MEETING 4

QUANTUM COMPUTER

A. THE GOAL OF THE MATERIAL

The purpose of this subject ; students will understand adjective phrases in sentences, able to identify adjective phrase in an article, understand text about Quantum computer, able to write sentences by using adjective phrase

B. DESCRIPTION OF ADJECTIVE PRHASE

Adjective

Adjective is one of the parts of speech, so it is very useful in spoken and written English. An adjective describes a pronoun or noun. It usually comes before a noun (also known as headword)or after the verb be.

- The new computer is **incredible**
- This is **interesting** programming language

Recognizing Adjectives

a. A word that modifies a noun or pronoun is called adjective. An Adjective answers what kind, how many, how much, whose or which one.
   - **Cheerful** giver (what kind)
   - **Six** point (how many)
   - **Those** computers (which one)
   - **Abundant** grace (how much)
   - **Nandha's** flashdisk (whose)

b. Example of proper adjective

Proper nouns	Proper adjective
Korea	Korean drama
Hawai	Hawaian pineaple
Rome	Roman soldiers
Indonesia	Indonesian food
America	American singers
India	Indian programmer

c. Example of adjective that come after modified words.
   - Peter was **impetuous** (predicate adjective)

- Denny, **skilled** and **cautious,** is an excellent driver. (appositive adjective)

d. Several adjectives may modify the same word.
   - The **long**, **slow** download will be **boring**.

e. The words a, an, and the are the most frequently used adjectives. They are called articles.

   The indefinite article a and an refer to someone or something as merely one among others of the same class. Use a before words that begin with a consonant sound: a cmputer, a laptop, a flasdisk. Use an before words that begins with a vowel sound: an elephant, an ox, an hour, a unicycle.

   Note: in the third example above, a is used before a vowel (a unicycle) because the word unicycle begins with a consonant sound (yoo); and an is used before a consonant (an hour) because the word hour begins with a vowel sound. Remember that it is the beginning sound ofthe noun that determines which article to use.

   The definite article “the” refers specifically in someone or something as distinguished from others of the same class.
   - The tree in that park is over two hundred years old.

f. The following kind of words which may normally be called nouns or pronouns can function as adjectives.

   Nouns: Jose’s computer, **Lydia’s** laptop

   Possessive pronoun: my, your, her, his, our, yheir

   Demonstrative pronouns: this, that, these, those

   Interrogative pronouns: who, which, what, whose, when,

   Indifinite pronouns: each, other, neither, one, some, any, all, most, few, several, many, somebody, anybody, everybody, nobody, some one, any one, every one, no one,

   Relative pronouns: who, whom, what, whose, which,

g. Adjectives have only one form, which is used with both singular and plural nouns.
   - Franclin was a brave scientist.

h. You cannot tell what part of speech a word is until you determine its function in a sentence.

- Angela fixed her **laptop** (noun)
- Angela's **laptop** is new. (adjective)
- We saw several **praire** dogs (adjective)
- Your laptop is bigger than **his** (Pronoun)
- **His** laptop is smaller than yours (adjective)
- **That** is an interesting program (pronoun)
- **That** program is interesting (adjective)
- **What** happened to the computer? (pronoun)
- **Some** of the flashdisks are missing (pronoun)
- **Some** people know how to operate computer (adjective)
- The laptop **which** you see was given to us (pronoun)

How to identify adjective phrase in the sentences

Adjectives, as everyone learned in grammar, is describing noun. When we find an adjective, we have found an adjective phrase. Knowing where adjective phrases appear can help us pinpoint the entire phrase.

1. Knowing about adjective phrase forms.

Each adjective phrase includes only one adjective, but English has several possible forms for adjective phrases. They can be as short as a single adjective, such as "blue." They can combine one or more adverbs with an adjective as in "quite ill" and "very carefully painted." They can combine an adjective with a prepositional phrase such as "unhappy about the game," and finally, they can consist of an adjective governing a verb phrase as in "pleased to meet you."

2. Noun Modifiers

An adjective phrase functions as a noun modifier when it comes before the noun that it describes. "blackhorse" is a simple example with the adjective phrase "black" modifying the noun "horse." When more complex adjective phrases act as noun modifiers, they are hyphenated. For instance::

- Alisa is purchasing **nice black** laptop. (modifies laptop)
- The car with black color is hers (modifies the car)
- He gave me a flashdisk **full of virus**. (modifies flashdisk)

These are some example of adjective phrases:

- The new computer is **incredibly powerful**
- The laptop is **extremely expensive**
- Language programming is **very interesting**
- ***A programmer smarter*** than him needs to help him with this programming language.
- Operating a computer is not ***difficult enough***.
- The latest printer is ***very sophisticated and extremely expensive.***
- She is ***extremely delighted*** when she got her first computer **.**
- The printer is **quite good**, it can print the character well

C. EXERCISES

1. Structure

1.1 Use the word given to complete each sentence, putting the adjectives in the correct order to form adjective phrase

1) There was a ..... flasdisk on the desk (new, white, cute)
2) The programmer was wearing ..... (blue, silk, expensive)
3) There is a .....computer (black, Chinese, old)
4) We found a ..... box in the room. (old, large, wooden)
5) An ..... girl sang some songs at the concert. (tall, Indonesian, attractive).
6) We spoke to a ..... programmer (young, Javanese, friendly)
7) We bought a ..... table to put a printer. (round, wooden, big)
8) There are many ..... antiques in Indonesia. (old, Dutch, valuable)
9) An ..... man opened the computer room for us.. (old, unusual, short)
10) The ..... building over there is our lovely campus. (attractive, new, tall)

1.2 Underline the adjective phrase in the sentences below!

1) My friend says that the cost of a good computer is way too high.
2) The new Apple laptop is very expensive but cool .
3) This Vios laptop has light and thin chase and looks elegant .
4) The new released vios laptop is incredibly mesmerizing to the IT students.
5) The highly performance processor makes wonderful performance to the computer.
6) Your web design looks very attractive.
7) The extremely tired student fell asleep during the English class.
8) The enthusiastic students arrived at the class an hour earlier.
9) This logical language programming is getting more and more challenging.
10) I really want this processor upgrade to be faster.
11) A computer with no screen is being kept in the warehouse.
12) She gives me an old laptop that she didn't need it anymore.
13) The technician repaired a computer full of virus in the laboratory.
14) The digital camera sold to the foreigner is very expensive.
15) I want the black and white notebook, not the old blue one.
16) She drives a nice red luxurious sport car.
17) They live in that white painted house on the corner of the street.

1.3 Complete the sentences {1) -- 8)} below with adjective phrases {a-h} in the list!

a. Very powerful,	**g. small amount of**
b. made of gold	**h. in massive**
c. Very high	**j. in incredible**
d. with red	**k. some**
e. too expensive	**l. Strong enough**
f. very small	

1) Have you ever used computer _____ capacity?
2) All processor in computer specially the pins on an AMD Athlon 64 x2_____ gold.
3) I bought laptop _____ casing.
4) A quantum computer stores information_____ number.
5) A processor or processing unit is an electronic circuit which performs operations on _____data source.
6) hat man is strong enough _____ he can remove the machine
7) Quantum computers can be built _____quantity .
8) Quantum computers is _____ computer in the future.
9) Conventional computers store relatively_____ information
10) The computer is _____ for me to purchase
11) The character is very small, that we can't read them.

2. Speaking

2.1 Pair work; practice the conversation with your partner below!

Bob	Does a quantum computer really exist?
Jack	Yes it does, but it is still infancy, it is still long away process to be used.
Bob	What do you think quantum computers can do?
Jack	they can perform almost unlimited mathematic calculation. They will help scientist to solve difficult math calculation in very short time.
Bob	No wonder they take time to make quantum computer become real. But how powerful is quantum computer?
Jack	The comparison between conventional computer and quantum computer, 300 trillion years versus 10 seconds!
Bob	That is amazing! And how much will be the cost?
Jack	Well the Wikipedia says it is approximately USA$10.000.000!
Bob	Wow I am speechless! Is a quantum computer good for gaming?
Jack	Yes computer game in the future will be much more interesting, the gamer will play with hyper-realistic character.
Bob	What does hyper- realistic mean?
Jack	It means the character in the game like a real person.
Bob	Will the quantum computer change the world?
Jack	Yes every new invention bring effect to human life . Just like these days, android phone has change our life style.

2.2 Pair work; make questions and answers with your partner.

1) Find your partner
2) Please look at the reading text about Quantum computer
3) Design your own dialog about quantum computer
4) The dialog should at least contain 10 pairs of questions and answers.
5) The sentences in your dialog must contain the terms of quantum computer
6) Memorize your dialogs and present them in front of the class

3. Reading

3.1 Read loud the article below and record your voice by using sound recording in your phone!

3.2 underline the adjective phrase:

Quantum computer

https://www.cloudtp.com/doppler/a-closer-look-at-quantum-computing-and-quantum-cryptography/

A quantum computer is any device for computation that makes direct use of **distinctively** quantum mechanical phenomena, such as **superposition** and entanglement, to perform operations on data. In a classical (or conventional) computer, information is stored as bits; in a quantum computer, it is stored as qubits (quantum bits). The basic principle of quantum computation is that the quantum properties can be used to **represent** and

structure data, and that quantum mechanisms can be devised and built to perform operations with this data.

Although quantum computing is still in its **infancy**, experiments have been **carried out** in which quantum computational operations were executed on a very small number of qubits. Research in both theoretical and practical areas continues at a **frantic pace**, and many national government and military funding agencies support quantum computing research to develop quantum computers for both civilian and national security purposes, such as cryptanalysis. If large-scale quantum computers can be built, they will be able to solve certain problems exponentially faster than any of our current classical computers (for example Shor's algorithm). Quantum computers are different from other computers such as DNA computers and traditional computers based on transistors.

Some computing architectures such as optical computers may use classical superposition of electromagnetic waves, but without some specifically quantum mechanical **resources** such as **entanglement**, they have less potential for computational **speed-up** than quantum computers. The power of quantum computers Integer **factorization** is believed to be computationally **infeasible** with an ordinary computer for large integers that are the product of only a few prime numbers (e.g., products of two 300-digit primes). By comparison, a quantum computer could solve this problem more efficiently than a classical computer using Shor's algorithm to find its factors. This ability would allow a quantum computer to "break" many of the cryptographic systems in use today, in the sense that there would be a **polynomial** time (in the number of bits of the integer) algorithm for solving the problem.

In **particular**, most of the popular public key ciphers are based on the difficulty of factoring integers, including forms of RSA (Rivest–Shamir–Adleman). These are used to protect secure Web pages, encrypted email, and many other types of data. Breaking these would have significant **ramifications** for electronic privacy and security. The only way to increase the security of an algorithm like RSA would be to **increase** the key size and hope that an **adversary** does not have the resources to build and use a powerful enough quantum computer. It seems **plausible** that it will always be possible to build classical computers that have more bits than the number of qubits in the largest quantum computer.

(Adopted from https://www.sciencedaily.com/terms/quantum_computer.htm)

3.3 Read the article and answer the questions below:

1) What is a quantum computer?
2) How does information store in quantum computer?
3) What is basic principle of quantum computation?
4) Who are funding agencies support quantum computing?
5) What problem can be solve by quantum computer?
6) how powerful is the quantum computer integer?
7) How does quantum computer change the system of cryptographic that is used now days?
8) What are factoring integers, including forms of RSA (RivestShamir Adleman) Function?
9) How does a classical computers be improved into quantum computer?

3.4 Match the term and statement

a. basic principle of quantum computation,
b. quantum mechanisms,
c. qubits,
d. computing architectures,
e. conventional computer
f. a polynomial time,

1) Computer that keep information in bits.
2) It is called quantum bits
3) The quantum properties could be utilized to reflect and frame data.
4) Could be contrived and set up to do operation with structure data
5) classical **superposition** of electromagnetic waves.
6) The form of amount of bits of the integer.

3.5 Identify it the statement below is correct or incorrect!

1) Conventional computers stores information in qubits.
2) Quantum computing is still in the development.
3) quantum computer have reached maximum achievement in both theoretical and practical.
4) Quantum computer will extremely faster than classical computer in solving any today's problem
5) Quantum computers are the same from other computers.
6) Quantum computer could have less potential to accelerate performance than conventional computer.

3.6 Find the synonyms (words having similar meaning) of the following words in the reading text above!

1) tool .....
2) typical .....
3) base .....
4) can .....
5) in particular .....
6) average .....
7) kinds .....
8) usage .....
9) keep .....
10) huge .....

3.7 Look at the reading text above again and find out what the bold words refer to.

1) **it** is stored as qubits (l. 4) .....
2) **they** would be possible to overcome problem (l. 13) .....
3) **they** have less potential (l. 19) .....
4) **this** problem more efficiently (l..23) .....
5) to **its** factors (l. 25) .....
6) **This** ability would allow (l.25) .....
7) **These** are used to protect (l. 32) .....

8) Breaking **these** would have (l. 34) .....
9) **It** seems plausible (l. 37) .....
10) **it** will always be possible to build (l.37) .....

4. Writing

4.1 Construct the words into adjective phrase below!

For instance:

camera/ 12 megapixel/ an / expensive

An expensive 12 megapixel camera

1. interesting/ an/design / classic

   ---

2. challenging/ application / new

   ---

3. capacity /high/computer/ expensive

   ---

4. application / modern/ phone

   ---

5. Sony / new / music player / portable

4.2 Make sentence by using adjective like the example above!

For instance:

The photographer has an expensive 12 megapixel camera.

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....
7. .....
8. .....
9. .....
10. .....

4.3 Find the anthonyms of the words below in the reading text above.

1. indirect .....
2. many .....
3. slower .....
4. same .....
5. more .....
6. narrow .....
7. lose .....
8. forbit .....

5. Listening

5.1 Listen Sultan Issa Hampton talking about what Quantum Computing is Mark T for true statement and F for false statement!

T : F 1) Quantum physics is applied to cultivate information in in quantum computing.

T : F 2) Quantum computing doesn't have probability to solve some world most difficult problem

T : F 3) quantum computing work in terabit

T : F 4) Quantum bit is able to process two binaries at the same time

T : F 5) superposition state is value that can hold value 0 and 1.

T : F 6) qubits act coherently which mean it can process only single options simultaneously.

T : F 7) A quantum computer has potential to solve the most difficult world's problem in hours or days.

6. key words

6.1 Find the synonym of the terms below and translate them

English	**Synonym**	**Indonesia**
Adversary	_____	_____
carried out,	_____	_____
Distinctively,	_____	_____
entanglement,	_____	_____
factorization,	_____	_____
frantic pace,	_____	_____
increase,	_____	_____
infancy,	_____	_____
Large scale,	_____	_____
particular,	_____	_____
plausible	_____	_____
polynomial,	_____	_____
ramifications,	_____	_____
represent,	_____	_____
resources,	_____	_____
resources,	_____	_____
superposition	_____	_____

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