



NATIONAL OFFICERS ACADEMY
Mock-8 for CSS2024
January 2024
GENERAL KNOWLEDGE-I
GENERAL SCIENCE AND ABILITY

TIME ALLOWED: THREE HOURS	PART-II	MAXIMUM MARKS = 80
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NOTE:

- Part-II is to be attempted on the separate Answer Book.
- Attempt ONLY FOUR questions from PART-II by selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks.

PART-II
SECTION-I

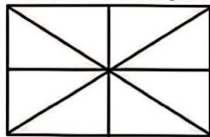
- Q. No. 2**
- Discuss key features of COP-28 held in UAE in Nov-Dec.2023 in context of Loss and Damage fund and some other financial issues of developing countries.
 - What is Solid Waste Management? Discuss different methods.
 - Write a note on Balanced diet.
 - Discuss any three renewable energy resources under CPEC.
- Q. No. 3**
- Discuss different parts of eye. How far-sightedness & short-sightedness can be corrected?
 - How does a Kidney work? Explain with diagram.
 - How Black Holes are formed?
 - What are isotopes, isobars and isotones? Give examples of isotopes of Hydrogen.
- Q. No. 4**
- How earthquakes are generated? Distinguish with Tsunami.
 - What is Coriolis force? How Hurricanes are generated?
 - Distinguish Solar & Lunar Eclipses.
 - What is doping in Semi-Conductors. Discuss different types of Ceramics.
- Q. No. 5**
- Distinguish between RAM and ROM. Also define Nibble and USB.
 - How AI has revolutionized the world? Justify.
 - How does an optical fiber work? Write some of its advantages.
 - What is critical speed of a Satellite? Differentiate Geo-Stationary and Polar Satellites.

SECTION-II

- Q. No. 6**
- Five years ago age of father was thrice the age of son. If son is 30 years old now. What is current age of father?
 - Mean of 10, 30, Y, and 50 is 50. What is value of Y?
 - Find the missing terms:
 - 2, 6, 18, 54, _____.
 - 3125, 256, _____, 4, 1.
 - If the product of two numbers is 320 and their ratio is 1:5. What is the difference between the squares of these two numbers?
- Q. No. 7**

- A woman sold two scooties for 96000 each. In the sale of the first scooty, he got 20% profit and in the sale of the second, he got 20% loss. What is the gain or loss percentage in total?
- 195 men working 10 hours a day can finish a job in 20 days. How many men are employed to finish the job in 15 days if they work 13 hours a day?
- If $A = \{a, e, i, o, u\}$, $U = \{a, b, c, \dots, z\}$. Find A' .
- A square pyramid has volume of 372 cm^3 & height is 3km., determine the perimeter of its base.

- Q. No. 8**
- A crow travels south 5km, and then 3km west, and then 4km north. Finally travels 2km south-east. How far is the crow from initial point?
 - A pizza is divided into 8 slices in which 3slices contain raisin in it; Shiza picks a slice, what is the probability that she will pick a slice with raisin?
 - Find the number of triangles in the following figure:



- Discuss the factors which can affect IQ.

***** Good Luck for CSS2024*****

QUESTION - 2

(i)

COP-28

Introduction:

COP-28 is known as conference of parties that was held in November to December 2023 according to the framework of United Nation Framework convention on climate change (UNFCCC). It was held in UAE.

Purpose of meeting:

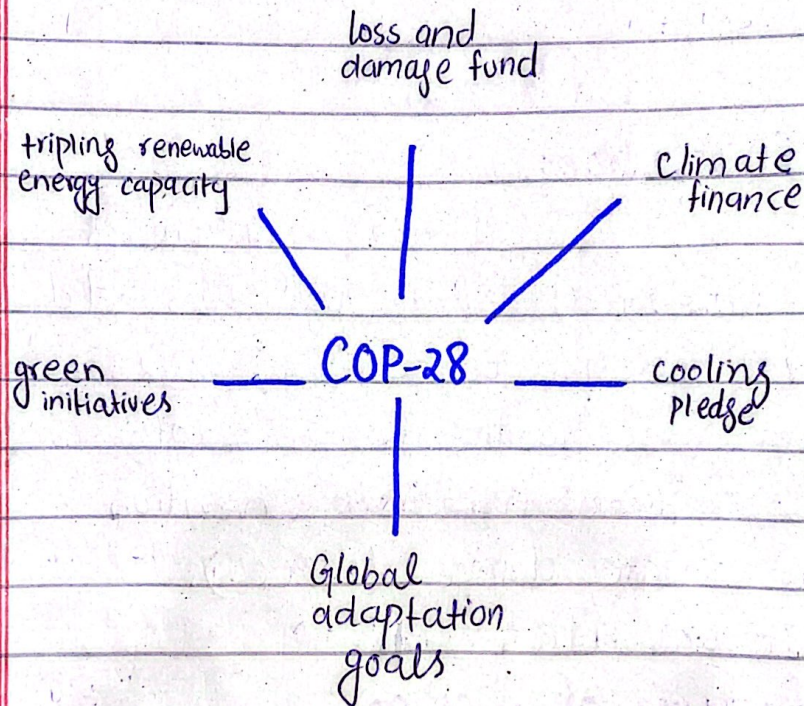
Conference of parties meet to address the harrowing conditions of climate change.

International community meet to plan and strategize the policies to tackle the emerging problem of climate change.

All nations take pledges to make carbon cuts and shift toward

renewable energy sources

Key features of COP-28



Loss and damage fund:

loss and damage fund is created to compensate the loss of all the countries who have been victim of climate catastrophe.

This was a laudable step in right trajectory and this initiative

was applauded by many nations. Developed countries agreed to give a huge sum in this regard to compensate the loss of vulnerable countries.

Stance of developing countries in COP-28

Developing countries was of the stance that it is the developed nation who are the major emitters of carbon. So, they should contribute in climate finance to support the most vulnerable countries.

As per **World Bank report**; Pakistan faced a huge loss of 36 billion dollars due to 2022 floods.

Pakistan only contributes to 1% of global emission.

Key Concerns of developing countries in regard of COP-28 commitments:

One of the key concern of developing

countries is that how much amount will be granted to them and whether it will be in form of loan or grant because loan will put more strain on vulnerable economies like Pakistan

Another major concern is the unclear timeline regarding the grant of loss and damage fund.

Conclusion:

COP-28 that was held in UAE in 2023 took many initiatives in right trajectory. Creation of loss and damage fund was applauded by every nation. Along with hopes it brings doubts for developing nations that whether these commitments would be fulfilled or not.

(b)

Solid Waste Management

Definition:

Solid waste management is a gracious term that is used for handling the land pollution from the point of generation to the point of disposal by recovery process

Stages of Solid Waste Management

Solid waste management involves three stages

- i) collection stage
- ii) recovery stage
- iii) Disposal stage

i) Collection stage:

The prerequisite of collection stage is adequate collection staff and vehicles

At this stage the solid waste is collected in collection vehicles of small and large scale.

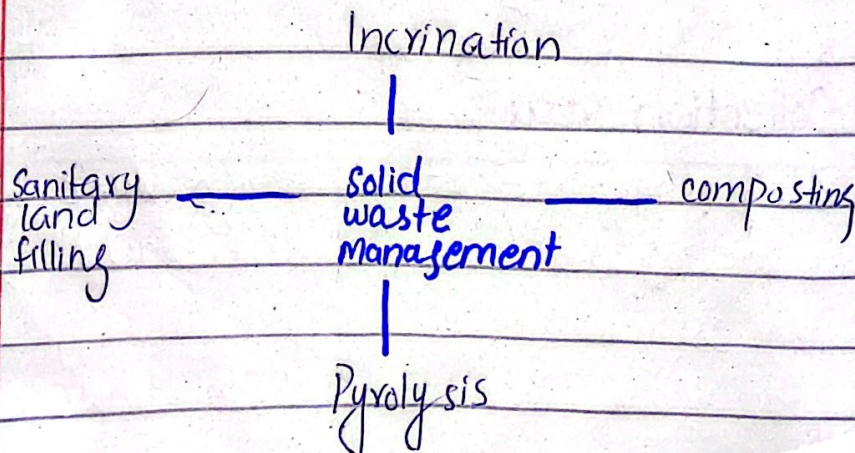
ii) Recovery stage:

At this stage the solid waste is transferred to transfer station which are centralized facilities

iii) Disposal stage:

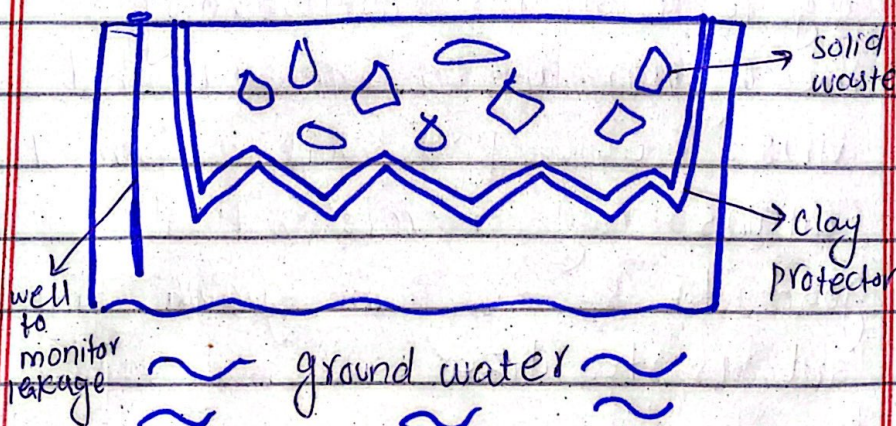
At this stage the useful things from waste are segregated and then these things are sold in market. The remaining unnecessary things are disposed off.

Methods of Solid Waste Management



i) Sanitary land filling:

In this process, solid waste is filled in land on the plastic or clay (low) cover. Firstly, a clay cover is placed on a land dump over which solid waste is placed and again it is covered with clay. Well are also placed to monitor the leakage of solid waste in running water. Clay prevent the contamination of ground water.



ii) Incrimation:

This is the process to burn the non flammable waste so it gets converted into ashes. Incrimators are used

for this process

iii) Pyrolysis :

This process also resembles with incineration. The solid waste is burned in absence of oxygen and it reduce the size of waste. It converts the waste into ashes of small amount of liquid.

iv) Composting :

Composting is the process in which organic waste is decomposed by microorganism such as bacteria and virus. The compost that is formed contains many minerals that is good for soil and plant growth. That act as fertilizer.

Vermis composting is commonly used these days.

(c)

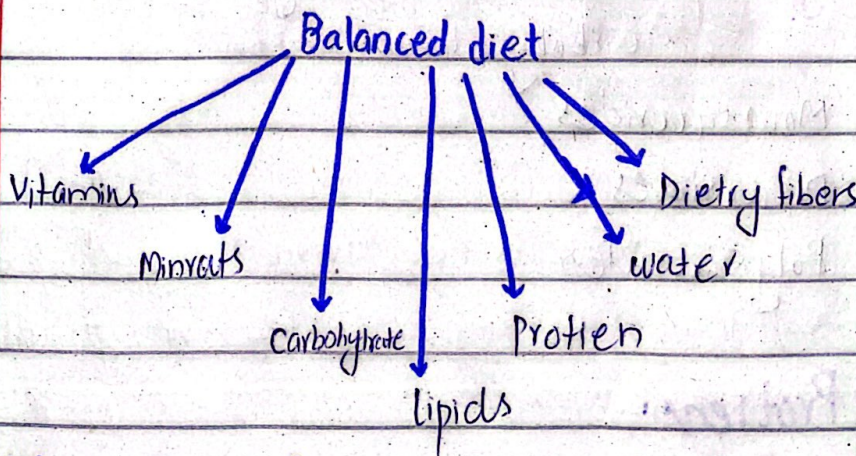
Balanced Diet

Defination:

Balance diet is a diet which consist of right concentration of vitamins and minerals that is essential for proper growth and development of a body.

Components of balanced diet

A balanced diet consist of seven components



Macro-nutrients:

It consist of carbohydrate, protein and lipids

Functions: It is essential for immunity as it produces antibodies. It is required for healthy hair and nails along with healing of wounds and muscle and tissue formation.

Deficiency: Its deficiency is associated with muscle wasting.

3) Lipids:

Lipid is essential for providing a cushion effect to vital organs.

Sources: It is available in ghee, oil etc.

Deficiency: Its deficiency is associated with dehydration of skin.

→ Micro - Nutrients

1- Minerals:

Minerals include Potassium, phosphorus, zinc, Sodium, Calcium etc.

i) Calcium:

It is required for healthy teeth and bones. It is present in

milk, dairy products, green vegetables etc.
It's deficiency is associated with
osteoporosis

ii) Sodium :

Sodium is essential to
maintain fluid-electrolyte balance. It
is present in table salt, unprocessed
meat and sea food. It's excess
is associated with blood pressure

iii) Potassium :

Potassium is necessary
for nerve transmission, balance of
fluid & electrolyte. It is essential
for heart conduction. It is present
in dates, bananas, apples etc.

iv) Iodine :

It is present in thyroid gland
and plays an imperative role in growth
and development of body. It is present
in iodized salt and vegetables grown
in iodine rich soil. It excess is
associated with goiter and hyperthyroidism

in one lac & 8 thousand rupees

$$\begin{aligned}\text{Original amount of purchase} &= 84000 + 108000 \\ &= 192000\end{aligned}$$

$$\begin{aligned}\text{Total amount obtained after sale} &= 96000 + \\ & \quad 96000 \\ &= 192000\end{aligned}$$

so no percentage of gain and loss has been made in sale of two scooters