show danger**
- B. **guide travelers**
- C. **reward hunters**
- D. **identify hazards**

3.



The 5 glass-pyramids of the **Muttart Conservatory** in Edmonton house different types of plant cultures, including; tropical, arid and temperate. It is more than just a garden though, because it hosts many of Edmonton's premier floral shows, educational programs for school children, horticultural courses for adults and continues as a very popular site for weddings, banquets and business functions.

Because these structures are used for a variety of reasons, they have multiple

- A. **designs**
  - B. **functions**
  - C. **shapes**
  - D. **forms**
4. Roof types are designed for cover and also to serve a useful purpose in the environment in which they can be found. A very steep roof design in a mountainous area is designed to prevent ...
- A. **heavy rains**
  - B. **snow build-up**
  - C. **climbing animals**
  - D. **wind damage**
5. Canadian inventor, Norman Bireakey, made a revolutionary invention in 1940. The paint roller served a very important function, which was to paint a large area ...
- A. **faster and easier**
  - B. **with less skill required**
  - C. **with better quality paint**
  - D. **in a more expensive way**
6. Michael Kelly, a Prairie rancher invented barbed wire to keep his livestock from wandering off. His idea came from a natural structure, a ...
- A. **cactus**
  - B. **tumbleweed**
  - C. **prickly pear**
  - D. **thorny bush**

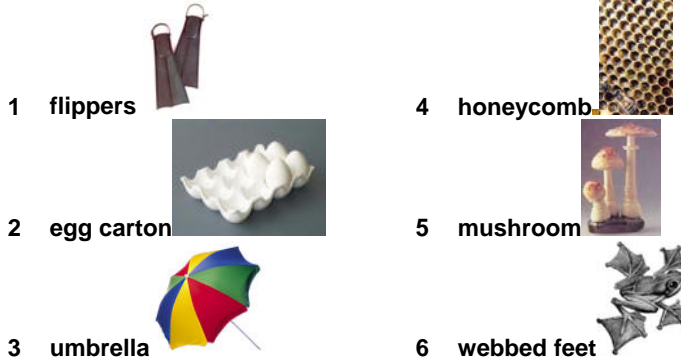
7. When choosing the most suitable materials to build a structure, architects, engineers and designers should consider all of the following before making their final choice ...
- A. **cost, appearance, environmental impact, energy efficiency**
  - B. **cost, color, life expectancy, impact strength**
  - C. **environmental appearance, type of symmetry, type of joints needed, cost effectiveness**
  - D. **flexibility, impact strength, energy efficiency, color**

8. Some structures share the same function, although their appearance may be quite different. Each of the following roofs is used to provide a covering for a building.



Which roof type – called a gambrel roof - is commonly seen on a farm?

- A. 1
  - B. 2
  - C. 3
  - D. 4
9. Each manufactured structure can be paired with a natural structure it is based on.



Only one of the pairings below is correct. Which one is it?

- A. 6 - 1
  - B. 3 - 6
  - C. 6 - 5
  - D. 2 - 6
10. One important criteria of good design - that is usually not written down in the specifications - is that the structure ...
- A. **has a margin of safety**
  - B. **is esthetically pleasing**
  - C. **is cost effective**
  - D. **has a solid foundation**

## 1.3 Human-Built Structures Around The World

1. **Stonehenge** is an ancient monument, located in England. It was built more than ...



- A. 30 years ago
- B. 300 years ago
- C. 3000 years ago
- D. 30,000 years ago

2. Sun-baked '**Adobe**' brick houses are usually found in countries where the climate is ...



- A. Wet and cool
- B. Hot and dry
- C. Temperate
- D. Damp and cold

3. The **Taj Mahal** in India is a ...



- A. tomb
- B. temple
- C. mosque
- D. castle

4. **Sod houses** were common on the prairies and were used by ...



- A. engineers
- B. settlers
- C. businessmen
- D. contractors

5. **Current or Classical?** The sailing vessel illustrated here was used as a pirate ship. It's big advantage was that it could ...



- A. hide easily
- B. sail fast
- C. sail with no wind
- D. not be sunk

6. Both of these structures are houses for people in very specific environments. One advantage of structures such as these is that they ...



Igloo



tent

- A. are portable
- B. protect from the cold nights
- C. keep out animals
- D. are fireproof

7. When a structure is built to withstand loads - more than it normally would carry - the structure is built with a larger ...

- A. foundation
- B. symmetrical base
- C. set of pilings
- D. margin of safety