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Batch-50

General knowledge - I

PART - II
(Section - A)

Question no: 04

a) Compare goals of COP-26 and COP-27 of 2021 and 2022 on Climate Change.

⇒ Conference of the Parties (COP):
→ The United Nations Climate Change Conferences are yearly conferences which held under the provisions of United Nations Framework Convention on Climate Change (UNFCCC).
→ The 1st COP meeting was held in Berlin, Germany in 1995.

⇒ COP-26

→ Glasgow Climate Change Conference → held in Glasgow, United Kingdom of great Britain.
→ October - November 2021.
→ All signatory parties joined the conference to make promises about climate change.
⇒ Goals of COP-26:
1) Secure Global - net zero by mid-century
  • Countries are being asked to attain Global net zero that means 'any emissions are

balanced (by) absorbing an equivalent amount from the atmosphere.

2) Keep 1.5 degrees within reach
• By 2030, all countries are required to keep temperature rise of 1.5 °C per year within reach, that no rise would happen above this temperature limit.

3) Adapt to protect natural habitats
• Due to climate change natural habitats were destroyed, so all countries are asked to balance out this destruction by protecting the remaining natural habitats and restoring the destroyed ones.

4) Mobilize finance
• Developed countries must mobilize finance for under developed and developing countries for the attainment of these goals.
• At least 100 bn $ in Climate finance per year by developed countries.

⇒ COP 27
→ Sharm-el-Sheikh Climate change Conference, held in Sharm-el-Sheikh, Egypt.
→ Conference was held in November, 2022.
→ Major provision on the climate change were made.

⇒ Goals of COP27:
1) Mitigation
• All countries especially those which are at high risk were urged to take immediate actions and to limit global warming well below 2°C.

2) Adaptation:
• Ensure that COP-27 made crucial steps towards enhancing climate change destructions and assist the world's vulnerable countries and regions.

3) Finance
• Developed countries mobilize finance, including the delivery of the promised 100 bn $ in climate finance.

4) Collaboration
• Reversion of climate change effects can only be achieved with active and inclusive participation of all Stake-holders.

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b) Describe some methods of Solid-waste management.

⇒ Solid waste management:
→ The complete process of collecting, treating and disposing of solid wastes.
→ Solid waste sources are solid waste from homes, Industrial solid wate, agricultural solid waste, medical waste and mostly the construction waste.

⇒ Methods of Solid-waste management:
1) Incineration of Solid waste:
→ This method is only suitable for combustible waste materials
→ All waste is subjected to burning in different steps following each other.

→ Leaks are often caused by oil drilling operations in the ocean or ships that transport oil.

→ Oil makes layer over water and blocks the sunlight which eventually results in the loss of Oxygen from water body.

3) Agricultural runoff:

→ With the advancement of fertilizers, natural fertilizers are of no use from now.

→ But these fertilizers can compromise the soil's natural qualities as well as fertilizers run off can damage the chemical properties of water.

→ When these chemicals mix with running water, the marine life's health is disturbed causing breathing diseases.

4) Radioactive wastes:

→ Radio active waste from nuclear reactors contain high quantity of uranium which is highly toxic and can harm the aquatic fauna and flora.

5) Domestic waste:

→ Garbage from houses in addition with detergents and chemicals used for dish washings constitute major for water pollution.

→ These chemicals contain phosphorus and sulphates which harm the aquatic life and compromise the water quality.

· Method:

→ Primary Chamber — designed to achieve dryed and complete combustion of refuse.

→ Secondary Chamber — All burnt and semi-burnt material are completely burnt here.

2) Composting:

→ This method is very much similar to landfilling.

→ In this method decomposable organic matter is separated from inorganic matter and subjected to high temperature and bacteria for decomposition.

→ A very good soil is achieved as a result which is used for plants. works as a fertilizer.

3) Salvaging:

→ In this method, materials like paper, plastics, metal, glass, rags can be salvaged, recycled and reused.

4) Sanitary landfilling of solid wastes:

→ It is a simple and cheap method.

→ A deep trench is excavated and filled with solid waste, in layers.

→ Layers are compacted with some mechanical equipment and covered with soil again.

→ With the passage of time, decomposition occurs and the waste turns into soil.

5) Pysolysis of solid waste:
→ Thermal degradation of the waste in the total absence of air that produces recycleable products, including oil, wax and combustible gas.
→ Pysolysis of Biomass results in Bio-gas.

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c) **What are some common causes of water pollution?**

⇒ Water pollution:
→ Contamination of water bodies, naturally or man-made, affecting the quality of water results in the bad health of humans and marine life.

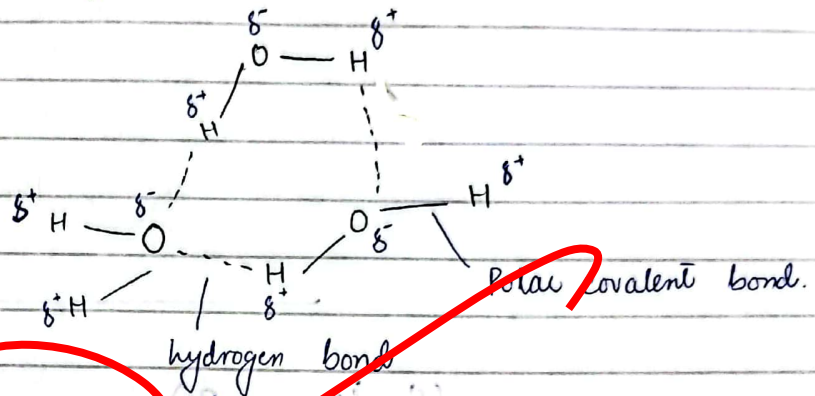⇒ Causes of water pollution:

1) Industrial waste:
→ Waste which dispose off into water bodies from Industries are mainly Toxic chemicals, hazardous metals and inorganic waste like plastics which degrade the quality of water.
→ Industrial waste add chemicals and rise the temperature of water which cause Algal bloom to grow and life of fishes were compromised.

2) Oil leaks and spills:
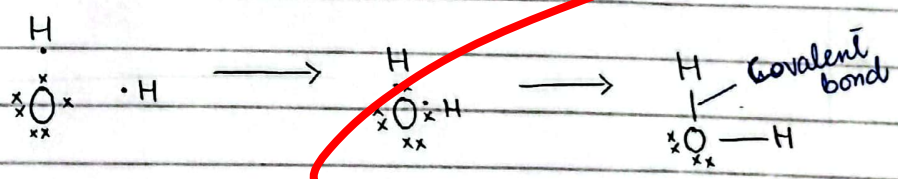→ Large oil spills and oil leaks, while often accidental, are major cause of water pollution.

d) Explain covalent bond in water molecule and its angular structure?

polar covalent bond.

hydrogen bond

→ Water is a polar molecule because oxygen and hydrogen have different electronegativity values.
→ hydrogen is partial positive (H^+) while oxygen is partial negative atom (O_2^-).

Covalent bond in water (H_2O) molecule:
→ Covalent bond is formed by sharing of electrons pairs between atoms.
→ In Covalent bonds of water molecules forming a v-shaped structure, an electron from oxygen atom shared and the hydrogen atom accepts it but this sharing is unequall and thus formed covalent bond.
→ Between each H_2O molecule hydrogen bonds are present which hold more than one H_2O molecule and thus forming a big water molecules community.

⟹ Angular Structure:

→ Water: (H_2O) has a bent angular geometry because oxygen has two lone pairs of electrons after forming covalent bond with hydrogen.

→ This cause hydrogen (a partial positive atom) to bent about at a 105° angle.

(Section – B)

Question no: 7

a) Average of 7 consecutive numbers is 20. Find the largest of these numbers.

→ Average of 7 consecutive numbers = 20

→ The consecutive numbers would be:

17, 18, 19, 20, 21, 22, 23

$$Average = \frac{17 + 18 + 19 + 20 + 21 + 22 + 23}{7}$$

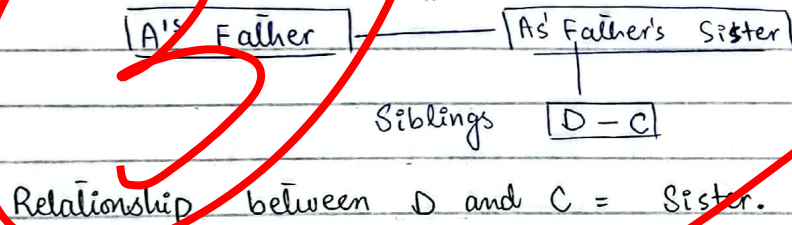$$= \frac{140}{7} = \boxed{20}$$

→ hence, the largest number of this series is $\boxed{23}$

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b) A told B that C is his father's nephew. D is A's cousion but not the brother of C. What relationship is there between D and C.

→ C is A's father's nephew so C is cousion of A.

→ D is also cousin of A.

→ Relationship between D and C = ?

| A's Father |———————| A's Father's Sister |

Siblings |D — C|

Relationship between D and C = Sister.

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c) Find the next number in the sequence;

7, 12, 19, 28, 39, ————.

7, 12, 19, 28, 39, 52

+5   +7   +9   +11   +13

$7 + 5 = 12$

$12 + 7 = 19$

$19 + 9 = 28$

$28 + 11 = 39$

$39 + 13 = 52$

|7, 12, 19, 28, 39, 52|

d)

→ Sum of money is to be distributed among
A, B, C, D in the proportion of:

$$5:2:4:3$$

→ If C gets RS. 1000 more than D, what is
B's share?

→ Let the shares of A, B, C, D be:
Rs. 5x, Rs. 2x, Rs. 4x, Rs. 3x
↓A ↓B ↓C ↓D

→ Difference between C and D:

$$4x - 3x = 1000$$

$$\boxed{x = 1000}$$

→ B's share:

$$B = Rs. 2x$$

$$= Rs. 2(1000)$$

$$\boxed{B = Rs. 2000}$$

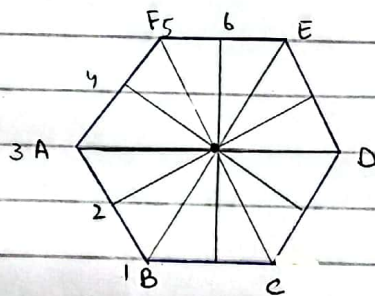## Question no. 8:

b)

LNUGEF   —   ENGULF

CKANS   —   SNACK

CIREFE

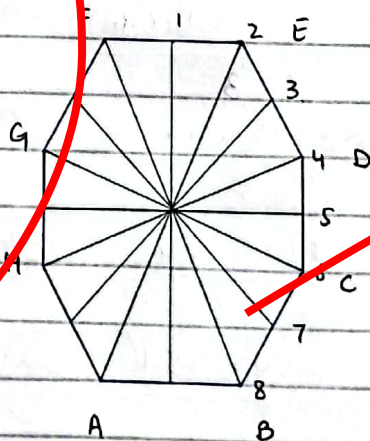EERAANMOGTP   —   POMEGRANATE

MNIKPPU   —   PUMPKIN

c)

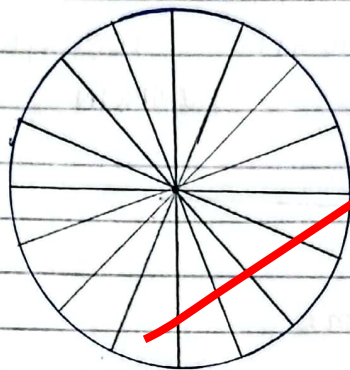Regular hexagon:

→ 6 lines symmetry

Regular Octagon:

lines of Symmetry in a Circle:

→ A circle has infinite number of lines in symmetry. since any line passing through centres is a symmetrical line.

d)

→ height of egyptian pyramid = 146.6 m
→ base length = 230.6 m.
→ Volume of that pyramid = >

$$V = \frac{a^2 h}{3}$$

∴ a = base length
∴ h = height

$$V = \frac{(230.6)^2 (146.6)}{3}$$

$$= \frac{55176 \times 146.6}{3}$$

$$= \frac{7795654}{3}$$

$$\boxed{V = 2598551 \ cm^3}$$