कुल पृष्ठ संख्या–24 (कवर पेज सहित)

क्रम संख्या 2623396

माध्यमिक शिक्षा बोर्ड, राजस्थान, अजमेर

माध्यमिक परीक्षा

(परीक्षार्थी द्वारा स्वयं भरा जाना चाहिये)

नोट :– परीक्षार्थी उपरोक्त के अतिरिक्त उत्तर पुस्तिका के अन्य किसी भी भाग में अपना नामांक नहीं लिखें।

माध्यम – हिन्दी [X] अंग्रेजी [✓]

विषय Science

परीक्षा का दिन Wednesday

दिनांक 29-03-2023

नोट :– परीक्षार्थी के लिए आवश्यक निर्देश इस पृष्ठ के पिछले भाग पर उल्लेखित हैं। जिन्हें सावधानी पूर्वक पढ़ लें व पालना अवश्य करें।

परीक्षक हेतु निर्देश :– (1) परीक्षक को उपरोक्त सारणी अनुसार प्राप्तांक भरना अनिवार्य हैं, अन्यथा नियमानुसार दंडित किया जायेगा।

(2) परीक्षक उत्तर पुस्तिका के अन्दर के पृष्ठों के बायीं ओर निर्धारित कॉलम में लाल इंक से अंक प्रदत करें।

(3) कुल योग भिन्न में प्राप्त होने पर उसे पूर्णांक में ही परिवर्तित कर अंकित करें (उदारणार्थ : 15 ¼ को 16, 17 ½ को 18, 19 ¾ को 20)

प्रश्नवार प्राप्तांकों की सारणी
(परीक्षक के उपयोग हेतु)

प्रश्नों की क्रम संख्या	प्राप्तांक	प्रश्नों की क्रम संख्या	प्राप्तांक
1	11	19	3
2	6	20	3
3	10½	21	4
4	2	22	4
5	2	23	4
6	2	24	
7	2	25	
8	2	26	
9	2	27	
10	2	28	
11	2	29	
12	2	30	
13	2	31	
14	2	योग	77½
15	2	प्राप्त अंकों का कुल योग (Round off)	
16	2	अंकों में	शब्दों में
17	3	78	Seventy Eight
18	3		

परीक्षक के हस्ताक्षर Gurl संकेतांक 52482

प्रमाणित किया जाता है कि इस उत्तर पुस्तिका के निर्माण में 58 जी.एस.एम. ईको मैपलिथो कागज ही उपयोग में लिया गया है।175/2023

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

Section - A

1. 1

	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii
Ans.	C	C	C	A	A	D	C	B	D	B	A	B

2. Fill in the blanks - 6

(i) The salivia contains an enzyme called salivary amylase. 1

(ii) Advantage of vegetative propagation is that all plants produced by this are genetically similar to the parent plant. 1

(iii) Substances that are decomposed by biological processes are called biodegradable. 1

(iv) Like poles of magnet repell with each other. 1

(v) Chemical name of acid present in vinegar is ethanoic acid. 1

(vi) Number of elements present in third period of modern periodic table are eight (8). 1

BSER - 17/2023

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

10½

3. very short answer type question -

A(i) The mechanism which regulates the action of a hormone is gland. 1

A(ii) An organism that exhibits multiple fission is Plasmodium. 1

A(iii) Disadvantage of using fossil fuels is that on burning fossil fuels they release oxides of carbon, nitrogen and sulphur which are harmful for our environment. 1

A(iv) An abiatic component of ecosystem is temperature. 1

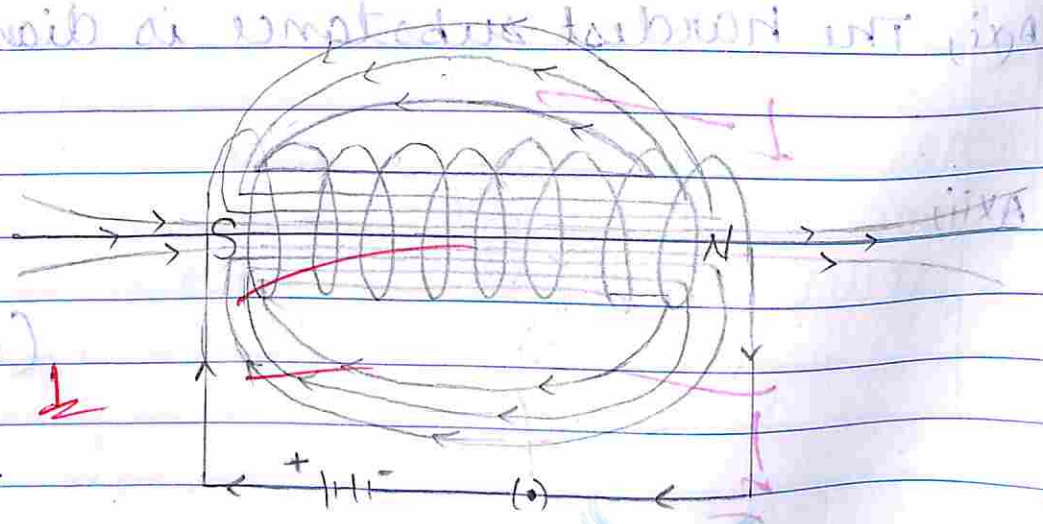
A(v) The value of ~~conductor~~ P = 2·5 Ω Any
The value of ρ = 1·6 × 10⁻⁴ Ωm Any 2

A(vi) Two magnetic field lines do not intersect ~~each other~~ because if we ~~put~~ place a compass on the point of intersection then ~~it will~~ the compass 1

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

will point in two different directions which is not possible.

A(vii)



MAGNETIC FIELD IN A CURRENT CARRYING SOLENOID

A(viii) A reaction in which an acid and a base reacts to form salt and water is called neutralisation reaction.

Eg :- $NaOH + HCl \rightarrow NaCl + H_2O$
(base) (acid) (Salt) (water)

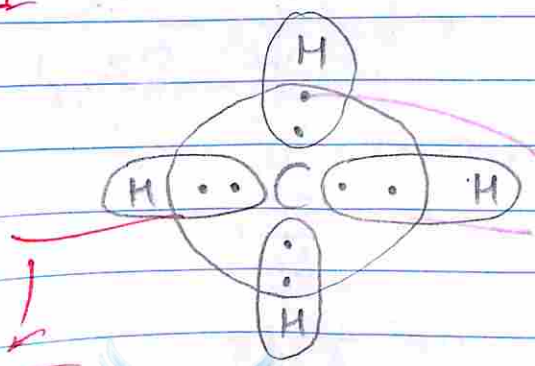
A(ix) The modern periodic law states that The properties of an element are the periodic function of its atomic number.

परीक्षक द्वारा प्रश्न अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

A(x) In this reaction CuO is reduced.

A(xi) The hardest substance is diamond.

A(xii)



(CH4)

This is the electron dot structure of methane.

Section - B

A.4 All the processes which are essential for maintainance of life of an individual are called life processes. Eg - respiration, excretion, digestion, transportation, etc.

A.5 The flower in which either male or female sexual part ~~or gamete is~~ present is called

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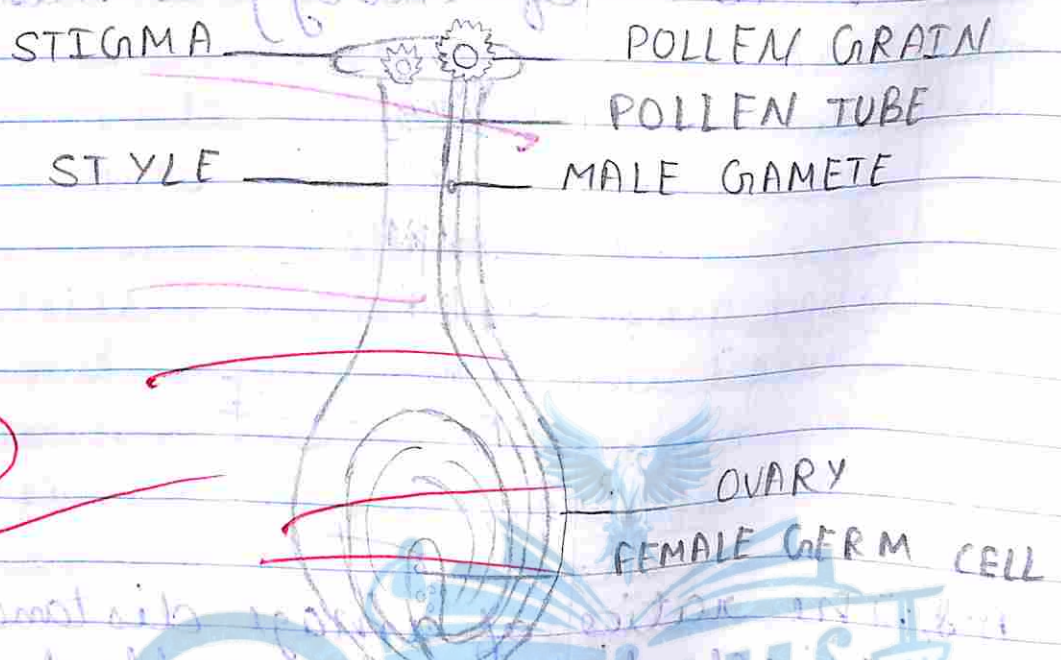
an unisexual flower.
Eg.- Papaya and watermelon

A·6



2

GERMINATION OF POLLEN GRAIN ON STIGMA

A·7 The autotrops or producers take sunlight and convert it into chemical energy. This energy is then taken by primary consumer or herbivores. Then secondary consumer or carnivores take this energy. And finally from secondary consumers this energy is taken by

2

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

large ~~can~~ carnivores are tertiary consumers. In this way energy flow between the various components of environment. In each step ~~@~~ 10% of energy is last.

TERTIARY
↑
SECONDARY
↑
PRIMARY
↑
PRODUCER

A.8 (i) The ratio of image distance to object distance ~~is called~~ of a lens is called magnification of lens. It is represented by letter 'm'. It also tells us about the nature of image.

$$m = \frac{-V \text{ (image distance)}}{U \text{ (object distance)}}$$

(ii) Convex mirror is used as rear-view mirror in vehicles.

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

A·9 (i) The electric potential difference in a current carrying conductor can be defined as the work done to move a charge from one point to another of the conductor. The S.I. unit of potential difference is volt. And it is represented by 'V'.

(2)

A (ii) Electric heater, electric toaster are the devices which are based on Joule's law of heating.

A·10 Let the current I be flowing through each resister (R_1, R_2, R_3). The potential difference across the current carrying conductor is V. Let V_1, V_2, V_3 be the potential difference of resisters R_1, R_2, R_3 respectively. Let R be the total resistance.

$$V = V_1 + V_2 + V_3 \quad -(i)$$

By Ohm's Law

$$I = \frac{V}{R} \qquad V = IR$$

So, $V_1 = IR_1$ - (ii)

$V_2 = IR_2$ - (iii)

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

$V_3 = IR_3$ — (iv)

By eq. (i), (ii), (iii) and (iv) we get,

$IR = IR_1 + IR_2 + IR_3$

$IR = I(R_1 + R_2 + R_3)$

$R = R_1 + R_2 + R_3$

A.11 The household electric circuits, the electric appliances are connected in parallel combination because -

(i) all appliances require different value of current to operate.

(ii) In case one appliance is damaged or not working, then other appliances will not be affected by this.

A.12 According to this rule, stretch your forefinger, middle finger and thumb of left hand in such a manner that they are mutually perpendicular. If the forefinger points in the direction of magnetic field and the middle finger points in the

परीक्षक द्वारा प्रदत्त अंक	प्रश्न संख्या	परीक्षार्थी उत्तर

direction of current then the thumb will point in the direction of force acting on the conductor.

A(ii) When the magnetic field is changed then the current flowing in one conductor will induce in another conductor. This is called electromagnetic induction.

A·13 ~~Ros~~ Roasting - In this a metal of middle reactivy

A·13 Roasting - This method is used for the metals of middle reactivity. In this sulphide ores are converted into oxide of metal by heating in excess air.

Calcination - This method is also used for the metals of middle reactivity. In this carbonate ores are converted into oxides of metal by heating in limited air.

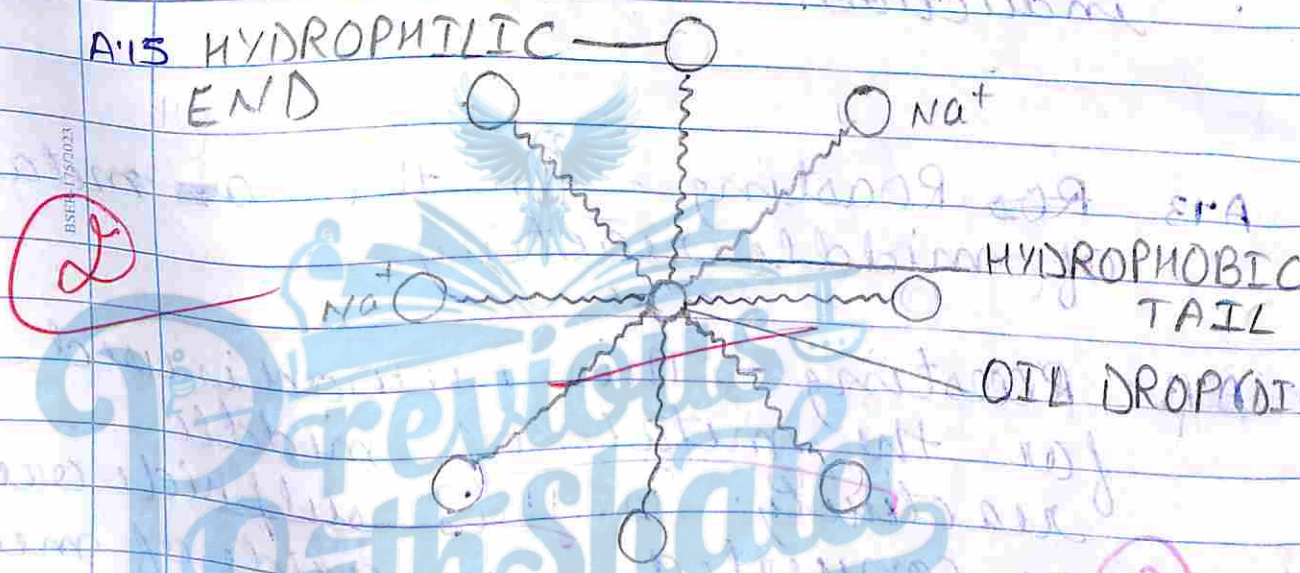
परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

A·14 (i) ~~Na~~ $2Na + 2CH_3CH_2OH \rightarrow 2CH_3CH_2O^-Na^+ + H_2$
(Sodium) (ethanol) (Sodium ethanoate) (Hydrogen)

HI = (2)

(ii) $CH_3CH_2OH \xrightarrow[443\,K]{Conc.\ H_2SO_4} CH_2=CH_2 + H_2O$
(ethanol) (ethene) (water)

A·15



(2)

THE MICELLE STRUCTURE OF SOAP

(2) 4

A·16 Newland arranged then known elements according to their physical and chemical properties and in increasing atomic masses. He started ~~as~~ from He observed

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that every eighth element has properties similar to that of first. He compared this to the octaves of music. This is known as Newland's law of octaves.

A·16 According to Newland's law of octaves, ~~every etc~~ elements when arranged in increasing atomic mass, every eighth element has properties similar to that of first.

2

Section - C

A·17 The hormone secreted by ovaries is oestrogen. Its functions are-

1+2 (3)

(i) To regulate menstruate cycle.
(ii) To develop female sex organ.

A·18 Homologous organs - These organs which have similar origin and structure but have different functions. Eg - limbs of lizard and frog.

1½+1½ (3)

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

Analogous organs - These organs which have different origin and structure but perform same functions.
Eg - Wings of bat and bird.

~~A·19 (i) Stars flt light~~

A·19 (i) When the light of stars enter in first layer of atmosphere, it bends as it enters the next layer. And when it enters our eyes this process is continued till the light reaches our eyes. This changes the apparent position of star. As an

A·19 (i) The different layers of atmosphere are motill. But their temperature and density changes continuously. Due to this the apparent position of star also changes continuously. Thus the continous change in apparent position of stars leads to the twinkling of star.

2/1/23

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

A(i) The danger singnals are red in colour because the red colour is the least scattered by fog or smoke. Hence, it can be easily seen from far away distances.

A.20 (i) Combination reactions - Those reactions in which two or more reactants react to form a single product are called combination reactions.

1½ + 1½ = 3

Eg - $2Mg(s) + O_2(g) \rightarrow 2MgO(s)$

(ii) Decomposition reaction - Those reactions in which a single reactant react to form two or more products. This can be done by heat, electricity and sunlight.

Eg - $2H_2O(l) \xrightarrow{\text{electricity}} 2H_2(g) + O_2(g)$

परीक्षक द्वारा प्रश्न संख्या | परीक्षार्थी उत्तर

Section - D

A. 21 (i) The respiration in which oxygen is inhaled and pyruvate is braken down to give carbon dioxide water and energy.

1+2+1 = (4)

(ii) Nastrils - The oxygen rich air is inhaled through nastrils. It contains hairs which filter the air. It also contain mucus which traps the dust particles.

Pharnyx - It is the jinction of nasal and buccal cavity. The air from nostrils comes here.

Larnyx - It is called voice box. The oxygen rich air from pharnyx then enteress in larnyx.

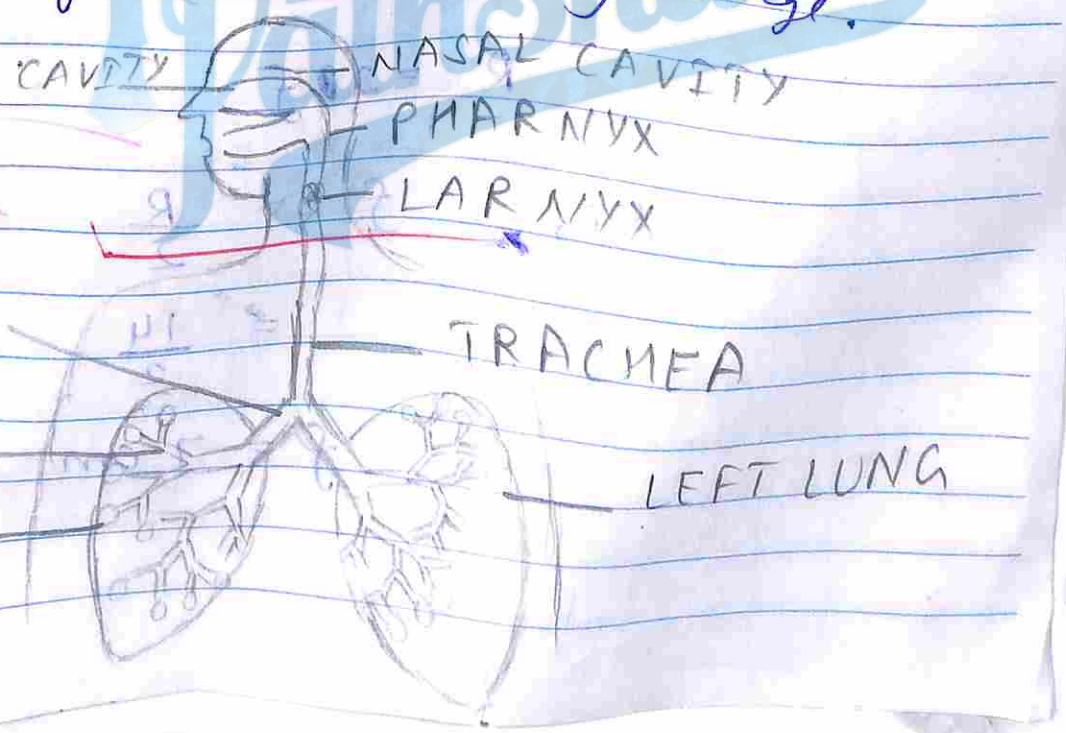
Trachea - It is also known as wind pipe. Then the air enters the trachea. The trachea is protected by C-shaped cartilage.

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

Bronchi – The trachea is then divides into two main stream called Bronchi. Each bronchi enters a lung.

Bronchioles – The bronchi are divided into multiple small branches called bronchioles.

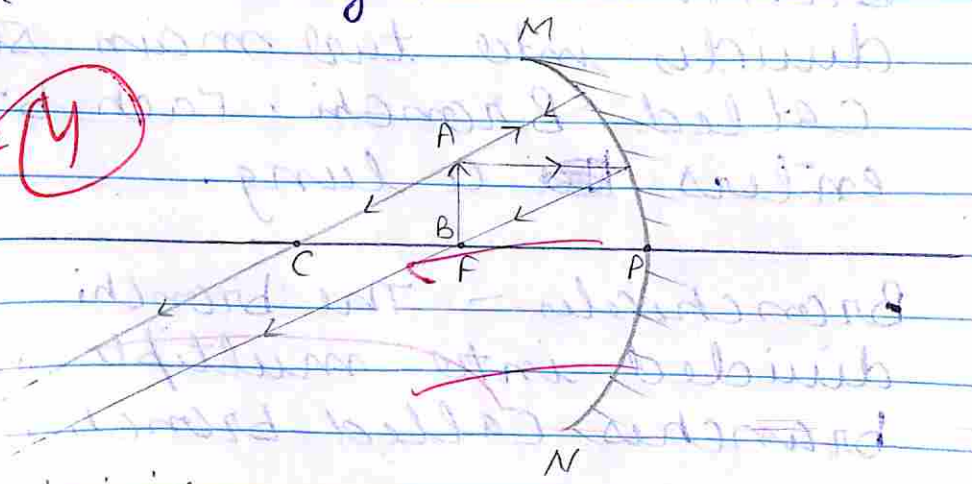
Alveoli – The oxygen rich air from bronchioles enters the alveoli. Alveoli are small sacs which have balloon like structure. ~~Alveoli are one cell thick~~. The walls of alveoli are one cell thick. These walls are highly supplied with blood capillaries. The surface area of Alveoli is very large.

(iii) 

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

A.22 (i) When object is at Focus.

2+2=4



At infinity

Position of image = At infinity
Size of image = Highly enlarged
Nature of image = Real and inverted

(ii) Radius of curvature = 14 cm
Focal length of mirror = ?

We know that,

$R = 2f$

So, $f = \frac{R}{2}$

$= \frac{14}{2}$

$f = 7$ cm or 0.07m Ans

परीक्षक द्वारा प्रदत्त अंक | प्रश्न संख्या | परीक्षार्थी उत्तर

A·23 (i) Example of olfactory indicater is clove oil.

(ii) Compound [A] = $CaCO_3$
Compound [B] = $Ca(HCO_3)_2$

Equation – 1

$Ca(OH)_{2(aq)} + CO_{2(g)} \rightarrow CaCO_{3(s)} + H_2O_{(l)}$
(lime water) (calcium carbonate)

Equation – 2

$CaCO_{3(s)} + H_2O_{(l)} + CO_{2(g)} \rightarrow Ca(HCO_3)_2$
calcium hydrogencarbonate or Calcium bicarbonate

Total ⇒ 7½