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ಕರ್ನಾಟಕ ಪ್ರೌಢ ಶಿಕ್ಷಣ ಪರೀಕ್ಷಾ ಮಂಡಳಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು – 560 003

**KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD, MALLESWARAM,
BANGALORE – 560 003**

ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಪರೀಕ್ಷೆ, ಮಾರ್ಚ್ / ಏಪ್ರಿಲ್ — 2020

S. S. L. C. EXAMINATION, MARCH/APRIL, 2020

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 30. 03. 2020]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Bio)**

Date : 30. 03. 2020]

CODE No. : **83-E (Bio)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಜೀವಶಾಸ್ತ್ರ / Biology)

(ಹಳೆ ಪಠ್ಯಕ್ರಮ / Old Syllabus)

(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : 80

[Max. Marks : 80

Qn. Nos.	Value Points	Total
2.	The function of parathormone is to regulate (A) glucose level in the blood (B) calcium salts in blood and bones (C) heartbeat, breathing rate (D) growth and development of the body. Ans. : (B) calcium salts in blood and bones	1
7.	The technology of developing genetically similar molecules, cells, tissues or organisms from a common precursor in laboratory condition is (A) cloning (B) DNA fingerprint technology (C) genetic engineering (D) Recombinant DNA technology. Ans. : (A) cloning	1

RR(B)-436 (BIO)

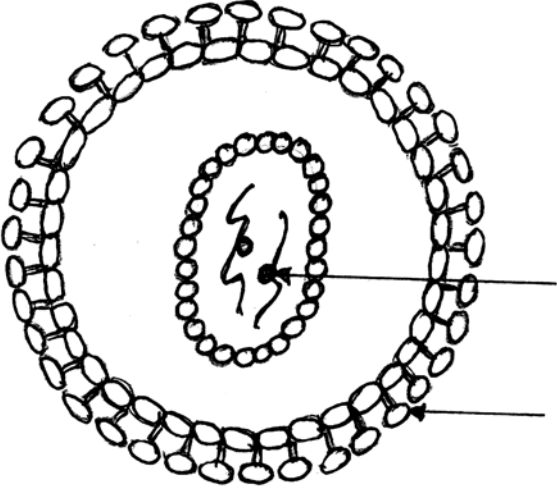
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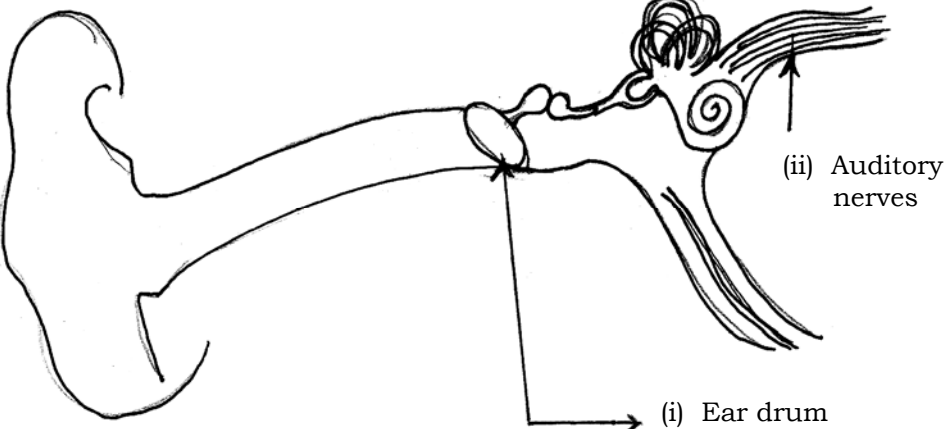
Qn. Nos.	Value Points	Total
10.	<p>If phloem of a plant is removed, then the most affected process is</p> <p>(A) food conduction (B) water conduction</p> <p>(C) removal of wastes (D) mineral conduction.</p> <p>Ans. :</p> <p>(A) food conduction</p>	1
14.	<p>Ligaments help in the movement of bones. Why ?</p> <p>Ans. :</p> <p>— Ligaments consists of more of elastic fibres. $\frac{1}{2}$</p> <p>— Ligaments connect one bone to another.</p> <p>Hence they help in the movement of the body. $\frac{1}{2}$</p>	1
17.	<p>Name the greenhouse gases in the atmosphere.</p> <p>Ans. :</p> <p>Carbon dioxide, oxides of nitrogen, methane, ozone to some extent.</p> <p>(Any two points) $\frac{1}{2} + \frac{1}{2}$</p>	1
19.	<p>List the characteristic features that we share with other primates.</p> <p>Ans. :</p> <ul style="list-style-type: none"> ★ Primates have distinct face in place of a snout observed in other mammals. ★ Most of the skull is posterior to the eyes. ★ Eyes directed forwards, enabling binocular vision. ★ Free movement of the digits, especially the thumb which can oppose other digits. ★ Claws modified into nails. ★ Enlarged brain, especially the cerebral hemisphere. ★ Only two mammary glands to nourish the young ones. ★ Typically and generally only one offspring in each pregnancy. <p>(Any four points) $4 \times \frac{1}{2}$</p>	2

Qn. Nos.	Value Points	Total
22.	<p>The production of genetically modified plants is widely used than the production of mutant plants nowadays. Analyse with reasons.</p> <p>Ans. :</p> <ul style="list-style-type: none"> ★ Mutant plants are obtained by genetic changes brought about in the plants by using chemicals or radiations. ★ The site of mutation in the gene cannot be controlled. ★ Whereas, genetically modified plants are obtained by introducing a specific gene responsible for a desired trait directly into a new plant variety by adopting recombinant DNA technology. ★ Desirable and a variety of breeds can be produced. <p>Hence the production of genetically modified plants is widely used than the mutant plant. (Any four points) $4 \times \frac{1}{2}$</p>	2
25.	<p>Mention any four adaptations which enable the birds to fly.</p> <p style="text-align: center;">OR</p> <p>What is metamorphosis ? Give two examples of vertebrates that exhibit metamorphosis in their life cycle.</p> <p>Ans. :</p> <ul style="list-style-type: none"> ★ Streamlined body. ★ Forelimbs modified into wings. ★ Special arrangement of feathers on the wings to provide lift ★ Presence of flight muscles. ★ Reduced body weight. ★ Long bones are pneumatic, filled with air. ★ Many bones in the body are fused. ★ Absence of teeth, replaced by a beak. ★ Lungs are supported by air sacs for storing additional air. <p style="text-align: right;">(Any four points) $4 \times \frac{1}{2}$</p> <p style="text-align: center;">OR</p> <p>Metamorphosis is the process of transformation of the larva into adult. 1</p> <p>Examples : Frog, Toad, Salamander, Newt, Ichthyophis (apodan)etc.</p> <p style="text-align: right;">(Any two relevant examples) $\frac{1}{2} + \frac{1}{2}$</p>	2

Qn. Nos.	Value Points	Total																
28.	<p>Write any two differences between striped muscles and unstriped muscles.</p> <p style="text-align: center;">OR</p> <p>Mention the features of meristematic tissues.</p> <p>Ans. :</p> <table border="1" data-bbox="263 600 1332 1422"> <thead> <tr> <th data-bbox="263 600 798 667"><i>Striped muscles</i></th> <th data-bbox="798 600 1332 667"><i>Unstriped muscles</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="263 667 798 831">★ Muscle fibres are elongated, cylindrical and unbranched</td> <td data-bbox="798 667 1332 831">★ Muscle fibres are elongated, and spindle shaped with branches</td> </tr> <tr> <td data-bbox="263 831 798 947">★ They show characteristic striation or cross bands</td> <td data-bbox="798 831 1332 947">★ They show no striation</td> </tr> <tr> <td data-bbox="263 947 798 1064">★ Muscle fibres are multi-nucleate</td> <td data-bbox="798 947 1332 1064">★ Muscle fibres are uninucleate</td> </tr> <tr> <td data-bbox="263 1064 798 1180">★ They are called skeletal muscles</td> <td data-bbox="798 1064 1332 1180">★ They are called smooth muscles</td> </tr> <tr> <td data-bbox="263 1180 798 1247">★ They are voluntary muscles</td> <td data-bbox="798 1180 1332 1247">★ They are involuntary muscles</td> </tr> <tr> <td data-bbox="263 1247 798 1314">★ Muscles fatigue easily</td> <td data-bbox="798 1247 1332 1314">★ Muscles do not fatigue easily</td> </tr> <tr> <td data-bbox="263 1314 798 1422">★ Found in locomotory structures like legs, hands</td> <td data-bbox="798 1314 1332 1422">★ Found in oesophagus, stomach, kidney, intestine etc.</td> </tr> </tbody> </table> <p style="text-align: right;">(Any two points) 1 + 1</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ★ The cells have thin cell wall ★ The cells divide actively and cause growth ★ The cells are closely arranged without any intercellular space in between ★ The cells have large nucleus, lack chloroplasts ★ Vacuoles are either very small or absent. <p style="text-align: right;">(Any two points) $4 \times \frac{1}{2}$</p>	<i>Striped muscles</i>	<i>Unstriped muscles</i>	★ Muscle fibres are elongated, cylindrical and unbranched	★ Muscle fibres are elongated, and spindle shaped with branches	★ They show characteristic striation or cross bands	★ They show no striation	★ Muscle fibres are multi-nucleate	★ Muscle fibres are uninucleate	★ They are called skeletal muscles	★ They are called smooth muscles	★ They are voluntary muscles	★ They are involuntary muscles	★ Muscles fatigue easily	★ Muscles do not fatigue easily	★ Found in locomotory structures like legs, hands	★ Found in oesophagus, stomach, kidney, intestine etc.	<p style="text-align: center;">2</p> <p style="text-align: center;">2</p>
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31.	<p>Brown spots and cracks were observed on the leaves of plants in some regions after a rainfall. Analyse the reasons for these changes.</p> <p>Ans. :</p> <ul style="list-style-type: none"> ★ It is due to acid rain whose pH is less than 5.6 $\frac{1}{2}$ ★ The soil becomes acidic $\frac{1}{2}$ ★ The nutrients in the soil get lost $\frac{1}{2}$ ★ The leaves develop brown spots and cracks and allow the infection of pathogens. $\frac{1}{2}$ 	2												
35.	<p>Mention the differences between Mango and Sugarcane plants related to the following factors :</p> <p>a) Leaf</p> <p>b) Seed germination</p> <p>c) Structure of root.</p> <p>Ans. :</p> <table border="1" data-bbox="261 1120 1334 1592"> <thead> <tr> <th data-bbox="261 1120 619 1182"><i>Feature</i></th> <th data-bbox="619 1120 938 1182"><i>Mango</i></th> <th data-bbox="938 1120 1334 1182"><i>Sugarcane</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="261 1182 619 1321">i) Leaf</td> <td data-bbox="619 1182 938 1321">Reticulate venation is seen</td> <td data-bbox="938 1182 1334 1321">Parallel venation is seen $\frac{1}{2} + \frac{1}{2}$</td> </tr> <tr> <td data-bbox="261 1321 619 1460">ii) Seed germination</td> <td data-bbox="619 1321 938 1460">Cotyledons appear above the soil</td> <td data-bbox="938 1321 1334 1460">Cotyledon remains below the soil $\frac{1}{2} + \frac{1}{2}$</td> </tr> <tr> <td data-bbox="261 1460 619 1592">iii) Structure of root</td> <td data-bbox="619 1460 938 1592">Tap root system</td> <td data-bbox="938 1460 1334 1592">Fibrous root system $\frac{1}{2} + \frac{1}{2}$</td> </tr> </tbody> </table>	<i>Feature</i>	<i>Mango</i>	<i>Sugarcane</i>	i) Leaf	Reticulate venation is seen	Parallel venation is seen $\frac{1}{2} + \frac{1}{2}$	ii) Seed germination	Cotyledons appear above the soil	Cotyledon remains below the soil $\frac{1}{2} + \frac{1}{2}$	iii) Structure of root	Tap root system	Fibrous root system $\frac{1}{2} + \frac{1}{2}$	3
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37.	<p>Draw the diagram showing the structure of HIV. Label the following parts :</p> <p>a) Reverse transcriptase</p> <p>b) Fatty layer.</p> <p>Ans. :</p>													

Qn. Nos.	Value Points	Total															
39.	<div style="text-align: center;">  <p>Structure of HIV</p> <p>Drawing — 1</p> <p>Labelling — $\frac{1}{2} + \frac{1}{2}$</p> </div> <p>Round seeds producing dominant pea plant is hybridised with wrinkled seeds producing recessive pea plant. Draw the checker board showing the results obtained in the F_2 generation. Write the genotypic ratio.</p> <p style="text-align: center;">OR</p> <p>Mention the applications of biotechnology.</p> <p>Ans. :</p> <p>Results obtained in the F_2 generation :</p> <table border="1" data-bbox="432 1344 1125 1579"> <thead> <tr> <th>Gametes</th> <th><i>R</i></th> <th><i>r</i></th> </tr> </thead> <tbody> <tr> <th><i>R</i></th> <td><i>RR</i> Round seed</td> <td><i>Rr</i> Round seed</td> </tr> <tr> <th><i>r</i></th> <td><i>Rr</i> Round seed</td> <td><i>rr</i> Wrinkled seed</td> </tr> </tbody> </table> <p>Genotypic ratio = 1 : 2 : 1</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1 pure round seeded plant</td> <td>:</td> <td>2 hybrid round seeded plant</td> <td>:</td> <td>1 pure wrinkled seeded plant</td> <td style="text-align: right;">1</td> </tr> </table> <p style="text-align: center;">OR</p> <p>★ Large scale synthesis of life saving drugs like antibiotics, vaccines, artificial hormones etc.</p>	Gametes	<i>R</i>	<i>r</i>	<i>R</i>	<i>RR</i> Round seed	<i>Rr</i> Round seed	<i>r</i>	<i>Rr</i> Round seed	<i>rr</i> Wrinkled seed	1 pure round seeded plant	:	2 hybrid round seeded plant	:	1 pure wrinkled seeded plant	1	3
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	<ul style="list-style-type: none"> ★ Improvement of plant and animal breeds, pests and pathogens control in agriculture. ★ Synthesis of acceptable additives in food processing and management industries. ★ Synthesis of biocatalysts and biopolymers. ★ Pollution control by sewage treatment or water recycling. ★ By recombinant DNA technology, transferring nitrogen fixing gene from bacteria into plants to enable them to meet their nitrogen requirements. 	$6 \times \frac{1}{2}$				
42.	<p>Draw the diagram showing the internal structure of human ear. Label the following parts :</p> <p>i) Ear drum</p> <p>ii) Auditory nerves.</p>					
	<p>Ans. :</p> <div style="text-align: center;">  <p style="text-align: center;">Internal structure of Human ear</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 10px;">Drawing —</td> <td style="text-align: right;">3</td> </tr> <tr> <td style="padding-right: 10px;">Labelling —</td> <td style="text-align: right;">$\frac{1}{2} + \frac{1}{2}$</td> </tr> </table> </div>	Drawing —	3	Labelling —	$\frac{1}{2} + \frac{1}{2}$	4
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