

General Science and Ability

Q. No. 2 Key features of COP-28 held in UAE

The COP-28 held in UAE in December 2023 was an important conference to discuss the progress made with regard to the goals of the Paris Agreement 2015. The conference also discussed issues related to the reduction in greenhouse gas emissions and climate finance.

Loss and damage fund

Progress was made with regard to the loss and damage fund at COP28 - The fund was established with the help of financial pledges from different nations - mainly the developed and high emitting countries - moreover, a secretariat and governing board was created and the World Bank was designated as interim trustee for the fund. The fund would ensure that the affected countries are compensated for the loss and damage caused by climate change.

Some other financial issues of developing

countries

The COP28 also shed light on the different financial issues of developing countries. The deficiency of finances which the developing countries face with regard to reconstruction and rehabilitation after a climate induced disaster was also addressed.

(b) Solid waste management

Solid waste management is the process of disposing of, recycling or reusing solid waste. Solid waste could be in the form of food waste, plastic waste, paper-based waste and several other forms of waste.

Different methods of solid waste management

1. Decomposition

Decomposition is an effective method of solid waste management. It is a process through which waste in its hard form is decomposed into the earth. This form of disposal

of solid waste prevents the pollution of land through uncontrolled dispersion of waste material.

(ii)

Recycling

Recycling is another important method of solid waste management. The solid waste generated through industrial activities, and other waste such as food waste and household waste, are recycled to create new products and material to be used for different purposes.

(ii)

Use as fertilizers

Solid waste, such as cow dung and other waste material, ^{is} used as fertilizers and manure. This is helpful for the purpose of agriculture and farming.

(iii)

Solid waste management Board

Establishment of solid waste management authority to manage and mobilize solid waste is also effective in disposing of and channelizing solid waste.

c A note of balanced diet

A balanced diet consists of all the required nutrients for the effective functioning of the human body. A balanced diet is essential for the growth and development of the mental and physical faculties of a living being. A balanced diet consists of carbohydrates, proteins, fats, vitamins, and calcium. For a balanced diet, it is important to include meat, eggs, bread, vegetables and fruits as part of one's meal.

d, Three renewable energy resources under CPEC

i) Hydro power:- Renewable energy in the form of hydel power is a major renewable resource under CPEC. Hydro power currently accounts for 23.65% of the whole electricity production in Pakistan. Under CPEC the share of hydro power in electricity production would be increased.

ii) Wind power:- There is immense

potential in Pakistan for the utilization of wind energy, especially in the Northern Areas of the country. Via CPEC, the Chinese are set to invest in the development of this sector. This will help Pakistan meet its renewable energy targets in a more effective manner.

(iii) Solar power: - Solar energy is another area which would be worked on under the CPEC. Pakistan has huge potential to develop its solar resources, as it is a fairly sunny country. With an investment of \$ 33 billion in the energy sector, CPEC is well-placed to upgrade the renewable energy infrastructure.

Q.No. 5

RAM: - RAM stands for random access memory. This memory is the non-permanent part of a computer's memory. It is removed when the computer or the laptop is shut down, in case of not being saved.

ROM: Read only memory is the permanent memory of a computer system. It cannot be removed or changed. This memory has already been fed in to the system. The hard drive of a computer is the maintains the read only memory.

Nibble:

In computing and digital technology, a nibble is four consecutive binary digits or half of an 8-bit byte. A nibble is the second smallest unit of information for data transmission and storage.

USB: USB stands for universal serial bus. It is a removable data storage device. A USB can be inserted into a computer or a laptop, once inserted, data can be transferred into it from the computer and the transferred data can be used some place else by inserting the USB there. In this manner the USB can serve as a portable

way of storing and transferring data.

b) The manner in which AI has revolutionized the world

AI has revolutionized the world by :-

- ⇒ making most of the tasks tech-based and mechanized.
- ⇒ Applying technology in building algorithms and complex models
- ⇒ Promoting machine learning and Big Data
- ⇒ Expanding on the Internet of things
- ⇒ Disrupting the job market.
- ⇒ Creating new jobs
- ⇒ Advancing the field of robotics and information technology.

c) How an optical fiber works

Optical fiber transmits data in the form of light particles, or photons, that pulse through a fiber optic cable.

The glass fiber core and the cladding each have a different refractive index that bends incoming light at a certain angle.

When light signals are sent through the fiber optic cable, they reflect off the core and cladding in a series of zig-zag bounces, following a process called total internal reflection.

Advantages of optical fiber

Advantages of optical fiber include:

- ⇒ Extremely high bandwidth
- ⇒ Light weight and more compact
- ⇒ Ability to transmit enormous amounts of data
- ⇒ Low transmission loss
- ⇒ Protection against external disturbance
- ⇒ Safety from disruptions ^{caused by} against radio and other signals.

d)

Critical speed of a satellite

The critical speed of the satellite is constant for the planet. For earth, the critical speed is 7.9 km/h . The critical velocity of the satellite is independent of the mass of the satellite. The critical velocity doesn't change with the change of the mass of the satellite.

i) Geo-stationary Satellite

Geo stationary satellites are in orbit 22,000 miles above the equator, spin at the same rate of the Earth and constantly focus on the same area. These satellites are launched via a temporary orbit.

ii) Polar orbiting Satellite

Polar orbiting satellites provide imagery and atmospheric soundings of temperature and moisture data over the entire earth. Polar satellites orbit the globe in a north-south orientation as opposed to the east-west orbit of geo-stationary satellites. A polar satellite passes above or nearly above both poles of the body being orbited on each revolution.

Section - II

Q. No. 6.

a, Son = 30 years
 5 years ago = 25 years
 Age of father 5 years ago
 = $25 \times 3 = 75$ years
 current age of father = $75 + 5 = 80$ years

b) $50 = \frac{10 + 30 + y + 50}{4}$
 $4 \times 50 = 100 + y$
 $200 = 100 + y$
 $y = 100$ Ans //

c) i, 2, 6, 18, 54 162
 ii, 3125, 256, 27, 4, 1

d) $320 = x \times y$
 $320 = xy$ $\frac{320}{x} = y$
 $\frac{x}{y} = \frac{1}{5}$
 $\frac{x}{\left(\frac{320}{x}\right)} = \frac{1}{5}$
 $x \div \frac{320}{x} = \frac{1}{5}$
 $x \times \frac{x}{320} = \frac{1}{5}$
 $\frac{x^2}{320} = \frac{1}{5}$
 $x^2 = 64$
 $x = 8$
 $y = \frac{320}{8} = 4$

Difference between squares of two numbers

$$8^2 - 4^2 = 64 - 16 = 48$$

Q. No 7,

$$96000 \times \frac{20}{100} = 192 \text{ profit}$$

$$= 96192$$

$$96000 \times \frac{20}{100} = 192 \text{ loss}$$
$$= 95808$$

$$= \frac{192000}{192000} \times 100 = 100\%$$

$192000 \rightarrow 192000 - 192000 = 0$

Neither profit nor loss

b) 195 men, 10 hours, 20 days
? 13 hours 15 days

$$\text{Total hours} = 200 \text{ hours}$$

$$\text{Total hours} = 195 \text{ hours}$$

$$195 - 200 \text{ hours}$$

$$? - 195 \text{ hours}$$

$$195 : \frac{1}{200}$$

$$x : \frac{1}{195}$$

$$x = 200 \text{ men}$$

Answer //

$$\frac{x}{200} = 1$$

Q. 17' = { All consonants }

d) Square pyramid volume =

372 cm³ height 3 km

$$\text{Volume} = \frac{\text{base area} \times \text{height}}{3}$$

$$372 = \frac{\text{base area} \times 3}{3}$$

$$\frac{372}{3} = \text{Base area}$$

$$124 = \text{Base area}$$

$$\text{one side} = \frac{124}{2} = 62 \text{ cm}$$

$$\begin{aligned} \text{Perimeter of the base} &= 62 \times 4 \\ &= 248 \text{ cm Ans} // \end{aligned}$$