

BLUE PRINT FOR SUMMATIVE ASSESSMENT (MODEL PAPER-III) SUBJECT: BIOLOGY (36) 1st year PUC

S. NO	UNIT	TEACHING HOUR	KNOWLEDGE				UNDERSTANDING				APPLICATION/ APPRECIATION				EXPRESSION / SKILL				TOTAL QUESTIONS				MARKS WEIGHTAGE					
			1M	2M	3M	5M	1M	2M	3M	5M	1M	2M	3M	5M	1M	2M	3M	5M										
	1 ST PUC	120																										
I	DIVERSITY OF LIVING ORGANISMS	19	1		1	2							2											1	2	1	2	18
II	STRUCTURAL ORGANIZATION IN PLANTS	17	2			1			1															2	1	2	1	15
III	CELL STRUCTURE AND FUNCTION	19	2			1			2			1												1	3	2		17
IV	PLANT PHYSIOLOGY	31	1		1	2	1	2						1	1									2	2	2	3	27
V	HUMAN PHYSIOLOGY	34							2		3	2		1										1	2	1	3	28
		120	40 % 42 marks				30% 33marks				15 % 15marks				15% 15 marks				10	08	08	11	105					

NOTE:

- 1) The question paper must be prepared based on the individual blue print on the basis of weightage of marks fixed for each chapter.
- 2) A variation of 1% weightage per objective is allowed.
- 3) A variation of 1 mark per unit/chapter is allowed. However, the total marks should not exceed 105 marks.
- 4) At least one question each carrying 1 mark, 2 marks, 3 marks and 5 marks have to be derived from each unit.
- 5) When a question carrying 5 marks is divided into sub-questions (3+2/2+2+1), the sub-questions have to be derived from the same chapter.
- 6) When a question carrying 5 marks is divided into sub-questions, the sub-questions have to be derived from different topics of the same chapter.

MODEL QUESTION PAPER-SET III

BIOLOGY Ist PUC

Time: 3 Hours 15 Minutes

Maximum Marks: 70

Instructions:

1. This question paper consist of four parts A,B,C, and D. Part D consist of two sub parts, section I and section II
2. All parts are compulsory
3. Draw diagrams wherever necessary. Unlabelled diagrams or illustrations do not attract any marks.

PART – A

Answer the following questions in one word or one sentence each:

10x1=10

1. Define species.
2. Define phyllotaxy.
3. Define tissue
4. What are polysomes.
5. Why mitosis is called equational division.
6. What is cell cycle.
7. Define osmosis.
8. Name the nodule forming bacteria in leguminous plant.
9. Name structural and functional unit of kidney.
10. Name the locomotory structures of Hydra.

PART – B

Answer any five of the following questions in 3-5 sentence each. Wherever applicable: 5x2=10

11. Name the algal and fungal components of Lichens.
12. Write the modification of birds for flight.
13. Draw a neat labelled diagram of areolar tissue.
14. Mention types of chromosomes based on position of the centromere.
15. Mention the significance of meiosis.
16. Name the technique of growing plant in soil free nutrient solution. Who discovered it?
17. Distinguish differentiation from dedifferentiation.
18. Discuss the role of ADH in urine formation.

PART – C

Answer any five of the following questions in about 40-80 words each wherever applicable: 5x3=15

19. Write the universal rule of nomenclature.
20. Mention types of flower based on position of the ovary.
21. Draw neat labelled diagram of stomatal apparatus.
22. What are micronutrients? Mention any four.
23. Discuss any three role of auxins.
24. Explain the process of carbohydrate digestion in intestine.
25. Explain the transport of Carbon dioxide by blood.
26. Write the difference between cardiac muscle and skeletal muscle.

PART – D SECTION - I

Answer any four of the following questions in about 200-250 words each, wherever applicable: 4x5=20

27. List the salient features of Bryophyta.
28. Write the general characters of phylum Annelida.
29. Explain the morphological features of Cockroach.
30. Draw a neat labelled diagram of plant cell.
31. Explain the classification of enzymes.
32. Explain Double circulation.

SECTION – II

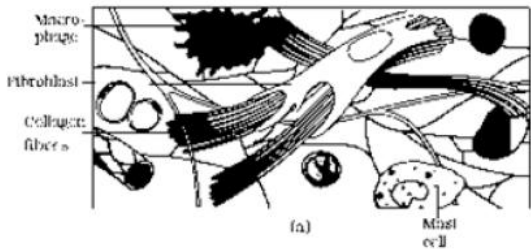
Answer any three of the following questions in about 200-250 words each, wherever applicable: 3x5=15

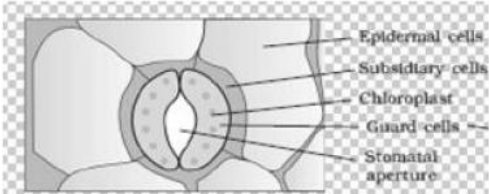
33. Explain the mechanism of ascent of sap.
 34. Write schematic representation of Calvin cycle.
 35. a. briefly explain alcoholic fermentation.
 b. What is RQ? Name the respiratory substrate whose RQ value is 1.
 36. Draw a neat labelled diagram of Neuron.
 37. List any five hormones of pituitary gland and write one function of each.

Scheme of Evaluation- Ist year(set-III)

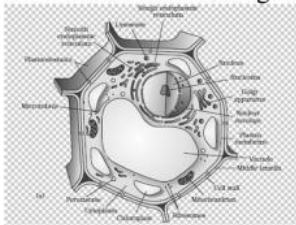
PART-A

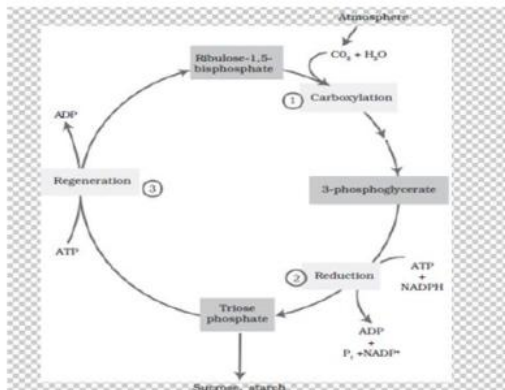
Q No	Answers	Marks	Page No
1 Ans	Define species Group of individual organisms with fundamental similarities	1	9
2 Ans	Define phyllotaxy. The pattern of arrangement of leaves on the stem or branch	1	71
3 Ans	Define tissue. A group of cells having common origin and performing common function	1	84
4 Ans	What are polysomes? Series of ribosomes attached to single mRNA to form a chain	1	129
5 Ans	Why mitosis is called equational division? Since chromosome number remains constant from parent cell to daughter cell	1	164
6 Ans	What is cell cycle? A sequence of events by which a cell duplicates its genome, synthesis of other constituents and eventually divides into two daughter cells	1	162
7 Ans	Define osmosis. The diffusion of water across a differentially or semipermeable membrane	1	180
8 Ans	Name the nodule forming bacteria in leguminous plant Rhizobium	1	202
9 Ans	Name structural functional unit of kidney Nephron	1	292
10 Ans	Name the locomotory structures of Hydra. Tentacles	1	316
PART – B			
11	Name the algal and fungal components of Lichens. • Phycobiont-Algal component • Mycobiont – Fungal component.	1 1	27

Ans			
12	Write the modification of birds for flight.	1	58
Ans	• Fore limbs are modified into wings • Bones pneumatic	1	
13	Draw a neat labelled diagram of areolar tissue.	4	103
Ans		1/2Each	
14	Mention types of chromosomes based on position of the centromere	1/2Each	129
Ans	• Metacentric, submetacentric, acrocentric, telocentric.		
15	Mention the significance of meiosis	Any two	170
Ans	• Conservation of specific chromosome number of a species in sexually reproducing organism. • Brings about variability in sexually reproducing organisms	1Each	
16	Name the technique of growing plant in soil free nutrient solution. Who discovered it?	1	194
Ans	• Hydroponics • Julius Von Sachs	1	
17	Distinguish differentiation from dedifferentiation	1Each	245
Ans	• Cell derived from root and shoot apical meristem and mature to perform specific function. • The living differentiated cells regain the capacity of division		
18	Discuss the role of ADH in urine formation	Any two	297
Ans	• Facilitates water absorption from later parts of tubule • prevents diuresis • constricts blood vessel and increase blood pressure • increase GFR	1Each	

	PART – C		
19 Ans	Write the universal rule of nomenclature • Biological names are generally in latin and written in English. • The first word represents genus second word represents species. • When written should be underlined separately. • When printed in English it should be italics. • The first letter of the genus should commence from capital letter first letter of species should commence from small letter	Any three one mark each	6 & 7
20 Ans	Mention types of flower based on position of the ovary Hypogynous and Perigynous and Epigynous	One each	73
21 Ans	Draw neat labelled diagram of stomal apparatus 	Any four labeling ½ mark each	89
22 Ans	What are micronutrients? Mention any four. • The nutrients present in excess of 10mmole Kg^{-1} are called macronutrients. • Carbon, hydrogen, oxygen, nitrogen, phosphorus, sulphur, potassium, calcium and magnesium.	1mark 1/2mark each any 4	196
23 Ans	Discuss any three role of auxins • Apical dominance. • Parthenocarpy. • Herbicide controls. • Xylem differentiation. • Helps in cell division	Any three 1mark each	248-249
24 Ans	Explain the carbohydrate digestion in intestine. Maltose $\xrightarrow{\text{Maltase}}$ Glucose + Glucose Lactose $\xrightarrow{\text{Lactase}}$ Glucose + Galactose Sucrose $\xrightarrow{\text{Sucrase}}$ Glucose + Fructose	01 mark each	264

25 Ans	Explain the transport of Carbon dioxide by blood. • 20-25 % of Carbon dioxide is carried by hemoglobin as carbamino-hemoglobin. • When $p\text{CO}_2$ is high and $p\text{O}_2$ is low as in the tissue more binding of CO_2 occurs, where as when $p\text{CO}_2$ is low and $p\text{O}_2$ high as in the alveoli, disassociation of CO_2 from carbmino-hemoglobin takes place. • $\text{CO}_2 + \text{H}_2\text{O} \rightleftharpoons \text{H}_2\text{CO}_3 \rightleftharpoons \text{HCO}_3^- + \text{H}^+$	01 mark each	274-275
26 Ans	Write the difference between cardiac muscle and skeletal muscle Cardiac Muscle Skeletal Muscle • Short in size • Long in size • Binucleate • Multinucleate • Cross Bridges present • Cross bridges absent • Myofibrils faint • Myofibrils prominent • Branched • Unbranched • Found in heart • attached to skeletal tissue	Anythree one mark each	303 -304
PART – D SECTION - I			
27 Ans	List the salient features of Bryophyta • Habitat-cold moist shady places. • Amphibious nature, depends on water for sexual reproduction. • Plant body thallus – with rhizoids. • Plant bodies haploid dominant photosynthetic gametophyte. • Gametophyte bears antheridia – male and archegonia –female reproductive structures. • Sporophyte diploid produces spores in capsule. • Gametophyte alternates with sporophyte	Any five 1mark each	34-35
28 Ans	Write the general characters of phylum Annelida • Organ system grade. • Bilaterally symmetrical triploblastic. • Segmented. • Coelomate. • Locomotion by parapodia	Any five one mark each	52

	• Excretion by nephridia. • Nervous system by paired ganglia lateral nerves with double ventral solid nerve chord. • Dioceous or monocious		
29 Ans	Explain the morphological features of Cockroach • Body divisible into head thorax and abdomen • Head made of six fused segments • Head consist of antenna compound eyes, and mouth parts. • Short neck connect head and thorax. • Thorax made of three segment prothorax, mesothorax and metathorax. • Meso and metathorax bears two pairs of wings. • Thoracic segment bears three pairs of legs. • Abdomen made of ten segments. • Tensegment consist of anal cerci males consists of anal styles on 9th segment. Any other morphological to be considered	Any five one mark each	112
30 Ans	Draw a neat labeled diagram of plant cell. 	1 mark for neat diagram 08 labeling 1/2mark each	130
31 Ans	Explain the classification enzymes. • Oxidoreductases-dehydrogenases-catalyzes oxidoreduction between substrates. • Transferases-catalyzegroup transfer between substrates. • Hydrolases-Catalyze hydrolysis of ester, ether, peptide, glycosidic bond. • Lyases-catalyze removal of groups from substrate by mechanisms other than hydrolysis, leaving double bond. • Isomerases- catalyze interconversion of the optical or geometric or positional isomers.	01 mark each	158-159
32 Ans	Explain Double circulation. • Deoxygenated blood collects in right atrium by two vena cava. • Oxygenated blood collects in left atrium by pulmonary veins. • Deoxygenated bold from right atrium and oxygenated blood from the left atrium moves to	1/2mark each Diagram- 02 marks	286-287

	right and left ventricles respectively. - Deoxygenated blood from right ventricle and oxygenated blood from the left ventricle moves to pulmonary artery and systemic aorta. - Deoxygenated blood through pulmonary artery moves to the lungs for oxygenation. - Oxygenated blood through systemic aorta is supplied to the different parts of the body. - Diagram.		
	Section-II		
33 Ans	Explain the mechanism of ascent of sap - A transpiration driven ascent of xylem sap depends mainly on the following physical properties of water - Cohesion – mutual attraction between water molecule - Adhesion attraction of water molecules polar surfaces such as tracheary elements. - Surface tension –water molecules are attracted to each other in a liquid phase than in gas phase. - These properties give water ability to rise in the thin tubes. - Water evaporates through stomata it results in pulling of water into leaf from the xylem transpiration can generate pull sufficient to lift a xylem sized column of water over 130meters	One mark each	187 -188
34 Ans	Write schematic representation of Calvin cycle 	5	217
35	a. Briefly explain alcoholic fermentation - It occurs in yeast. - It involves anaerobic breakdown of	1/2mark each	230

Ans	glucose in absence of oxygen. - Enzyme pyruvic acid decarboxylase and alcohol dehydrogenase catalyse reactions. - Carbon dioxide and ethanol are the end products. b. What is RQ? Name the respiratory substrate whose RQ value is 1 - The volume of carbon dioxide released to the volume of oxygen consumed during aerobic respiration/respiration is called RQ. - Glucose or carbohydrate	1 1	
36 Ans	Draw a neat labelled diagram of Neuron.	Diagram one mark 8label ½ mark each	317
37 Ans	List any five hormones of pituitary gland and write one function of each. - GH-induces growth and protein metabolism - TSH- regulates thyroid gland function - ACTH – regulates adrenal gland functions. - FSH – stimulates oogenesis and spermatogenesis. ...LH – regulates ovulation, - ICSH – regulates secretion of androgen. - MSH – regulates pigmentation. - ADH or Vasopressin – regulates water balance. - Oxytocin – controls uterine contraction and milk ejection.	Any five one mark each	332