माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

मु.उ.पु. 24 पृष्ठ

कार्यालयीन उपयोग के लिए

परीक्षा के नाम की सील

केन्द्र क्रमांक की सील

केन्द्र क्रमांक-21023

निम्न रिक्तियों की सही प्रविष्टि परीक्षार्थी द्वारा की जाए।

1. विषय कोड 200 परीक्षा का विषय Science

2. परीक्षा का माध्यम English परीक्षा की दिनांक 14/03/09

3. परीक्षार्थी प्रश्न पत्र का पूर्ण कोड नम्बर (सेट A, B, C,या D) अनिवार्यतः भरें — कोड T-1034, सेट B

स्टीकर तीर के निशान से मिलाकर लगायें

माध्यमिक शिक्षा मण्डल क्रमांक K 5884962

परीक्षार्थी का अनुक्रमांक (अंग्रेजी अंकों में)

1	9	2	1	2	5	7	8	1

ऊपर दिये प्रत्येक कालम में ऊपर दिये गये अनुक्रमांक के अंकों को उसी क्रम में शब्दों में लिखा जाए :-

	Nineteen	One	Two	Five	Seven	Eight	One	

पर्यवेक्षक / केन्द्राध्यक्ष का प्रमाणीकरण

प्रमाणित किया जाता है कि परीक्षार्थी द्वारा निम्नानुसार पूरक उत्तरपुस्तिकाएं ली गई है :-

क :- संख्या शब्दों में one अंकों में 1

ख :- परीक्षार्थी की बैठक व्यवस्था कक्ष क्रमांक 10 में है।

ग :- उत्तर पुस्तिका पर प्रश्न-पत्र का कोड नम्बर एवं सेट सही लिखा है।

हस्ताक्षर (पर्यवेक्षक) Sd/-

नाम Sunil Kumar पद S.A

पता / संस्था M.S. Badnagar

परीक्षार्थी द्वारा ली गई सभी पूरक उत्तर पुस्तिकायें, मुख्य उत्तर पुस्तिका के साथ संलग्न हैं।

हस्ताक्षर केन्द्राध्यक्ष

BSEMP

1	
2	
3	
4	

परीक्षार्थी, परीक्षक से अपेक्षा है कि वे पृष्ठ भाग पर दिये गये निर्देशों का यथेष्ट पालन सुनिश्चित करेंगे।

प्रमाणित किया जाता है कि उपरोक्तानुसार संलग्न पूरक उत्तर पुस्तिकाओं की संख्या मूल्यांकन के समय यथा यथावत् रखते हुए ही उत्तरपुस्तिका का मूल्यांकन किया गया है। मैंने सभी प्रश्नों के उत्तरों का गहन मूल्यांकन किया है। उत्तर पुस्तिका के अन्दर के अंक एवं कव्हर पृष्ठ पर दर्शाये अंक एक समान है एवं योग पूर्णतः सही है।

हस्ताक्षर (परीक्षक) — हस्ताक्षर (उपमुख्य परीक्षक) — हस्ताक्षर (मुख्य परीक्षक)

परीक्षक क्रमांक 96-152 — दिनांक..... — दिनांक.....

परीक्षार्थी के लिए निर्देश

1. परीक्षार्थी को अपना अनुक्रमांक/विषय/माध्यम/दिनांक एवं प्रश्न–पत्र का कोड (समूह) मुख पृष्ठ पर अंकित करना अनिवार्य है। अन्यत्र कहीं भी नहीं लिखा जाएगा।
2. अनुक्रमांक नीचे दिये गए उदाहरण अनुसार लिखा जाए :–

1	8	2	4	3	9	5	6	8
एक	आठ	दो	चार	तीन	नौ	पाँच	छः	आठ

3. उत्तर पुस्तिका के दोनों ओर पृष्ठों में लिखें। बीच में रिक्त स्थान न छोड़ें। भूल से छूटा/रिक्त स्थान तथा शेष खाली पृष्ठों को क्रास किया जाए।
4. परीक्षार्थी प्रश्न पत्र हल करते समय ही, कव्हर पृष्ठ पर दी गई तालिका में प्रश्न क्रमांक के सम्मुख वाले कालम में उत्तरपुस्तिका का वह पृष्ठ क्रमांक अनिवार्य रूप से अंकित करें जिस पर प्रश्न का उत्तर लिखा गया है। यदि पूरक उत्तरपुस्तिका का उपयोग किया गया हो, तो उस पर 25 से प्रारंभ करते हुए पृष्ठ क्रमांक परीक्षार्थी द्वारा स्वयं डाले जाएँ।

परीक्षक के लिए निर्देश

1. केवल उन्हीं उत्तरपुस्तिकाओं का मूल्यांकन करें जिन पर होलो क्राफ्ट स्टीकर चस्पा है।
2. उत्तरपुस्तिका का मूल्यांकन होलो क्राफ्ट स्टीकर को चस्पा स्थिति में यथावत् रखते हुए ही किया जाये।
3. बिना होलो क्राफ्ट स्टीकर वाली तथा फटे हुए होलो क्राफ्ट स्टीकर वाली सभी उत्तरपुस्तिकाऐं मूल्यांकन हेतु परीक्षा नियंत्रक, माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल को व्यक्तिशः रूप से भेजी जाये।

मूल्यांकन केन्द्र के लिए निर्देश

1. **O.M.R. SHEET** पर प्राप्तांक की प्रविष्टि करने हेतु केवल वही उत्तरपुस्तिकाएँ प्राप्त करें, जिनका मूल्यांकन होलो क्राफ्ट स्टीकर को चस्पा स्थिति में यथावत् रखते हुए ही किया गया है। यदि होलो क्राफ्ट स्टीकर फटा हुआ पाया जाता है तो ऐसी उत्तरपुस्तिकाऐं मूल्यांकन केन्द्र अधिकारी को पृथक से सौपी जाएँ। ऐसे प्रकरणों के प्राप्तांकों की प्रविष्टि **O.M.R. SHEET** में नहीं की जाए। मूल्यांकन केन्द्र अधिकारी ऐसी उत्तरपुस्तिकाऐं पुनः मूल्यांकन के लिये परीक्षा नियंत्रक, माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल को व्यक्तिशः रूप से सौपेंगे।
2. उत्तरपुस्तिका के मुख्य पृष्ठ में अंकों एवं शब्दों में अंकित प्राप्तांकों को मिलान कर **O.M.R. SHEET** में अंकों की सटीक प्रविष्टि करें।
3. **O.M.R. SHEET** पर प्रमाणीकरण कर हस्ताक्षर करें।

(SECTION-A)

Fill in the blanks:-

(i) Mercury

(ii) Cone

(iii) Saturn

(iv) Galaxy

(v) Oryzabattiva

match the following

Artery - Pure blood

Universal donor - 'O' blood group

Nephridia - Earthworm

Red blood corpuscles - Haemoglobi

Hematite - Iron

पृष्ठ के अंकों का योग

Choose the correct -

(i) Concave lens

(ii) Ohm

(iii) Legume root

(iv) In the mitochondria

(v) Aluminium

One word -

(i) $NaOH + HCl \rightarrow NaCl + H_2O$

(ii) $Na_2CO_3 \cdot 10H_2O$

(iii) Glass

(iv) Three (Red, Green, Blue)

(v) Diamond, Titanium

[ ]
पृष्ठ के अंकों का योग

SECTION-B

(3) Chemical Equilibrium - "The state of reversible chemical reaction in which the rate of forward and backward reactions becomes equal" is said to be the chemical equilibrium. Chemical Equilibrium is dynamic in nature. Dynamic means 'continuously reactive'. A dynamic equilibrium is that state in which the rate of forward and backward reactions goes on continuously. In this reaction does not stop but rate of forward and backward reactions become equal.

For example :- If we fit a water pump in a tank in such a way that it sucks the water from the tank and pour back it. In this happening the pump is doing the two different reactions, one is sucking out the water from tank (house) and pouring back it. It seems that no reaction is going on, but two different reactions are going on at the same rate continuously.

Characteristics of Equilibrium -

(1) Equilibrium can only be ~~carried~~ attained only when the reactions are carried out in a closed vessel.

(2) At Equilibrium reactions does not stop but the rate of forward and backward reactions become equal.

पृष्ठ के अंकों का योग

(3) At equilibrium, the concentration of products and reactants becomes equal

(4) Catalysts do not alter the equilibrium but help to attain the equilibrium at the earliest

Important Note → Equilibrium can be shifted on the either side by change in concentration, pressure and temperature.

Answer-4

Aerobic Respiration → Aerobic respiration takes place in the presence of oxygen (O_2). Most of the organisms carry out this type of respiration. In this, 38 ATP energy is released.

Anaerobic Respiration - The reaction respiration which takes place in the absence of O_2 (oxygen). Unicellular organisms and lower animals carry out this mode of respiration. In this 2 ATP energy is released.

The differences between Aerobic and Anaerobic Respiration-

	Aerobic Respiration	Anaerobic Respiration
(1)	This takes place in the presence of oxygen	(1) This takes place in the absence of oxygen.
(2)	More energy is released in this process i.e. 38 ATP	(2) Less energy is released in this process i.e. 2 ATP
(3)	This takes place in the mitochondria of cell.	(3) This takes place in cytoplasm of cell.
(4)	Most organisms carry out this process.	(4) Few unicellular and lower animals take part in this process.
(5)	Hydrogen and carbon di-oxide are formed.	(5) Ethanol and carbon dioxide are formed.

(8)

Ans-5

The hormones are chemical substance which flow in the body and are secreted by the endocrine glands for the proper maintenance of body. The hormones are both found in the plants and animals.

The hormones which are found in plants are as follows-

(1) Auxin
(2) Asbiscic
(3) Cytokinin
(4) Gibberellins

(1) Auxin → Auxin are the hormones which are found in plants. They are very important hormone in plants. The function are -
(1) They control the growth of plants.
(2) They help in the proper ripping of fruits.

2) Asbiscic :- (1) They maintain the transpiration of materials
(2) They control reproduction process

(3) Cytokinin :- (1) They help in cell elongation
(2) They help in mitotic division of cell.

(4) Gibberellins :- (1) They control the growth rate of plant.
(2) They control the cell division (meiosis) process

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Answer-6

Alcohols -

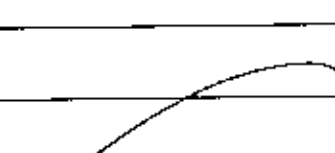
The hydroxy derivative (-OH) of the hydrocarbon is called alcohols. In this particular group (alcohol) -OH is attached to the alkyl group.

In alcohols hydroxy derivative -OH is attached to alkyl group by replacing by hydrogen atom. So at last we can say that " The hydroxy derivative of hydrocarbon attached to alkyl group " are called alcohols.

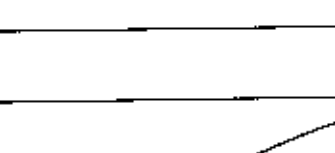
The general formula is $C_nH_{2n+1}OH$

The IUPAC names of Alcohols -

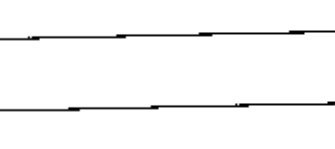
(1) Methyl alcohol -- Methanol



(2) Ethyl alcohol - Ethanol



(3) Propyl alcohol — Propanol



Answer -7

Soap	Detergent
(1) The soaps are sodium salt of long chain carboxylic (fatty acids) The ionic group is $-COO^-Na^+$	(1) Detergents are sodium salts of long chain benzene sulphonic acid or hydrogen-sulphates The ionic group is $-COO^-SO_3^+$, $-COO^-SO_4^+$
(2) Soaps can not be used used with hard water.	(2) Detergent can be used with hard water.
(3) Soaps are biodegradable	(3) Some of the detergents are not biodegradable.
(4) Soaps have relatively weak cleansing action.	(4) Detergents have strong cleansing action

(5) Soaps are prepared from natural oils	(5) Detergents are prepared from man-made hydro-carbon
(6) Soaps are prepared by the reaction of oil or fat with caustic soda	(6) Detergents are prepared from petroleum hydro-carbon
(7) Example of Soap $C_{17}H_{35}COONa$ Sodium stearate $C_{17}H_{35}COOK$ Potassium stearate	(7) Example of detergent Sodium alkyl (lauryl) sulphate $[CH_3(CH_2)_3SO_4Na]$ Sodium benzene sulphonic acid $C_{12}H_{25}$ SO_3Na

Important Note – Detergents are considered better than soaps for use

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Answer - 8

Pollution -

'Any unwanted change in the physical, biological and chemical elements of nature is defined as pollution.' In other words 'Pollution is the coming of some unwanted or unnecessary elements into the nature which distorts the ecological balance.

Pollution can be divided into four main types on the basis of destruction. They are:-

(1) Air pollution
(2) Water pollution
(3) Soil pollution
(4) Noise pollution

(1) Air pollution → The unwanted change in the physical, chemical, biological structure of air is called air pollution. It is the mixing of some poisonous gases in the atmosphere.

The best way to define pollution is -

The air is made up of several gases like CO_2, SO_2, H_2S, N_2, etc. Air is a mixture of these in proper proportions. If it decreases or increases, it is called air pollution.

(2) Water pollution- "The change in the water which causes water to be unsuitable for use is called as water pollution" in other words water pollution is the contanimment of water which makes it unsuitable.

The factories, industries emit out their wastages directly into the rivers, ponds etc. This causes water pollution.

(3) Soil pollution → "The change in the soil structure which makes it unsuitable" The decrease in the fertility of soil can be defined as soil pollution.

(4) Noise pollution → The unwanted increase in the sound of a place is called noise pollution. It can be defined as Noise is that type of pollution which increases the sound (noise) and causes the human being and animals irritate.

These all are kinds of pollution. These types of pollution has became a burning problem for whole world. We need steps to solve this problem it can be minimised only by the conservation of environment.

पृष्ठ के अंकों का योग

Answer-9

Forest conservation → "The conservation of forests are called forest conservation, means to conserve ourvaluable forests is the conservation of forest"

Man has cut the trees from several years and now that has resulted into ecological imbalance. So we needs our forests to be saved. The main advantages of forest are:-

(1) Forest provide us wood, bamboo, lac, resins, gum and many other valuable product.

(2) Forest control the climate by maintaing the O_2-CO_2 balance. They play a important role in sustaining life.

(3) Forest control soil erosion. They increases the soil fertility by shedding their leaves.

(4) Forest play a important role in providing employment to lots of people.

(5) They provide us several things, they act as rain bearer, and maintains the ecological balance.

In this way forests are very beneficial to us.

Measures to conserve forests -

(1) Forests should be made natural heritage. They should

be protecting by declaring them as reserved place.

(2) Forests can be conserved by putting a ban on the woodcuttings. Any one who cuts the trees should be given punishment.

(3) Forests can be conserved by putting an end to population explosion. This will definately provide some resistance to forest cuttings.

(4) They can be conserved by growing more and more trees. In this way they will be lasted long.

Short-Type Questions

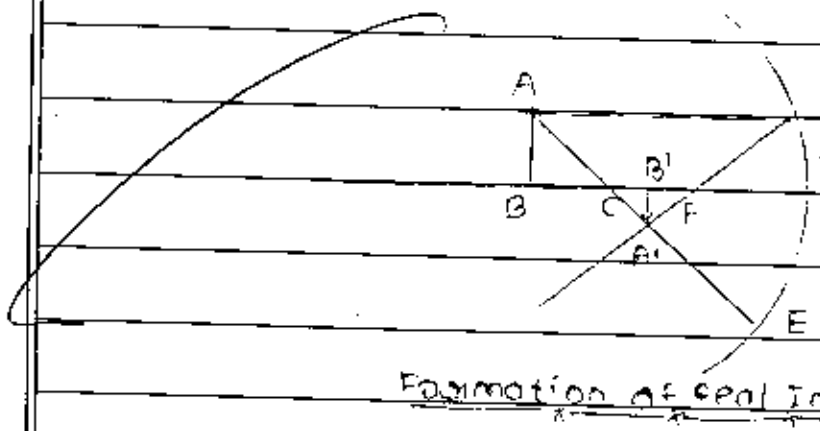
(1) Real Images OR VIRTUAL IMAGES:-

"An image is that which is formed by intersection of two or more rays of light from an object." The image formed can be real and virtual. These are the two types of images which can be formed by lenses or mirrors.

Real Images - "The images which can be obtained on a screen is known as Real Images. In other words "Real Images are those which really exists." The images which we see on T.V. or in cinema are the examples of Real Images. The real images are always inverted. They are formed when two rays coming from the object intersect at a point before the mirror. They are always formed in front of the

mirrors. They never forms on the mirrors or behind the mirror. They are always formed when an object is kept out of the focus of the mirrors means if the focus is 5 cm so object should be kept at a distance more than 5 cm ie. 6 cm or 7 cm. The concave mirrors forms real images and convex lens forms real images.

DIGRAM -

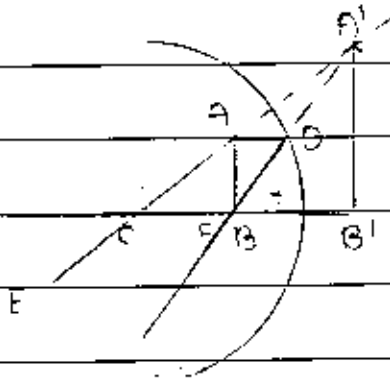


Formation of real image

VIRTUAL IMAGES :- The virtual images are those images which cannot be obtained on a screen is called virtual Image. The image which we see on plane mirrors is the best example of virtual images. The virtual images are always erect. They are illusive because rays actually does not pass through or a point or rays actually do not meet at a point. They are always formed behind the mirrors. They never forms infront of mirrors. They are always

formed when object is kept within the focus. means if the focus is 5 cm from pole so object should be placed within the 5 cm. The convex mirror and convex lens forms virtual images.

DIAGRAM



Formation of virtual image

DIFFERENCE BETWEEN VIRTUAL AND REAL IMAGES

	VIRTUAL	REAL
1.	This cannot be obtained on a screen	1. This can be obtained at screen
2.	It is always erect.	2. It is always inverted
3.	The rays actually does not meet at a point.	3. The rays actually meet a point.
4.	The image of object on a T.V.	4. The image of a object in plane mirror.

पृष्ठ के अंकों का योग

(18)

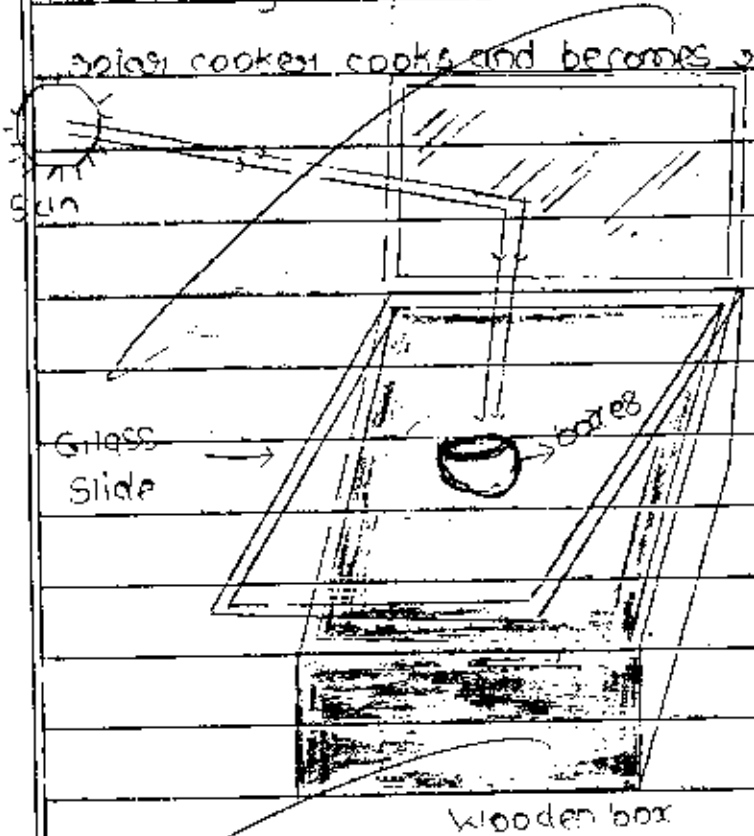
Answer-101

SOLAR COOKER → Solar cooker is a device which is used to cook food by the help of sunlight. This is based on the principle of solar heating devices. The easy principle of solar cooker is that food is cooked in a solar cooker by keeping the food in sunlight for a considerable time.

Construction → A solar cooker is made up of a wooden rectangular box. The rectangular box is lined with black colour at the bottom. It painted black from all sides. The solar cooker has a reflector which reflect the sunlight rays falling on it. It has also a (glass) which is kept over the wooden box. Solar cooker consist of black containers which are also painted black from all sides because black colour is the best absorber of light rays.

Merhanism → The solar cooker works on the simple principle that black colour is the best absorber of light rays. When sunlight rays comes on the earth, they can be used by using a solar cooker. Solar cooker should be placed in such place where there is sufficient light. The reflectors of

the solar cooker should be placed in such a way the reflector faces the sunlights. When the light rays coming from the sun falls on the reflector, the reflector reflect it in side the solar cooker. These lights rays are of short wavelength when enters into solar cooker becomes large wavelength. The glass fitted over it does not allow the light rays to escape through it. The light rays cannot escape from it. Hence temperature inside the solar cooker rises upto 100° to 110°. At this high temperature the food materials kept inside the solar cooker cooks and becomes ready to use.



Uses of solar cooker :-

(1) Solar cooker is very useful for the purpose of cooking. Cooking materials can be cooked in a solar cooker within short span of time.

(2) Solar cooker is used to cook rice, chapati, Rice and chapati can be cooked in a Solar cooker.

(3) By using Soolar cookers we are saving traditional sources of energy so solar cookers cooker is very useful.

(4) This type of soolaker cookers make the food which is very nutritional. So it is very useful.

Answer-12

Pollination → The transfer of anthers of a stamen to the stigma of carpel is known as pollination

Pollination is the asexual method of reproduction in a plant Pollination occurs in two ways – (1) Self pollination

(2) Cross pollination

(1) Self pollination – When the anthers of a stamen is transferred to the stigma of the same flower then it is called self pollination. example pea, wheat etc

(2) Cross pollination → When anthers of a stamen is transferred to the stigma of another flower (or another plant) then it is called cross pollination. example jasmine palm etc.

Self pollination	Cross pollination
(1) It gives rise to pure lines i.e. the hybrid obtained is pure.	(1) It occurs in the Variations i.e. It means that it gives rise to characters having variations.
(2) The flowers used in self pollination are not attractive ie they have not good smell and odour.	(2) The flowers used in cross pollination are attractive and have good smell and odour.
(3) No agency is required for the transfer of pollen grains.	(3) Agency like water, air, insects, animals are used for the transfer of pollen grains.
(4) It can occur in closed Flowers.	(4) It occurs only when Flower is open.
(5) It preserves the parental characters.	(5) It does not preserve the parental characters.

Long Answer Type Questions -

(Q3) Electric Motor

Definition - Electric motor is a device which converts the electric energy into mechanical energy. Every motor has a shaft or spindle attached to it which rotates continuously. Electric motor are used in fans, refrigerator, washing machines. It produces direct current. So it is also called D.C current.

Principle - Electric motor utilies the magnetic effect of current. The motor works on the principle that when a rectangular coil is moved in a magnetic field and current is passed into it, a force acts on the coil which rotates it continuously. As the coil rotates, the shaft attached to it also rotates. In this way electric energy supplied to motor converts into mechanical energy.

Main parts of Electric motor -

(1) Field Magnet NS - The field magnets are used in placed of electric magnets. This is permanent magnet whose poles are concave.

(2) Coil or Armature – It consists of coil as armature. The coil is wrapped with large turns of copper wires wound on soft iron core.

(3) Commutator – A commutator is a device which is used to reverse the direct of current in a circuit. It consists of two halves of metallic ring. The two ends of armature coil is attached to two halves of metallic ring.

(4) Brush (P and Q) – The function of brush is to maintain its connection with metallic ring and to supply current through it. The brush P and Q are attached against the commutator. The battery is applied across its end. This supplies current in the circuit.

Working of a Motor –

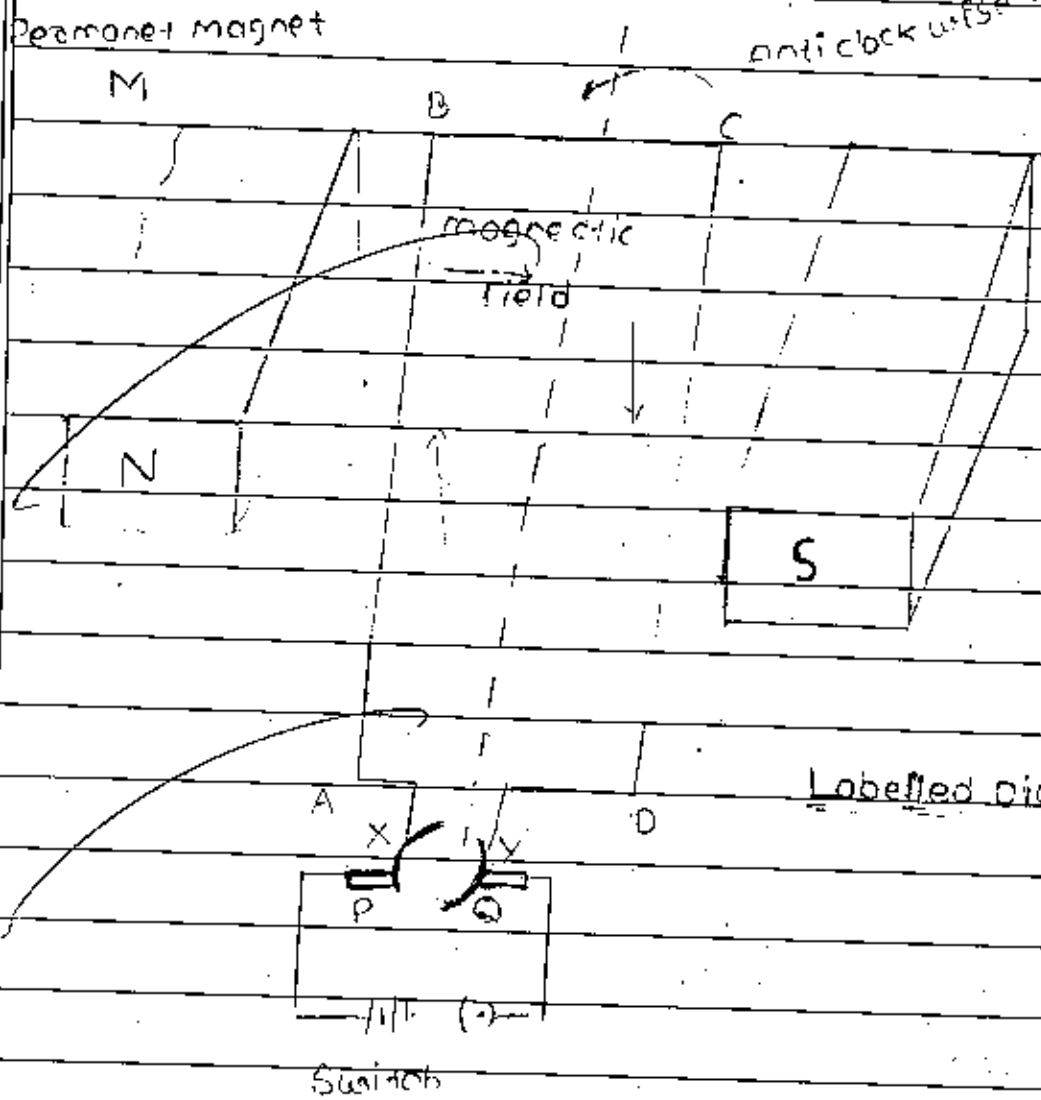
When an electric current is passed into the coil it creates a magnetic field. The magnetic field of armature brose-shoe type magnet then interacts with magnetic field of coil, it causes coil to move.

Consider ABCD a horizontal coil when current is passed it passed through commutator P and brush P and leaves via ring Y and brush Q.

(i) The direction of magnetic field is from N to S.
The direction of current in coil is from A to B and in CD

form C to D. This current and magnetic field causes the coil to move. AB is pushed upward and CD is pushed downward. In this way AB and CD are acted on by a force it. This makes the coil to rotate continuously.

(iii) As the coil rotates then spindle attached to it also rotates. If shaft rotates then it can be used in any type of work such as fan running fan. This is the working of electric motor.



Labelled Diagram

2009

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माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

केन्द्र क्रमांक 2023

1. केन्द्र की सील
2. पर्यवेक्षक के हस्ताक्षर व दिनांक 17.03.09
3. केन्द्राध्यक्ष के हस्ताक्षर की सील
4. केन्द्र क्रमांक
6. परीक्षा का नाम हाई स्कूल परीक्षा
7. विषय Science. 8. माध्यम English
8. दिनांक 17/03/09

परीक्षक के लिये
स्टीकर तीर के निशान से मिलाकर लगायें

पृष्ठ

Answer-11

Physical properties of metals :

(1) metals are malleable and ductile

Metals are malleable and ductile. this means that iron on hammering breaks into sheets. This property is called malleability.

On hammering, Iron can also be used to drawn into wires. This property is called ductility.

(2) metals have high melting point and boiling point.

metals are those elements which have high melting point and boiling point. The metals like iron. The melting point of Iron is 1053°C.

(3) metals are strong, good conductor of electricity →

The metals are strong i.e. They have the power to resistance. They don't break up easily.

They are good conductivity of

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heat and electricity. That is metals allow electric current to flow through them.

Chemical properties of Non-metal:-

(1) Reaction with O_2 → Non metal reacts with O_2 to form metallic oxide.

Metal + oxygen → metallic oxide

(i) $2Na + O_2 \rightarrow 2Na_2O$

(ii) $2Mg + O_2 \rightarrow 2MgO$

(iii) $2Zn + O_2 \rightarrow 2ZnO$

Reaction with acids →

metals reacts with acids to form salt and liberate H_2 gas

Metals + Acids → Salt + H_2

(i) $2Na + 2HCl \rightarrow 2NaCl + H_2\uparrow$

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(ii) $2K + 2HCl \rightarrow 2KCl + H_2$

(iii) Reaction with water:- metals reacts with water to form metallic hydroxide and h2 gas.

metals + water → metallic hydroxide + $H_2\uparrow$

~~$Ca + 2H_2O$~~ → $NaOH + H_2\uparrow$

(i) $2Mg + 2H_2O \rightarrow 2Mg(OH)_2 + H_2\uparrow$

(ii) $2K + 2H_2O \rightarrow 2KOH + H_2\uparrow$

④ योग पूर्व पृष्ठ + पृष्ठ 4 के अंक = कुल अंक

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