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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 ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / Private Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : **100**

[Max. Marks : 100

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

Qn. Nos.	Value Points	Total
10.	If phloem of a plant is removed, then the most affected process is (A) food conduction (B) water conduction (C) removal of wastes (D) mineral conduction. *Ans.* : (A) food conduction	1
14.	Ligaments help in the movement of bones. Why ? *Ans.* : — Ligaments consists of more of elastic fibres. $\frac{1}{2}$ — Ligaments connect one bone to another. Hence they help in the movement of the body. $\frac{1}{2}$	1
17.	Name the greenhouse gases in the atmosphere. *Ans.* : Carbon dioxide, oxides of nitrogen, methane, ozone to some extent. (Any *two* points) $\frac{1}{2}+\frac{1}{2}$	1
19.	List the characteristic features that we share with other primates. *Ans.* : ★ 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. (Any *four* points) $4 \times \frac{1}{2}$	2

Qn. Nos.	Value Points	Total
22.	The production of genetically modified plants is widely used than the production of mutant plants nowadays. Analyse with reasons. *Ans.* : ★ 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. Hence the production of genetically modified plants is widely used than the mutant plant. (Any *four* points) $4 \times \frac{1}{2}$	2
25.	Mention any four adaptations which enable the birds to fly. OR What is metamorphosis ? Give two examples of vertebrates that exhibit metamorphosis in their life cycle. *Ans.* : ★ 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. (Any *four* points) $4 \times \frac{1}{2}$	2
	OR Metamorphosis is the process of transformation of the larva into adult. 1 *Examples* : Frog, Toad, Salamander, Newt, Ichthyophis (apodan)etc. (Any *two* relevant examples) $\frac{1}{2}+\frac{1}{2}$	2

Qn. Nos.	Value Points	Total
28.	Write any two differences between striped muscles and unstriped muscles. OR Mention the features of meristematic tissues. *Ans.* :	

Striped muscles	*Unstriped muscles*
★ 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 locomotary structures like legs, hands	★ Found in oesophagus, stomach, kidney, intestine etc.

(Any *two* points) 1 + 1 — 2

OR

★ 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.

(Any *two* points) $4 \times \frac{1}{2}$ — 2

Qn. Nos.	Value Points	Total
31.	Brown spots and cracks were observed on the leaves of plants in some regions after a rainfall. Analyse the reasons for these changes. *Ans.* : ★ 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.	List the symptoms observed in a person suffering from Chikungunya. *Ans.* : ★ Fever upto 40°C (104°F) $\frac{1}{2}$ ★ Rashes on the trunk region and occassionally on the limbs $\frac{1}{2}$ ★ Severe pain in multiple joints (arthralgia or arthritis) $\frac{1}{2}$ ★ Headache, conjunctivitis and slight photophobia. $\frac{1}{2}$	2
38.	Mention the types of plant hormones. Give one example for each type. *Ans.* : a) *Plant growth promoting hormones* (Growth promoters) *Ex.* : i) Auxins ii) Gibberellins iii) Cytokinins (Any *one* example) $\frac{1}{2}$ b) *Plant growth inhibiting hormones* (Growth inhibitors) : $\frac{1}{2}$ *Ex.* : i) Abscisic acid $\frac{1}{2}$ ii) Ethylene (Any *one* example) $\frac{1}{2}$	2
41.	Explain the significance of DNA. *Ans.* : ★ DNA has the coded information for controlling all the metabolic activities of the cell both directly and indirectly. $\frac{1}{2}$	

Qn. Nos.	Value Points	Total
	★ By its special property of self replication, it ensures equal distribution of similar genetic material to offsprings and thus responsible for heredity. $\frac{1}{2}$ ★ DNA synthesises RNA which codes for synthesis of specific proteins. So DNA indirectly helps in protein synthesis. $\frac{1}{2}$ ★ DNA sometimes undergoes mutation and recombination which brings about variations in the characters of the offsprings. $\frac{1}{2}$	2
44.	Bleeding could not be controlled in a person wounded accidentally. The deficiency of which component of blood causes this problem ? What is the function of these components ? *Ans.* : ★ The person has the deficiency of platelets in the blood. 1 ★ Platelets are responsible for clotting of blood. 1	2
45.	Mention the differences between Mango and Sugarcane plants related to the following factors : a) Leaf b) Seed germination c) Structure of root. *Ans.* :	

Feature	*Mango*	*Sugarcane*
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

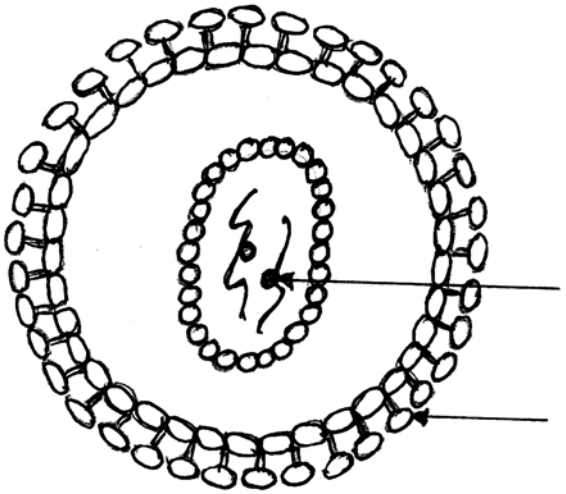
47. Draw the diagram showing the structure of HIV. Label the following parts :

a) Reverse transcriptase

Qn. Nos.	Value Points	Total

b) Fatty layer.

Ans. :



Structure of HIV

Drawing — 1

Labelling — $\frac{1}{2}+\frac{1}{2}$ 3

49. 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.

OR

Mention the applications of biotechnology.

Ans. :

Results obtained in the F_2 generation :

Gametes	*R*	*r*
R	*RR* Round seed	*Rr* Round seed
r	*Rr* Round seed	*rr* Wrinkled seed

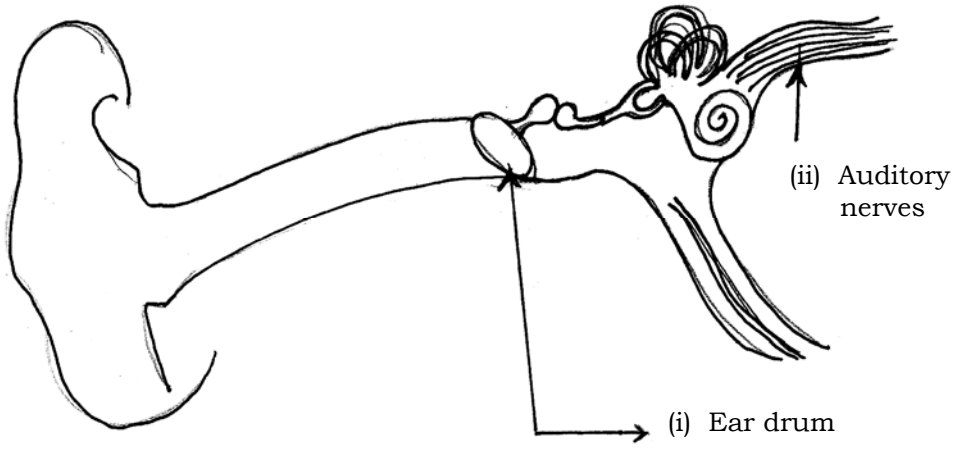
2

Genotypic ratio = 1 : 2 : 1

1 pure round seeded plant : 2 hybrid round seeded plant : 1 pure wrinkled seeded plant

1 3

OR

Qn. Nos.	Value Points	Total
	★ Large scale synthesis of life saving drugs like antibiotics, vaccines, artificial hormones etc. ★ 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, transfering nitrogen fixing gene from bacteria into plants to enable them to meet their nitrogen requirements. $6 \times \frac{1}{2}$	3
52.	Draw the diagram showing the internal structure of human ear. Label the following parts : i) Ear drum ii) Auditory nerves. *Ans.* :  Internal structure of Human ear Drawing — 3 Labelling — $\frac{1}{2}+\frac{1}{2}$	4