

Case-Based Passage :

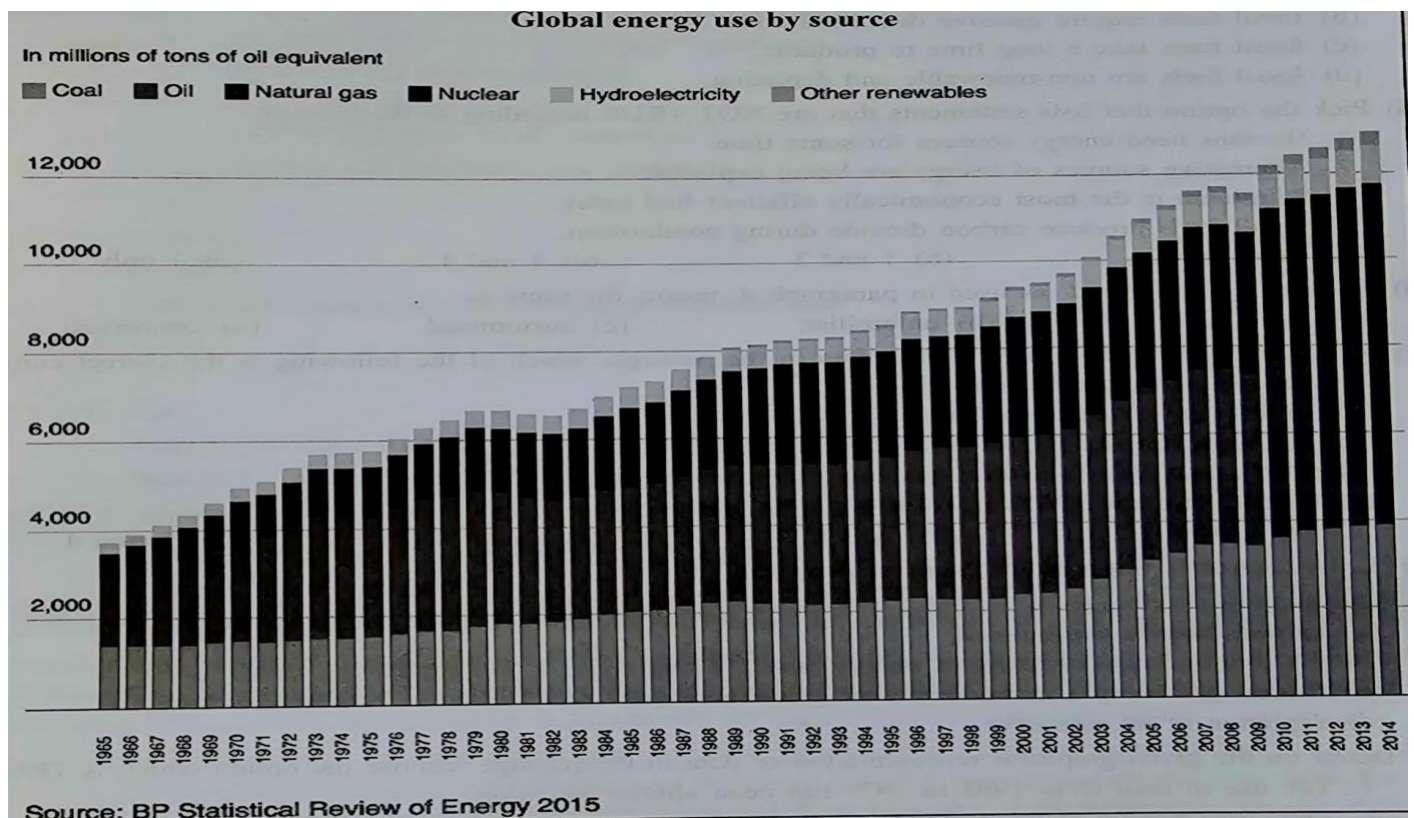
1. The human race constantly needs energy sources for survival. A present-day estimate by National Geographic determined that we use 320 billion kilowatt-hours of energy every day. Today, most of this enormous requirement is addressed by burning fossil fuels. So far, fossil fuels have catered to our energy needs very efficiently, but they are also non-renewable and rapidly depleting. These fuel sources have also contributed greatly to greenhouse gas emissions and pollution. Atomic energy, solar energy and energy from wind and biofuels are just a few of the promising alternatives for a cleaner and greener future. Other relatively new sources of energy such as fuel cells, geothermal energy and ocean energy are also being explored.

2. According to estimates provided by the Energy Information Administration, fossil fuels account for 86% of the total energy produced in the world. Of this, petroleum accounted for 36.8%, coal 26.6% and natural gas 22.9%. It is estimated that 23.5 tons of fossilized organic material deposited on the ocean floor is required to produce 1 litre of gasoline. In 1997, the total amount of fossil fuel used was equivalent to plant matter that grew on the entire land and ocean surface of the earth over a period of 422 years. Another disadvantage of our heavy dependence on fossil fuels is the amount of carbon dioxide produced during combustion, which is estimated at 21.3 billion tons per year. However, natural processes are capable of absorbing only about half of the total amount of carbon dioxide emissions released into the atmosphere, which means every year, the amount of carbon dioxide in the atmosphere is increasing by 10.65 billion tons, which is theorized to be the leading contributor to global warming that could potentially have very adverse effects on the ecosystem.

3. Although natural gas is considered to be cleaner than other fossil fuels, it has still been found to contribute to pollution and global warming. While it can be used to supplement the world's ever depleting reserves of traditional fossil fuels, it is not a 100% clean, non-polluting alternative. In 2004, carbon dioxide emissions resulting from the use of natural gas stood at 5,300 million tons while coal and oil contributed to carbon dioxide emissions of 10,600 million tons and 10,200 million tons, respectively. However, this trend is expected to reverse by 2030 when natural gas is likely to emit 11,000 million tons of carbon dioxide as opposed to 8,400 million tons from coal and 17,200 tons from oil at that time

Also, when released directly into the atmosphere, natural gas is a far more potent greenhouse gas than carbon dioxide, but since this occurs in very small amounts, it is currently not a major cause of concern.

4. As the human race evolves, we will continually search for newer, more efficient forms of energy that have the least amount of impact on the environment. However, the fact of the matter is that we must be proactive in researching new forms of energy to continue the advancement of civilization and to ensure a high quality of living that we all have grown accustomed to.



On the basis of your understanding of the above passage, answer the questions

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(i) According to the passage, the reason why other energy sources are being explored is that

- (a) Fossil fuels are rare to find.
- (b) Fossil fuels require massive deforestation.
- (c) Fossil fuels take a long time to produce.
- (d) Fossil fuels are non-renewable and depleting

(ii) Pick the option that lists statements that are NOT TRUE according to the passage.

- 1. Humans need energy sources for some time.**
- 2. Alternative sources of energy are being explored.**
- 3. Petroleum is the most economically efficient fuel today.**
- 4. Fossil fuels produce carbon dioxide during combustion.**

- (a) 1 and 2
- (b) 1 and 3
- (c) 1 and 4
- (d) 1 only

(iii) The word 'accustomed' as used in paragraph 4, means the same as

- (a) Habitual.
- (b) Unfamiliar.
- (c) customised.
- (d) Concerned.

(iv) Based on your understanding of the data in the passage, which of the following is the correct combination in terms of energy production?

- (1) 36.8% coal, 26.6% petroleum and 22.9% natural gas**
- (2) 36.8% petroleum, 26.6% natural gas and 22.9% coal**
- (3) 36.8% coal, 26.6% natural gas and 22.9% petroleum**
- (4) 36.8% petroleum, 26.6% coal and 22.9% natural gas**

- (a) Option 1
- (b) Option 2
- (c) Option 3
- (d) Option 4

(v) "it is currently not a major cause of concern."-This statement refers to :

- (a) Carbon dioxide combustion.
- (b) 320 billion kilowatt-hours of energy use.
- (c) Natural gas being a far more potent greenhouse gas.
- (d) Depletion of all resources.

(vi) Based on the given graphical representation of data in the passage, choose the option which is TRUE.

1. The use of coal from 1965 to 1975 has been almost the same.
2. The consumption of oil in 1982 was at an all-time high.
3. Consumption of almost all resources reduced in 2014.
4. It was in 1970 that nuclear energy began to be used.

(a) 1 and 2 (b) 2 and 3 (c) 3 and 4 (d) 1 and 4

(vii) Based on the graphical representation, pick out the year when the energy consumption of coal reduced and rose again the next year.

(a) 1996 (b) 2009 (c) 2015 (d) 2004

(viii) The emission trend of _____ is likely to reverse in 2030.

(a) 1996 (b) 2000 (c) 2015 (d) 2004

(ix) Which of the following statements is NOT substantiated by information in paragraph 3?

- (a) Natural gas is a far more potent greenhouse gas than carbon dioxide.
- (b) Fossil fuels are not 100% clean alternative.
- (c) Natural gas does not contribute to pollution and global warming.
- (d) By 2030, natural gas is likely to emit 11000 million tons of carbon dioxide.

(x) According to the graphical representation, which of the following is the correct combination for global energy use?

1. 1976-6,000 million
2. 1965-4,000 million
3. 1987-8,000 million
4. 2002-10,000 million.

(a) Option 1 (b) Option 2 (c) Option 3 (d) Option 4

(xi) Researching about new forms of energy is important because-

- (a) continuing the advancement of civilization is significant.
- (b) presently available forms are not efficient.
- (c) oil is not easily available.
- (d) we are too heavily dependent on the resources.