

MOCK EXAM

GENERAL SCIENCE AND ABILITY

○ — (PART-II) — ○

(SECTION-I)

• — (Question no: 04) — •

Qd. Draw and explain the structure of ear ---?

EAR:-

A sensitive organ in human body, mainly concerned with detecting, transmitting and transducing sound.

Structure of EAR:-

Human ear consist of three main parts.
 i) outer ear ii) middle ear iii) inner ear

i) Outer ear:-

It is the visible part of our ear. In medical term it is called as auricle or pinna. It is made of cartilage and skin and contains the glands which secrete earwax.

(ii) Middle ear:-

It begins on the other side of tympanic membrane (eardrum). There are three tiny bones in this area - the malleus, incus and stapes. They transfer sound vibration from eardrum to inner ear.

(iii) Inner Ear:-

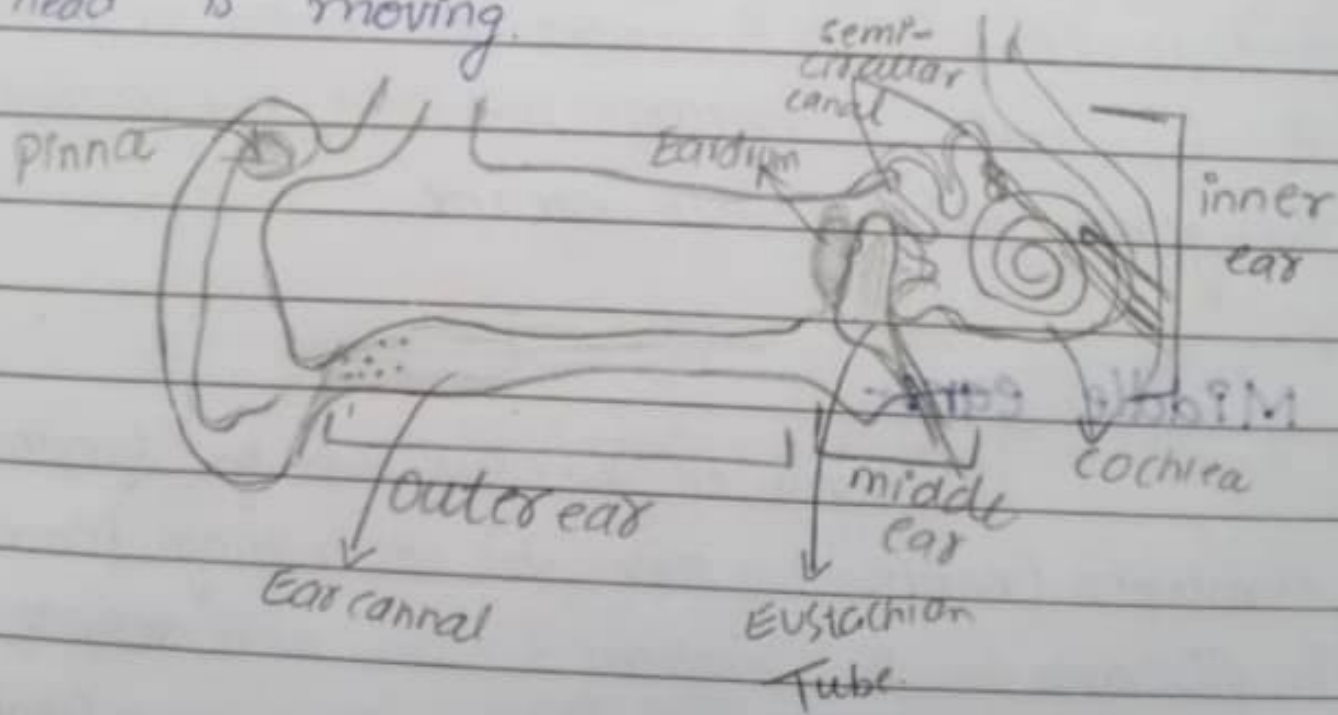
→ It mainly perform two function.

- (i) convert sound waves into electrical signal for Brain
- (ii) to maintain balance by detecting position and motion

while inner ear contains two main parts;
the cochlea and the semicircular canals.

(i) cochlea - is the hearing organ and has snail-shaped structure.

(ii) semi-circular canals are responsible for balance. They tell our brain which direction our head is moving.



a: Structure of ear.

Q (b) Explain the structure of sun.

Sun :-

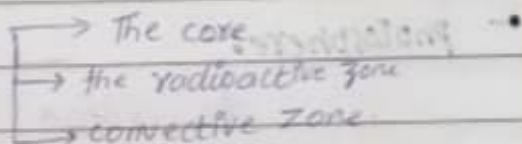
Sun is the huge, glowing sphere of hot gas. Most of this gas is Hydrogen (70%) Helium (28%) . Carbon, Nitrogen and oxygen makeup 1.5%.

Internal Structure of sun :-

The sun is made up of six layers. It has three inner layers the core, the radioactive zone and the convective zone. There are three outer / atmospheric layers the photosphere, the chromosphere and the corona.

→ Inner structure :-

There are



•- The core :-

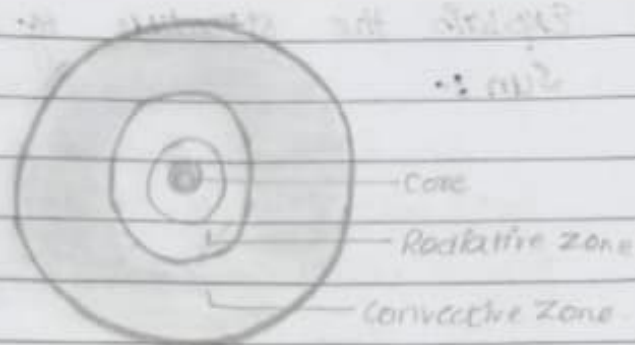
The centermost region of the sun is known as core. Here hydrogen turns into Helium through "Nuclear Fusion Reaction". The core is the hottest region of the sun.

•- The radioactive zone :-

Between the core and the convective zone, there lies the radioactive zone; by means of radiative diffusion and thermal condition, the energy in this region transport outside.

•- Convective Zone :-

The Outermost layer of the sun's interior is convective zone; which uses convection mode to transfer the energy.



a: Internal structure of the sun.

Outer structure / Atmosphere of sun:-

↓
photosphere

↓
the chromosphere

↓
the corona

•- Photosphere:-

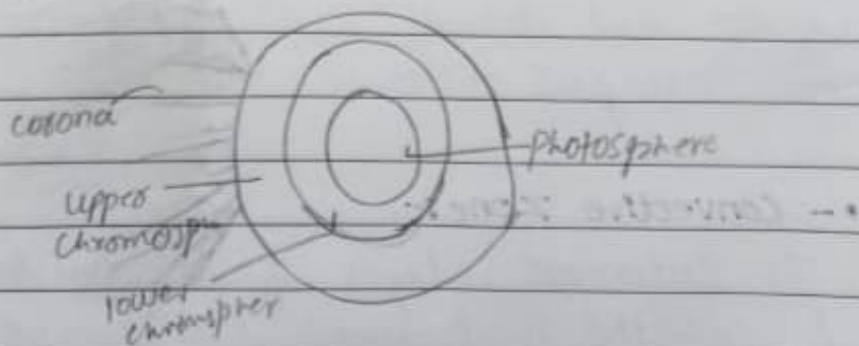
The visible surface of the sun. It is the inner most layer.

•- The chromosphere:

It is in between photosphere and the corona.

•- The corona:

It is the outermost layer. It is usually hidden by the bright light of sun's surface that makes it difficult to see.



b: Atmosphere of the sun

Q: what is the ceramic material? Is it possible that ceramics can be recycled?

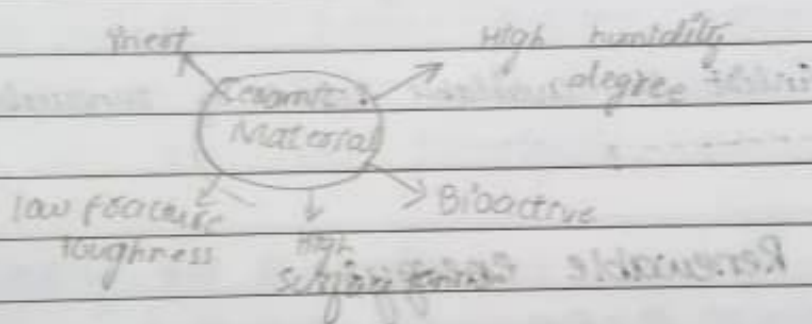
Ceramics :-

A ceramic is a material that is neither metallic nor organic. It may be crystalline, glassy or both.

Example:- Clay, Bricks, tiles, glass & Cement etc.

Characteristics of ceramic material:-

- * Ceramic materials are durable and can withstand high temperatures.
- * They also resist high pressures and most chemical compounds and are generally poor electrical conductors.
- * Most ceramics are non-magnetic.



Ceramics can be recycled?

Yes, ceramic material can be recycled although it is not as common as recycling materials like metal, glass, plastic. Ceramic can be recycled by following steps.

(i) **Collection:**

Ceramic waste, such as broken pottery, Hireser is collected and sorted. (remove contaminants)

(ii) **Crushing and Grinding:**

The sorted ceramic waste can then be crushed and ground into smaller particles.

(iii) Mixing:

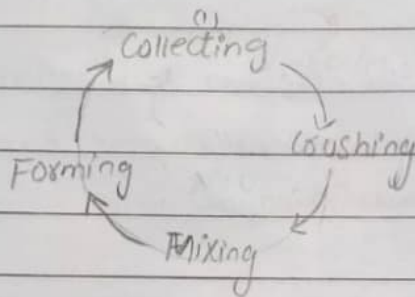
Recycled ceramics can be mixed with additive for new products.

(iv) Forming:

Recycled ceramic mixture then formed into new product by pressing, molding etc.

(v) Sintering:

The formed product is then fired or sintered at high temperature to harden them.



Q:- Enlist the available sources of renewable energy
-----?

Renewable energy:-

It is the energy that is derived from natural sources, replenish constantly on a human timescale.

Example:-

Sunlight, wind, etc.

Sources of Renewable energy in Pakistan:

Pakistan has several sources of renewable energy such as: Sun, wind, Biomass, water.

(i) water: Hydro power from flowing water
e.g. Indus River.

(ii) Sun: Pakistan is well suited for solar energy project.

wind energy: The coastal areas of India and Balochistan are ideal for it

Biomass: Agricultural waste, livestock other organic material provides an opportunity for biomass energy

policy to utilize these sources :-

Public-private partnerships :-

It can attract private sector investment in renewable energy source project. You can provide insurance scheme to private sector for it.

collaboration:

Foster partnership between universities, institutions, especially research institution and private sector to develop new renewable technologies.

monitoring and Evaluation:-

By establishing monitoring frameworks to track the progress & performance of renewable energy initiative. It can overcome the energy crisis.

QUESTION NO-03

Q. what is Dengue Fever? what are the symptoms?

Dengue Fever :-

Also known as "Break-bone fever". It is a viral infection spread from mosquitoes to people, particularly

Ades aegypti

⇒ Symptoms of Dengue fever:-

Symptoms of dengue fever usually appear 4 to 14 days after infection. While the symptoms last for 2 to 7 days which may include:-

- (i) Severe fever ($40^{\circ}\text{C}/104^{\circ}\text{F}$)
- (ii) Severe headache
- (iii) Pain behind the eyes
- (iv) Nausea and vomiting
- (v) Swollen glands
- (vi) Blood in vomit
- (vii) Pale and cold skin
- (viii) Abdominal pain
- (ix) Rapid Breathing
- (x) Rash & tiredness

Q: What are the problems facing solid waste management?

⇒ Solid waste management:-

It refers to the systematic control, collection, transportation, processing, recycling and disposal of solid waste generated by human activities. It involves planning, organization and implementation of strategies.

⇒ Problems:-

- (i) Inadequate infrastructure and

many regions lack sufficient infrastructure for solid waste collection, transportation and disposal.

(i) **Rapid Urbanization:-**

It puts pressure on existing waste management systems as population grows in urban areas.

(ii) **Lack of awareness:-**

Inadequate awareness and education about proper waste disposal among public contribute to improper waste disposal behaviors such as illegal dumping, burning, etc.

(iii) **Limited financial resources:-**

Many municipalities and local government have limited financial resources to invest in waste management infrastructure.

These all factors contribute into the problems.

Q Discuss tectonic plates -----?

Plate Tectonics :-

Plate tectonics is the scientific theory that explains how major landforms are created as a result of earth's subterranean movements. This theory transformed the earth science by explaining many phenomena including mountain building events, volcanoes, earthquakes, tsunamis etc.

plate tectonics in Tsunami:-

Tectonic plates

Tsunamis are often caused by sudden movement of tectonic plates, typically during earthquakes. When one plate shifts suddenly, it displaces a large volume of water, creating massive waves that propagate across the ocean. This movement can be vertical or horizontal, but it can disrupt the equilibrium of water column, generating a tsunami.



Richter Magnitude scale and Volcanic Explosivity Index:

They both are used to measure geological event but they differ in what they measure and how they are scaled.

Richter Magnitude scale

- Measures the magnitude of earthquakes.
- Scale ranges from 0 to 10, with higher numbers indicating the larger earthquakes.

VEI

- It measures the size of Volcanic eruptions.
- scale ranges from 0 to 8, with higher numbers indicating larger eruptions.

Q Technological advancement in agriculture have

Technological advancement has increased food production

Technological advancement in agriculture have increased production through practices such as:

- Mechanization: Faster harvesting and processing.
- Genetic modification: development of high yielding, disease-resistant crops.
- pesticides and fertilizers: enhanced crop protection and nutrient supply.

These advancement have also led to:

- Nutrient depletion: intensive farming practices depletes soil nutrients.
- water pollution: Chemical runoff from farms contaminates water.
- decreased nutritional value: Crops yield bred for yield, not nutrition.

So, technology has increased food quantity but decreased the quality of food by these advancement.

SECTION - II

(QUESTION NO 08)

a. If BROTHER is written -----?

"SISTER" would be coded as
"HQHNAQ"

b. identify the term 1, 2, 6, 21 -----?

The missing term is '88'. In this numeric series, each next term is obtained by multiplying each term by its position in the sequence and then adding that position.

c. Naseer walked from A to B in the -----?

Eastward displacement = 10 feet

South " = 3 feet

West " = -14 (in opposite)

net displacement = $10 - 14 = -4$ feet

Naseer is 4 feet west of A.

a. Average temp of a week is 33°C -----?

Average temp of week = 33°C

" " 3 days = 30°C day

" " last 3 days = 35°C

total temp change over week = $35^{\circ}\text{C} - 33^{\circ}\text{C} = 6^{\circ}\text{C}$

So, if the first three days average temp 30°C to bring the average upto 33°C for the entire week, the fourth day's need to be:

$$30^{\circ}\text{C} + (6^{\circ}\text{C}/3\text{day}) = 32^{\circ}\text{C}$$

Question no: 06

as-

percentage total increase in pop
Decrease no. of years

let the number be x_1

$$= 18,000 - 22,500$$

$$= -4,500$$

By applying formula-

$$= \frac{-4,500}{18,000} \times 100$$

$$= 25\%$$