

# General Science & Ability

Q4

a) Enlist the available sources of renewable energy in Pakistan & suggest policy options to utilize these sources to overcome the present energy crises.

## Renewable Sources of energy

- a) Solar Energy
- b) Wind "
- c) Hydro power
- d) Geothermal energy
- e) Biofuels
- f) Biomass
- g) Tidal energy

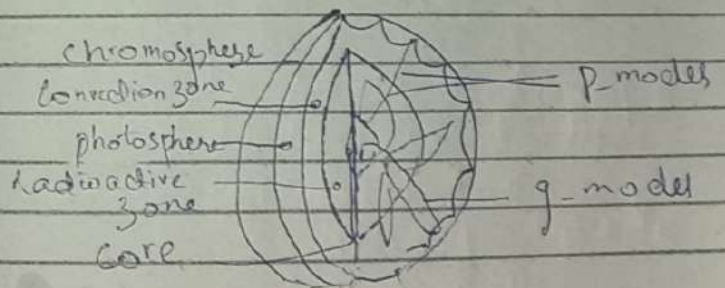
## Policy Options:-

- a) Price setting and quantity-fairing policies
- b) Don't waste them, instead utilize them again & again
- c) building energy codes
- d) financing incentives & programs
- e) commissioning & retro commissioning
- f) state & local government can implement distributed generation policies & programs to help overcome market & regulatory barriers to implementation

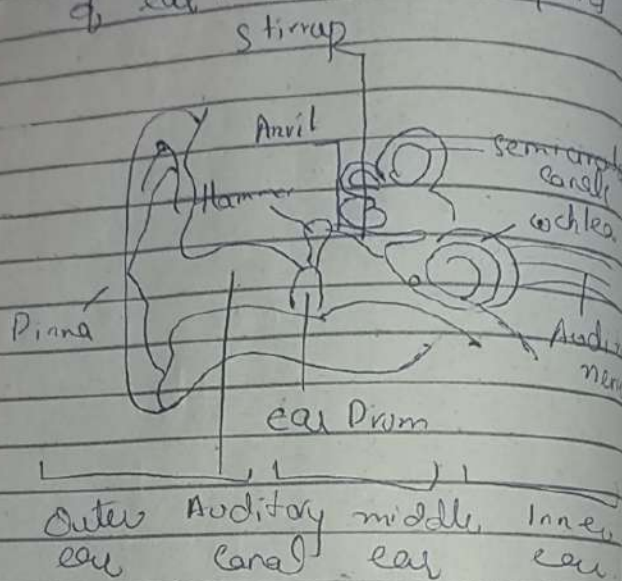
b)

## Structure of Sun:-

- 1) Core
- 2) Radiative zone
- 3) Convective zone
- 4) Photosphere
- 5) Chromosphere
- 6) Corona
- 7) Sunspots
- 8) Granulation
- 9) Prominence



d) Draw & explain the structure of ear. Also label its parts



Explanation:-

Human ear, contains sense organs that serve two different functions:

- o Hearing
- o Postural equilibrium & coordination of head & eye movements.

Anatomically

- Three parts of ear

- a) Outer
- b) middle.
- c) Inner ear

Outer Ear:-

visible portion called auricle, or pinna which projects from head side & short external auditory canal, the inner end of which is closed by tympanic membrane, called ear drum

Outer ear function - To collect sound waves & guide them to tympanic membrane

Middle Ear:- a narrow air-filled cavity in temporal bone.

it is splined by a  
chain of 3 tiny bones  
a) malleus (hammer)  
b) incus  
c) stapes

Q) What is ceramic material,  
is it possible that ceramics  
can be recycled?

Ceramic Materials:-

Ceramics are more than  
pottery and dishes: clay,  
bricks, tiles, glass and cement  
are best-known examples

A ceramic is any of the  
various hard, brittle, heat-resistant  
& corrosion-resistant materials  
made by shaping & then  
firing an inorganic, non-metallic  
material, such as clay, at  
a high temperature.

Examples are earthenware,  
porcelain & brick

Yes they can be recycled  
into a range of useful products,  
diverting waste from landfill  
& decreasing emissions &  
toxic outputs used in the  
production process.

W → X

Q3)

a) What is artificial intelligence & is it possible for AI to outsmart humans?

Ans: AI is the stimulation of human intelligence processes by machines, especially computer systems.

Specific applications of AI include expert systems, natural language processing, speech recognition & machine vision.

Yes it is very true that it is capable of outsmarting humans, as it continues to evolve as its achievements closely mimic human intelligence in sense of understanding, reasoning & learning. However there is cause & effect with these innovations & the significant advancements outperform humans in specific tasks.

d) What are the benefits of balanced diet?

- a) energy
- b) Disease prevention
- c) Immune System
- d) Boosts mood
- e) control body weight
- f) heart disease
- g) rejuvenate skin
- h) Digestion

- i) steep
- j) Diabetes

c) Explain carbohydrates & its types.

Carbohydrates are sugar molecules. Our body breaks down carbohydrates into glucose, as it is the main source of energy for your body's cells, tissues & organs.

They act as energy sources, help control blood glucose & insulin metabolism, participate in cholesterol & triglyceride metabolism.

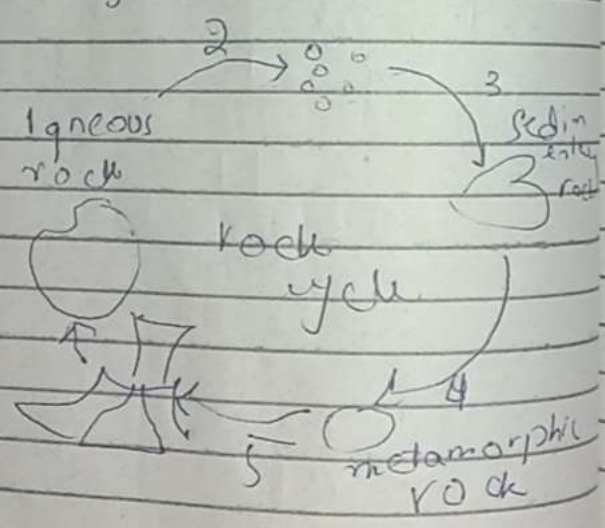
Types:-

- a) Starch    b) monosaccharides
- c) Disaccharide    d) glycogen
- e) galactose    f) maltose
- g) cellulose    h) whole grain
- i) rice    j) fruit
- k) vegetables    l) polysaccharides
- Sucrose, fructose, lactose

b) Define rocks formation, rock cycle and different types of rocks.

A rock formation is an isolated, scenic or spectacular surface rock outcrop. They are the result of weathering & erosion sculpting the existing rocks. The term can also refer to specific sedimentary strata or other rock unit in stratigraphic & petrology studies.

Rock Cycle:-



The rock cycle is a web of processes that outlines how each of the three major rock types - igneous, metamorphic & sedimentary - form & break down based on different applications of heat & pressure over time.

Types of Rocks:-

- a) Igneous rock
- b) Sedimentary "
- c) metamorphic "
- d) rocks
- e) Basalt
- f) Sandstone
- g) Granite
- h) limestone
- i) Quartzite
- j) marble
- k) schist

Section 2

Q5)

a)

SISTER

b)

84 Ans

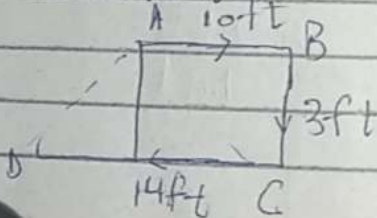
Solution:-

Required distance = AD

$$= \sqrt{(3)^2 + (14-10)^2}$$

$$= \sqrt{9+16}$$

$$= 5 \text{ ft}$$



d)

X = first 3 days average temperature =  $30^\circ\text{C}$

Z = last 3 days average temperature =  $35^\circ\text{C}$

Y = 4<sup>th</sup> day's temperature = ?  
 $\frac{(X+Y+Z)}{3} = 33^\circ\text{C}$

$$30^\circ\text{C} + Y + 35^\circ\text{C} = 99^\circ\text{C}$$

$$Y = 99^\circ\text{C} - 65^\circ\text{C} = 34^\circ\text{C}$$

Q6:-

a)

Population increase in 10 yrs =  $22500 - 18000 = 4500$

$$\text{Increase \%} = \frac{4500}{18000} \times 100\% = 25\%$$

$$\text{Required average} = \frac{25}{10} \% = 2.5\%$$



$$20 = k \times 600 \times \frac{1}{9}$$

$$k = \frac{20 \times 9}{600}$$

Let  $x$  be the no of units which can be manufactured using 18 machines in 12 days

$$18 = k \times x \times \frac{1}{12}$$

$$x = \frac{18 \times 12}{k} = \frac{18 \times 12 \times 600}{20 \times 9}$$

d) The pentagon has 5 sides. So the perimeter of the regular pentagon will be 5 times the length of one side 'a'. Here 'a' = 15cm. So  $P = 5a = 5 \times 15 = 75\text{cm}$

c) A car covers 450 meter in 60 sec. Distance = time = speed.  $= 450 \div 60 \times \frac{18}{5} = 27\text{kmph}$

A train covers 69 km in 45 min.  $\frac{\text{Distance}}{\text{Speed}} = \frac{69 \times 4}{3} = 92\text{kmph}$

Ratio of speed of car to train =  $27:92$