

DIRECTORATE OF GOVERNMENT EXAMINATIONS CHENNAI – 600006
HIGHERSECONDARY FIRST YEAR PUBLIC EXAMINATIONS
MARCH – 2024
BIO-BOTANY – ANSWER KEY

Instructions :

1. Only answers written in Blue Or Black ink should be evaluated
2. Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer in Part I
3. If any of the answer option code or answer is incorrect then only zero marks shall be awarded.

PART – I**Marks : 35**

Answer all the questions.

8 × 1 =8

Q.No	Option	Type A	Q.No	Option	Type B
1	b)	3 inches	1	c)	Chlorella
2	d)	Multicarpellary, apocarpous ovary	2	d)	Cambium for secondary growth
3	a)	Calcium	3	b)	Cuticular
4	d)	Mitochondria	4	d)	Multicarpellary, apocarpous ovary
5	c)	Chlorella	5	b)	3 inches
6	d)	Cambium for secondary growth	6	d)	PS I and PS II involved in the formation of NADPH + H ⁺
7	b)	Cuticular	7	d)	Mitochondria
8	d)	PS I and PS II involved in the formation of NADPH+ H ⁺	8	a)	Calcium

Section - 2

Answer any Four Questions.

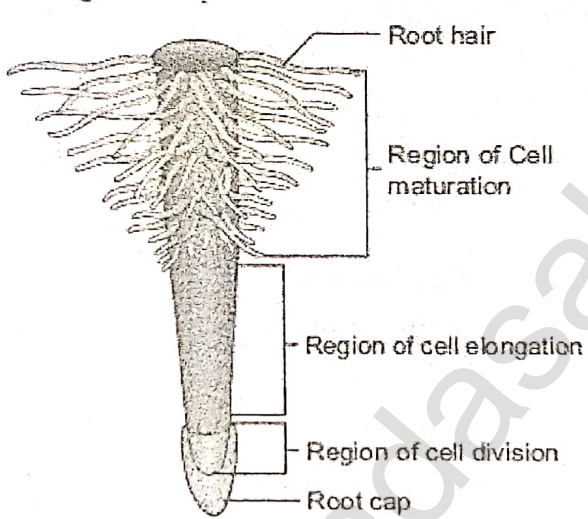
4x2=8

Q.No.	Answer	Marks	Total Marks
9	Dendrochronology : The determination of the age of a tree by counting the annual rings Dendroclimatology : It is the branch of dendrochronology concerned with constructing records of the past climate and climatic events by analysis of growth rings of a tree	1 1	2
10	Non Living characters of virus 1.Can be crystallized 2.Absence of metabolism 3.Inactive outside the host 4.Do not show functional autonomy 5.Energy producing enzyme system is absent (Any Two)	1+1	2
11	Synapsis : Pairing of homologous chromosomes taking place in Zygotene stage in Meiosis cell division is known as synapsis		2
12	In succulent plants, during respiration, O ₂ is consumed but CO ₂ is not released. Hence Respiratory Quotient is zero (OR) RQ of glucose in succulents = $\frac{\text{zero molecule of CO}_2}{3 \text{ molecules of O}_2} = 0$		2
13	(a) A sterile stamen - Staminode (b) Stamens are united in one bundle - monadelphous	1 1	2
14	The factors determining water potential are 1) Solute concentration or Solute potential (Ψ_s) 2) Pressure potential (Ψ_p) (Or) $\Psi_w = \Psi_s + \Psi_p$	1+1 (Or) 2	2

Section – 3

Answer any three Questions.
Question No.19 is compulsory.

3x3=9

Q.No.	Answer	Marks	Total Marks										
15	<p>Hydroponics or soilless culture</p> <ul style="list-style-type: none"> * The method of growing plants in nutrient solution. * Roots are immersed in the solution containing nutrients. * Air is supplied with help of a tube. <p>(OR)</p> <p>Labelled diagram (Diagram - 2 marks, Parts – 1 mark)</p>	1 1 1	3										
16	<p>Parts of regions of root :</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Diagram</p> <p>Any 2 Parts</p> </div> </div>	2 1	3										
17	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Haplontic Life cycle</th> <th style="width: 50%; text-align: center;">Diplontic Life cycle</th> </tr> </thead> <tbody> <tr> <td>Gametophytic phase (n) is dominant</td> <td>Sporophytic phase (2n) is dominant</td> </tr> <tr> <td>sporophytic phase is represented by zygote</td> <td>Gametophytic phase is represented by single to a few celled gametophyte</td> </tr> <tr> <td>Zygote undergoes meiosis to restore haploid condition</td> <td>Gametes fuse to form zygote which develops into sporophyte</td> </tr> <tr> <td>Ex. Volvox, Spirogyra</td> <td>Ex. Fucus, Gymnosperms, Angiosperms</td> </tr> </tbody> </table>	Haplontic Life cycle	Diplontic Life cycle	Gametophytic phase (n) is dominant	Sporophytic phase (2n) is dominant	sporophytic phase is represented by zygote	Gametophytic phase is represented by single to a few celled gametophyte	Zygote undergoes meiosis to restore haploid condition	Gametes fuse to form zygote which develops into sporophyte	Ex. Volvox, Spirogyra	Ex. Fucus, Gymnosperms, Angiosperms	<p>3×1 (Any Three)</p>	3
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18	Properties of Water : <ul style="list-style-type: none"> • Adhesion and cohesion property. • High latent heat of vaporisation • High melting and boiling point • Universal solvent • Specific heat capacity <p style="text-align: right;">(Any Three)</p>	3×1	3
19	Functions of the Nucleus : <ul style="list-style-type: none"> • Controlling all cellular activities. • coding the information from DNA for the production of enzymes and protein. • Storing the hereditary information. • DNA duplication and transcription takes place in the nucleus. • In nucleolus ribosomal biogenesis takes place <p style="text-align: right;">(Any Three)</p>	3×1	3

Section – 4

Answer all Questions.

2x5=10

Q.No.	Answer	Marks	Total Marks
20 (a)	<i>Allium cepa</i> Habit Root Stem Leaf Inflorescence Flower Perianth Androecium Gynoecium Fruit Seed Floral Diagram Floral Formula (Any Three)	3	5
(OR)		1	1

(b)	<p>Characteristic features of DNA</p> <ul style="list-style-type: none"> • If one strand run in the 5' - 3' direction, the other runs in 3' - 5' direction. • Two strands are antiparallel • The 5' end has the phosphate group and 3' end has the OH group • Diameter of 20 A⁰ and a pitch of 34 A⁰ • Presence of minor groove and major groove • A complete turn of the helix comprises 3.4 nm or 10 base pairs per turn in the B form of DNA. • Hydrogen bond between complementary bases • The Phosphodiester linkage gives strength and stability to the polynucleotide chain • Plectonemic coil and Paranemic coiling are found. • Based on the helix and the distance between the turns, DNA is of three forms - A DNA, B DNA and Z DNA <p style="text-align: right;">(Any Five)</p>	5 x 1	5
21 (a)	<p>Kreb's Cycle flow chart</p> <p style="text-align: center;">(Or)</p> <p>Explanation with</p> <ul style="list-style-type: none"> • Substrates • Enzymes • ATP, NADH₂, FADH₂ 	5	5
(OR)			
(b)	<p>General account on Lichens :</p> <ul style="list-style-type: none"> • Symbiotic association between algae and fungi • Algal partner - phycobiont or Photobiont and Fungal partner - Mycobiont • Algae provide nutrition, Fungi provide protection and help thallus fixing to the substratum • Asexual reproduction by fragmentation, soredia and Isidia • Algae reproduce by akinetes, hormogonia, aplanospore • Mycobionts undergo sexual reproduction by ascocarp <p style="text-align: right;">(Any Five)</p>	5x1	5

Directorate of Government Examination- Chennai – 600 006
HSC First Year Public Examination – March – 2024
Part -II Bio Zoology Key Answer

Note:-

1. Answer written only in BLACK or Blue should be evaluated
2. Write and underline and pencil to draw diagrams.
3. Choose the correct answer and write the option code if one of them (option of answer) is wrong, then award zero mark only

Maximum marks :35

Note : Answer all the questions

Section – 1

8X1=8

Answer					
Q.No	Option	TYPE - A	Q.No	Option	TYPE - B
1	d	Evolutionary and Phylogenetic	1	a	Assertion and reason are correct and related
2	c	Tidal Volume (TV) + Inspiratory Reserve Volume (IRV) + Expiratory Reserve Volume (ERV)	2	a	goitre
3	b	Emulsification	3	d	Limbic system
4	d	Inner wall of Bowman's capsule	4	c	Tidal Volume (TV) + Inspiratory Reserve Volume (IRV) + Expiratory Reserve Volume (ERV)
5	a	goitre	5	d	Inner wall of Bowman's capsule
6	d	Limbic system	6	d	Evolutionary and Phylogenetic
7	a	Assertion and reason are correct and related	7	a	Mosaic
8	a	Mosaic	8	b	Emulsification

Section – 2

Note : Answer any four questions

4x2=8

9	Tetany :-	<ul style="list-style-type: none"> • Deficiency of parathyroid hormone leads to reduced blood calcium levels in the body 	2
10	Types of respiration seen in frog Skin respiration (or) cutaneous. Buccal respiration. Pulmonary respiration (or) Lungs.	(Any Two)	2

1 | Page

18	<table border="1"> <thead> <tr> <th data-bbox="255 168 734 212">Layers of Adrenal Cortex</th> <th data-bbox="734 168 1324 212">Secretion of Hormones</th> </tr> </thead> <tbody> <tr> <td data-bbox="255 212 734 257">Zona glomerulosa</td> <td data-bbox="734 212 1324 257">mineralocorticoids</td> </tr> <tr> <td data-bbox="255 257 734 358">Zona fasciculata</td> <td data-bbox="734 257 1324 358">Glucocorticoids such as cortisol, corticosterone and trace amounts of adrenal androgen and oestrogen</td> </tr> <tr> <td data-bbox="255 358 734 436">Zona reticularis</td> <td data-bbox="734 358 1324 436">Adrenal androgen, Oestrogen and Glucocorticoid</td> </tr> </tbody> </table>	Layers of Adrenal Cortex	Secretion of Hormones	Zona glomerulosa	mineralocorticoids	Zona fasciculata	Glucocorticoids such as cortisol, corticosterone and trace amounts of adrenal androgen and oestrogen	Zona reticularis	Adrenal androgen, Oestrogen and Glucocorticoid	1 1 1	3						
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Sections – 4 Note : Answer all the questions		5x2=10															
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b	<p>Sensory receptors present in the Skin :-</p> <ol style="list-style-type: none"> Tactile merkel disc – is light touch receptor lying in the deeper layer of epidermis Hair follicle receptors – are light touch receptors lying around the hair follicles. Meissner's corpuscles – are small light pressure receptors found just beneath the epidermis in the dermal papillae. They are numerous in hairless skin areas such as finger tips and soles of the feet. Pacinian corpuscles – are the large egg shaped receptors found scattered deep in the dermis and monitoring vibration due to pressure. It allows to detect different textures, temperature, hardness and pain. Ruffini endings – which lie in the dermis responds to continuous pressure. Krause end bulbs – are thermoreceptors that sense temperature <p style="text-align: right;">(Any 5)</p>		5														

<p>21 a</p>	<p>Functions of respiratory system:-</p> <ol style="list-style-type: none"> 1. To exchange O₂ and CO₂ between the atmosphere and the blood 2. To maintain homeostatic regulation of body pH. 3. To protect us from inhaled pathogens and pollutants. 4. To maintain the vocal cords for normal communication (vocalization) 5. To remove the heat produced during cellular respiration. <p style="text-align: center;">(Or)</p>	<p>1 1 1 1 1</p>	<p>5</p>
<p>b</p>	<p style="text-align: center;"><u>Schematic presentation of muscle contraction</u></p> <div style="text-align: center;"> <p>Muscle contraction is initiated by the signal from CNS</p> <p>↓</p> <p>Release of acetylcholine at the neuromuscular junction</p> <p>↓</p> <p>Causes action potential in muscle fibre</p> <p>↓</p> <p>Triggers the release of calcium ions from sarcoplasmic reticulum</p> <p>↓</p> <p>Calcium ions combine with troponin and tropomyosin uncovers the binding sites on actin and initiates contraction</p> <p>↓</p> <p>Myosin binding sites on actin exposed. Myosin head binds to actin</p> <p>↓</p> <p>Myosin head executes power stroke</p> <p>↓</p> <p>Actin filament slides towards the centre of sarcomere (contraction)</p> <p>↓</p> <p>Signal from CNS stops; calcium ions are pumped back into the sarcoplasmic reticulum</p> <p>↓</p> <p>Tropomyosin masks the binding sites. Filaments pulled back to the original position (relaxation)</p> </div> <p style="text-align: center;">(or)</p> <p style="text-align: center;"><u>Sliding filament theory - explanations</u></p>	<p>1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2</p>	<p>5</p>

DIRECTORATE OF GOVERNMENT EXAMINATIONS, CHENNAI - 600006
HSC FIRST YEAR EXAMINATION, MARCH - 2024
ZOOLOGY – KEY ANSWER

TOTAL MARKS: 70

NOTE :

1. Answer written only in **BLACK** or **BLUE** should be evaluated
2. Choose the correct answer and write the option code
3. If one of them (option or answer) is wrong, then award zero mark only
4. Marks can be awarded, if students write in their own sentences with related concepts and explanations.

PART – I

Answer all the questions:

15×1 =15

Q. No	TYPE – A		TYPE – B		Marks
1	(a)	Hayem's solution	(c)	Cockroach	1
2	(a)	Antidiuretic hormone	(a)	Myosin	1
3	(d)	0.8 seconds	(b)	Annelida	1
4	(a)	Thymus gland	(a)	Oval window	1
5	(a)	Oval window	(a)	Hayem's solution	1
6	(b)	Annelida	(d)	0.8 seconds	1
7	(d)	Medulla oblongata	(a)	Thymus gland	1
8	(a)	Closure of semi-lunar valves	(b)	Walter Rosen	1
9	(c)	Cockroach	(b)	Haematology	1
10	(b)	Haematology	(d)	Brown fat	1
11	(d)	Trypsinogen into trypsin	(d)	Dr. Salim Ali	1
12	(b)	Walter Rosen	(a)	Closure of semi-lunar valves	1
13	(d)	Brown fat	(a)	Antidiuretic hormone	1
14	(a)	Myosin	(d)	Trypsinogen into trypsin	1
15	(d)	Dr. Salim Ali	(d)	Medulla oblongata	1



PART – II

Answer any six questions.

Question number 24 is compulsory.

6×2=12

Q.NO	Answer	Marks
16	Role of Charles Darwin Charles Darwin in his book <u>Origin of species</u> explains the <u>evolutionary connection of species</u> by the process of natural selection.	2
17	Open & closed circulation Closed circulation: In which the blood is <u>circulated through blood vessels</u> of varying diameters (arteries, veins and capillaries). Open circulation: In which the <u>blood remains filled in tissue spaces</u> due to the absence of blood capillaries. (OR) Closed circulation: Blood is <u>pumped by the heart and flows through blood vessels</u> . Open circulation Haemolymph as the circulating fluid and is <u>pumped by the heart, which flows through blood vessels into the sinuses</u> . Sinuses are referred as haemocoel.	2
18	Pseudostratified epithelium Cells are <u>columnar</u> , but <u>unequal in size</u> . Although the epithelium is <u>single layered</u> yet it <u>appears to be multi-layered</u> because the <u>nuclei</u> lie at <u>different levels</u> in different cells.	2
19	Flatworm-acoelomate Animals which <u>do not possess a body cavity</u> are called acoelomates. (or) Since there is no body cavity in these animals their <u>body is solid without a perivisceral cavity</u> , this restricts the free movement of internal organs.	2
20	Peristomium In earthworm the <u>mouth is found in the centre of the first segment of the body</u>	2
	Prostomium In earthworm <u>overhanging the mouth is a small flap</u> called the upper lip	

21	<p><u>Peculiar characters of duck</u></p> <ol style="list-style-type: none"> 1) The body is fully covered with oily feathers. 2) They have a layer of fat under their skin which prevents it from getting wet. 3) They lay eggs at night or in the morning. 4) The ducks feed on rice bran, kitchen wastes, waste fish and snails. <p style="text-align: right;">(Any Two Points)</p>	2
22	<p><u>Uses of stethoscope</u></p> <ol style="list-style-type: none"> 1) Stethoscope helps to find the normal and abnormal heart beat sounds and also to diagnose valve functions. 2) It helps to diagnose lung diseases such as pneumonia, pulmonary edema, bronchitis and pleuritis. 3) Stethoscopes along with sphygmomanometer are used to read the blood pressure. 4) It outlines the status of cardiac, respiratory and intestinal disorders. <p style="text-align: right;">(Any Two Points)</p>	2
23	<p><u>Cornea transplant</u></p> <p>This is because <u>cornea does not have blood vessels.</u></p>	2
24	<p><u>Enzymes in intestinal juices</u></p> <p>maltase, lactase, sucrase (invertase), peptidases, lipases, nucleotidases and nucleosidases</p> <p style="text-align: right;">(Any Four Enzymes)</p>	2

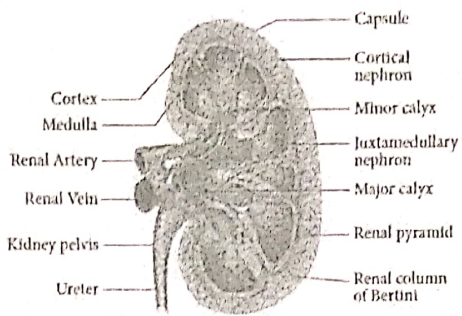
PART – III

Answer any six question

Question number 33 is compulsory.

6x3=18

Q.NO	Answer	Marks
25	<p><u>Mule sterile</u></p> <p>Crosses between <u>male donkey and female horse</u> results in sterile mule.</p> <p style="text-align: center;">(or)</p> <p>Mating with <u>closely related species</u> male donkey and female horse can produce sterile offspring mule.</p>	3
26	<p><u>Limbic system-emotional brain</u></p> <p>It plays a primary role in the regulation of pleasure, pain, anger, fear, sexual feeling and affection.</p>	3

<p>27</p>	<p><u>Human Kidney diagram</u> L.S of Human Kidney diagram - 2 Parts(any two parts) -1</p> 		<p>3</p>
<p>28</p>	<p><u>Advantages of artificial insemination</u> 1) It increases the rate of conception 2) It avoids genital diseases 3) Semen can be collected from injured bulls which have desirable traits 4) Superior animals located apart can be bred successfully (Any Three Points)</p>		<p>3</p>
<p>29</p>	<p>white fat or white adipose tissue 1) Adipose tissues found in subcutaneous tissue, surrounding the kidneys, eyeball, heart, etc. 2) stores nutrients</p>	<p>Brown fat or Brown adipose tissue 1) The adipose tissue which contains abundant mitochondria 2) Used to heat the blood stream to warm the body. 3) Brown fat produces heat by nonshivering thermogenesis in neonates</p>	<p>3</p>
<p>(OR)</p>			
	<p>white fat or white adipose tissue 1) White fat. 2) Less mitochondria 3) stores nutrients</p>	<p>Brown fat or Brown adipose tissue 1) brown fat 2) Abundant mitochondria. 3) Place of energy production</p>	<p>3</p>
<p>30</p>	<p><u>Economic importance of Frog</u> 1) Frog is an important animal in the food chain; it helps to maintain our ecosystem. 2) Frog are beneficial to man, since they feed on insects and helps in reducing insect pest population. 3) Frogs are used in traditional medicine for controlling blood pressure and for its anti aging properties. 4) In USA, Japan, China and North East of India, frogs are consumed as delicious food as they have high nutritive value. (Any Three Points)</p>		<p>3</p>

31	<p>Advantages of CT</p> <ul style="list-style-type: none"> • Gives a clear image of bone, soft tissues and blood vessels. • Helps in the diagnosis of injuries of the inner ears and sinuses. • To detect cancer, heart and lung disorders. • For diagnosis of spinal problems and skeletal injuries. • Helps to measure bone mineral density. • To detect stroke causing clots and haemorrhage in the brain. <p style="text-align: right;">(Any Three Points)</p>	3
32	<p>Role of pineal gland</p> <ul style="list-style-type: none"> • It secretes the hormone, melatonin, • Regulation of circadian rhythm of our body • Maintains the normal sleep wake cycle. • Regulates the timing of sexual maturation of gonads. • influences metabolism, • influences pigmentation, • influences menstrual cycle • defence mechanism of our body <p style="text-align: right;">(Any Three Points)</p>	3
33	<p>Haldane effect</p> <ol style="list-style-type: none"> 1) The Haldane effect, on the other hand describes how oxygen concentrations determines haemoglobin's affinity for carbon dioxide. 2) The amount of carbon dioxide transported in blood is remarkably affected by the degree of oxygenation of the blood. 3) The lower the partial pressure of O₂ lower is the affinity of haemoglobin saturation with oxygen hence more CO₂ is carried in the blood. This phenomenon is called Haldane effect. 	3

PART- IV

Answer all the questions.

5x5=25

Q.NO	Answer	Marks
34 (a)	<p>Sliding filament hypothesis</p> <ol style="list-style-type: none"> 1) Sliding filament hypothesis –theory (overlapping actin and myosin filaments of fixed length slide past one another) 2) Neuromuscular junction, acetylcholine, calcium ions 3) ATP molecules-myosin+actin, cross bridge, z-disc- shortening of sarcomere <p>Diagram – (Relaxed and Contracted sarcomere)</p> <p style="text-align: center;">(or)</p> <p>Schematic representation of muscle contraction (5 Marks)</p>	<p style="text-align: center;">3</p> <p style="text-align: center;">2</p>

(OR)																							
34 (b)	<p><u>Digestion in small intestine</u></p> <p>1) Role of Bile juice (emulsification) 2) Role – Pancreatic juice (amylase, lipase, nuclease) 3) Role - Succusentericus</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; padding-right: 20px;">Maltose</td> <td style="text-align: center; padding-right: 20px;">$\xrightarrow{\text{Maltase}}$</td> <td>glucose + glucose</td> </tr> <tr> <td style="text-align: right; padding-right: 20px;">Sucrose</td> <td style="text-align: center; padding-right: 20px;">$\xrightarrow{\text{Sucrase}}$</td> <td>glucose + fructose</td> </tr> <tr> <td style="text-align: right; padding-right: 20px;">Lactose</td> <td style="text-align: center; padding-right: 20px;">$\xrightarrow{\text{Lactase}}$</td> <td>glucose + galactose</td> </tr> <tr> <td style="text-align: right; padding-right: 20px;">Dipeptides, Tripeptides</td> <td style="text-align: center; padding-right: 20px;">$\xrightarrow{\text{Peptidase}}$</td> <td>amino acids</td> </tr> <tr> <td style="text-align: right; padding-right: 20px;">Nucleotides</td> <td style="text-align: center; padding-right: 20px;">$\xrightarrow{\text{Nucleotidase}}$</td> <td>Nucleoside + Phosphoric acid</td> </tr> <tr> <td style="text-align: right; padding-right: 20px;">Nucleoside</td> <td style="text-align: center; padding-right: 20px;">$\xrightarrow{\text{Nucleosidase}}$</td> <td>Sugar + Nitrogen base</td> </tr> <tr> <td style="text-align: right; padding-right: 20px;">Diglycerides and monoglycerides</td> <td style="text-align: center; padding-right: 20px;">$\xrightarrow{\text{Lipases}}$</td> <td>Fatty acids + glycerol</td> </tr> </table> <p style="text-align: right;">(Any Three Enzymes and their action)</p>	Maltose	$\xrightarrow{\text{Maltase}}$	glucose + glucose	Sucrose	$\xrightarrow{\text{Sucrase}}$	glucose + fructose	Lactose	$\xrightarrow{\text{Lactase}}$	glucose + galactose	Dipeptides, Tripeptides	$\xrightarrow{\text{Peptidase}}$	amino acids	Nucleotides	$\xrightarrow{\text{Nucleotidase}}$	Nucleoside + Phosphoric acid	Nucleoside	$\xrightarrow{\text{Nucleosidase}}$	Sugar + Nitrogen base	Diglycerides and monoglycerides	$\xrightarrow{\text{Lipases}}$	Fatty acids + glycerol	<p>1 1 3</p>
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Nucleoside	$\xrightarrow{\text{Nucleosidase}}$	Sugar + Nitrogen base																					
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35 (a)	<p><u>General characters of Annelida</u></p> <p>Any 5 points (5 x1 = 5)</p>	5																					
(OR)																							
35 (b)	<p><u>Functions of adrenalin/epinephrine</u></p> <p>1) The adrenal medulla secretes the hormones adrenalin and noradrenalin and is referred as "<u>3F hormone</u>" (<u>fight, flight and fright hormone</u>).</p> <p>2) Adrenalin increases liver <u>glycogen breakdown into glucose</u> and increases the <u>release of fatty acids from fat cells</u>.</p> <p>3) During emergency it <u>increases heart beat rate and blood pressure</u>.</p> <p>4) It <u>stimulates the smooth muscles of cutaneous</u> and visceral arteries to <u>decrease blood flow</u>.</p> <p>5) It <u>increases blood flow to the skeletal muscles</u> thereby increases the metabolic rate of skeletal muscles, cardiac muscles and nervous tissue.</p>	5																					

36 (a)	<p><u>Mechanism of breathing</u></p> <p>Inspiration explanation - 2 ½ marks Expiration – explanation - 2 ½ marks</p> <p>(or)</p> <p>Events in inspiration and expiration (5 Marks)</p>	5
(OR)		
36 (b)	<p><u>Errors of refraction</u></p> <p>1) Myopia (near sightedness) 1 2) Hypermetropia(long sightedness) 1 3) Presbiopia } 4) Astigmatism } (Any Two) 2 5) Cataract } 6) Diagrams 1</p>	
37 (a)	<p><u>Life cycle of bombyxmori</u></p> <p>Life cycle – diagram 2 Life cycle of bombyx mori – Explanation 3</p>	
(OR)		
37 (b)	<p><u>Excretory system of <i>Lampitomauritii</i> – nephridia</u></p> <p>1) Excretory organ – <i>nephridia</i> ½ 2) Types of nephridia (pharyngeal or tufted nephridia, Micronephridia or Integumentary nephridia, Meganephridia or septal nephridia) 1 ½ 3) Nephrostome 1 4) Mechanism of excretion 1 5) Chlorogogen cells 1</p>	

38 (a)	<p><u>Method of blood smear preparation</u></p> <ol style="list-style-type: none"> 1. Place a drop of blood on a clean glass slide about 1cm from one end 2. Using another glass slide placed at an angle of about 45° to the previous slide. 3. Spread the drop of blood quickly in one stroke as a thin film 4. Stain the film using Leishman's stain 5. Allow the slide to dry and wash the excess stain 6. Observe the slide under a light microscope 	5
(OR)		
38 (b)	<p><u>Heart beat initiated and controlled</u></p> <ol style="list-style-type: none"> 1) S.A node (pace maker) – explanation 2) AV node explanation – explanation 3) Bundle of His 4) Purnkinje fibres } –explanation 5) Diagram 	<p>1 1 1 2</p>