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**Epreuve du 1<sup>er</sup> Groupe****ANGLAIS**

## Global Positioning System

Over fifty GPS satellites such as NAVSTAR have been launched since 1978.

The Global Positioning System, usually called GPS (the military refer to it as NAVSTAR GPS -Navigation Signal Timing and Ranging Global Positioning System), is the only currently operational satellite navigation system.

5 Satellite Navigation Systems can be used for determining one's precise location and providing a highly accurate time reference almost anywhere on Earth or in Earth orbit. The accuracy of the GPS signal itself is about 5 meters (16 ft) as of 2005 and has steadily improved over the last 15 years. Using differential GPS and other error-correcting techniques, the accuracy can be improved to about 1 cm (4 in) over short distances.

10 The GPS system was designed by and is controlled by the United States Department of Defence and can be used by anyone, free of charge. The GPS system is divided into three segments : space, control and user. The space segment comprises the GPS satellite constellation of at least 24 satellites in an intermediate circular orbit (ICO). The control segment comprises ground stations around the world that are responsible for monitoring the  
15 flight paths of the GPS satellites, synchronizing the satellites' onboard atomic clocks, and uploading data for transmission by the satellites. The user segment consists of GPS receivers used for both military and civilian applications. A GPS receiver decodes time signal transmissions from multiple satellites and calculates its position by trilateration.

20 Daily management of the GPS satellite constellation is conducted by the 2nd Space Operations Squadron at Schriever Air Force Base. The cost of maintaining the system is approximately US \$ 400 million per year, including the replacement of aging satellites. The first GPS satellite was launched in February 1978, and the most recent launch was in September 2005. The oldest GPS satellite still in operation was launched in February 1989.

**I- COMPREHENSION : (09 pts)**

**A- Say whether the following sentences are True or False. Justify your answer by quoting the text (03 pts )**

- 1. According to the text, nobody can use the GPS system without paying.
- 2. Over fifty GPS satellites were launched in 1978.
- 3. The accuracy of the GPS signal has been the same over the last 15 years.

**B- Say which information these elements refer to in the text (02,5 pts)**

- 4. 16 ft.
- 5. 1 cm
- 6. 1978.
- 7. 24
- 8. \$ 400 million per year.

**C- Information transfer : Read the text and complete the chart (01,5 pt)**

The GPS System			
Designer	Potential user	Cost of use	Segments
9- .....	10- .....	11- .....	12- .....
			13- .....
			14- .....

**D- Choose the right answer. (02 points)**

- 15.**Currently (l.3) means :
- a)- Correctly
  - b)- At present.
  - c)- commonly
- 16.**Accuracy (l.7) means
- a)- solidity
  - b)- simplicity
  - c)- precision
- 17.**Uploading (l.16) means :
- a)- receiving
  - b)- processing
  - c)- sending
- 18.**Charge (l.11) means :
- a)- load
  - b)- fee
  - c)- attack

**II- LINGUISTIC COMPETENCE (06 pts)**

**E- Rewrite the sentences without changing the meaning (03 pts)**

- 19. My friend likes technology but I don't.  
Unlike .....
- 20. Why don't you show him how to use this GPS?  
I'd rather you.....
- 21. I've never seen such a performant machine.  
It's .....

**F- Find the questions corresponding to the underlined words (01,5 pt)**

- 22. The cost of maintaining the system is approximately US \$ 400 million per year.
- 23. The GPS system is divided into three segments.
- 24. The oldest GPS Satellite still in operation has been launched for seventeen years.

**G- Put the verb “launch” into the right tense or form to complete the sentences (01,5pt)**

- 25. They are used to ..... a new GPS satellite every year.
- 26. If they had got the means, they ..... a new GPS Satellite every year.
- 27. Our firm will be well known as soon as it ..... its new GPS Satellite.

**III- WRITING: Choose one topic (05 pts)**

- 1. Write an article for your school magazine explaining the GPS System : its purposes and advantages.
- 2. Do you think that satellites are useful to your country ? Why ?

**ANSWER KEY****I- COMPREHENSION :****(09 pts)****A- True or False :****(03 pts )**

1. **False.** Justification : line 11 : The GPS system can be used by anyone, free of charge.
2. **False.** Justification : line 1 : Over fifty GPS satellites have been launched since 1978.
3. **False.** Justification : line 11 : The accuracy ... has steadily improved over the last 15 years.

**B- Say which information these elements refer to in the text****(02,5 pts)**

4. 16 ft : accuracy of the GPS signal
5. 1 cm : level of possible improvement of the accuracy over short distances
6. 1978 : year of the launching of the first GPS satellite
7. 24 : number of satellites in the constellation comprised in the space segment...
8. \$ 400 million per year : The cost of maintaining the system and replacement of aging satellites.

**C- Information transfer :****(01,5 pt)**

9. US department of Defence
10. anyone
11. free of charge
12. space
13. control
14. user

**D- Choose the right answer.****(01 pt)**

15. b)
16. c)
17. c)
18. b)

**II- LINGUISTIC COMPETENCE****(06 pts)****E- Rewrite the sentences without changing the meaning****(03 pts)**

19. Unlike my friend I don't like technology.  
Unlike me, my friend likes technology.
20. I'd rather you showed him how to use this GPS.
21. It's the most performant machine I have ever seen.  
It's the first time I have seen such a performant machine.

**F- Find the questions corresponding to the underlined words****(01,5 pt)**

22. How much is the cost of maintaining the system per year ? **or** What is the cost of ...
23. How many segments is the GPS system divided into ?
24. How long has the oldest GPS satellite still in operation been launched ?

**G- Put the verb "launch" into the right tense or form to complete sentences****(01,5pt)**

25. launching
26. would have launched (or : would launch)
27. launches (or : has launched)

**III- WRITING:****(05 pts)**

To be taken in account :

- ✓ length
- ✓ accuracy
- ✓ ideas