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Issued by the Department of Pre-University Education, Karnataka

OSWAAL BOOKS
LEARNING MADE SIMPLE

SOLVED PAPERS 2018

KARNATAKA PUE PUC–I

FOR MARCH 2019 EXAMINATION

BIOLOGY

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Latest Syllabus
(Issued by Department of PUE, Karnataka)
BLOW UP SYLLABUS
I PUC BIOLOGY - Code No. 36

Column1	Column2	Column3	Column4	Column42	Column5	Column6
SUBJECT	**CLASS**	**CODE**	**DEPARTMENT OF P U EDUCATION**		**ACADEMIC PROGRAM FOR THE YEAR 2018-19**	
BIOLOGY	**I PUC**	**36**	*PUC (4 THEORY + 2 PROBLEM CLASSES A WEEK)*	***PRACTICE SESSIONS***	***PRACTICALS (1 CLASS OF 2 HOURS DURATION PER WEEK PER BATCH)***	
DAY	DATE	DAY				
DAY 1	14-May-18	MONDAY	Introduction to Biology syllabus , General instructions and Perspectives of Biology			
DAY 2	15-May-18	TUESDAY	**UNIT I - DIVERSITY IN THE LIVING WORLD** **Chapter 1 : The Living World (3 Hours) -** What is living? Defining and non-defining properties of life			
DAY 3	16-May-18	WEDNESDAY	Diversity in the living world, Binomial nomenclature, taxonomic categories			
DAY 4	17-May-18	THURSDAY	Taxonomic aids			
DAY 5	18-May-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 6	19-May-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	20-May-18	SUNDAY				
DAY 7	21-May-18	MONDAY	**Chapter 2 : Biological Classification (2 Hours) -** Characteristics of two kingdom and five kingdom classification, Salient features of Kingdom Monera, Archaebacteria and Eubacteria			

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DAY 8	22-May-18	TUESDAY	Salient features of Kingdom Protista with examples, Kingdom Fungi, Kingdom Plantae, Kingdom Animalia, Viruses, Viroids, Lichens			
DAY 9	23-May-18	WEDNESDAY	**Chapter 3: Plant Kingdom (6 Hours) -** Classification of Angiosperms, Algae, Uses of Algae			
DAY 10	24-May-18	THURSDAY	**Classification of Algae**			
DAY 11	25-May-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 12	26-May-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	27-May-18	SUNDAY				
DAY 13	28-May-18	MONDAY	Bryophytes, Liverworts & Mosses			
DAY 14	29-May-18	TUESDAY	Pteridophytes, characters & classification			
DAY 15	30-May-18	WEDNESDAY	Gymnosperms, characters & classification			
DAY 16	31-May-18	THURSDAY	Angiosperms, characters, life cycle of an Angiosperm, Plant life cycles			
DAY 17	01-Jun-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 18	2-Jun-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	03-Jun-18	SUNDAY				
DAY 19	4-Jun-18	MONDAY	**Chapter 4 : Animal Kingdom (8 Hours) -** Basis of classification, non-chordate phyla, Characters and examples of Phylum Porifera, Phylum Coelenterata		To study parts of a Compound Microscope	
DAY 20	05-Jun-18	TUESDAY	Characters and examples of Phylum Ctenophora, Phylum Platyhelminthes, Phylum Aschelminthes			
DAY 21	6-Jun-18	WEDNESDAY	Characters and examples of Phylum Annelida, Phylum Arthropoda			

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DAY 22	07-Jun-18	THURSDAY	Characters and examples of Phylum Mollusca, Phylum Echinodermata, Phylum Hemichordata			
DAY 23	8-Jun-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 24	09-Jun-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	10-Jun-18	SUNDAY				
DAY 25	11-Jun-18	MONDAY	Comparison of chordates and nonchordates		To identify and study the morphology of representative types of Bacteria, Fungi and different plant groups	
DAY 26	12-Jun-18	TUESDAY	Classification of Vertebrata			
DAY 27	13-Jun-18	WEDNESDAY	Class Cyclostomata, Class Chondrichthyes, Class Osteichthyes			
DAY 28	14-Jun-18	THURSDAY	Class Ambhibia, Class Reptilia, Class Aves & Class Mammalia			
DAY 29	15-Jun-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	16-Jun-18	SATURDAY	RAMZAN			
	17-Jun-18	SUNDAY				
DAY 30	18-Jun-18	MONDAY	**UNIT II - STRUCTURAL ORGANISATION IN PLANTS & ANIMALS Chapter 5: Morphology of Flowering Plants (5 Hours)** - Root - regions & modifications		To study some selected animals upto Echinoderms	
DAY 31	19-Jun-18	TUESDAY	Stem - modifications, Leaf - venations, Types of leaves, Phyllotaxy			
DAY 32	20-Jun-18	WEDNESDAY	Modification of leaves, Inflorescence, Flower and parts of a flower			
DAY 33	21-Jun-18	THURSDAY	Fruit, Seed, Monocot & dicot seed structure, Family Fabaceae with economic importance			
DAY 34	22-Jun-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		

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DAY 35	23-Jun-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	24-Jun-18	SUNDAY				
DAY 36	25-Jun-18	MONDAY	Family Solanaceae, Family Liliaceae with economic importance		To study some selected Chordate animals - Pisces to Mammals	
DAY 37	26-Jun-18	TUESDAY	**Chapter 6 - Anatomy of Flowering Plants (4 Hours)** - Tissues - Meristematic tissues, Permanent tissues - Simple tissues (Parenchyma, Collenchyma, Sclerenchyma)			
DAY 38	27-Jun-18	WEDNESDAY	Complex tissue - Xylem and Phloem, Tissue system, Epidermal tissue			
DAY 39	28-Jun-18	THURSDAY	Ground tissue and vascular tissue, Anatomy of dicot and monocot roots, Anatomy of dicot and monocot stems			
DAY 40	29-Jun-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 41	30-Jun-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	01-Jul-18	SUNDAY				
DAY 42	2-Jul-18	MONDAY	Anatomy of dicot and monocot leaves, Secondary growth in dicot stem and dicot root		Study of Plant tissues - Diversity in shapes and sizes	
DAY 43	03-Jul-18	TUESDAY	**Chapter 7- Structural Organisation in Animals (8 Hours)** - Animal tissues - Epithelial tissue, Connective tissue			
DAY 44	4-Jul-18	WEDNESDAY	Muscle tissue, Neural tissue, Organ and organ system			
DAY 45	05-Jul-18	THURSDAY	Earthworm - Morphology, Anatomy-alimentary canal			
DAY 46	6-Jul-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		

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DAY 47	07-Jul-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	8-Jul-18	SUNDAY				
DAY 48	09-Jul-18	MONDAY	Earthworm anatomy - Closed circulatory system, Nephridial system, Reproductive system, Earthworm as friends of farmer		Preparation of temporary slides of Animal tissues and their study	
DAY 49	10-Jul-18	TUESDAY	Cockroach - Morphology, Anatomy - Alimentary canal			
DAY 50	11-Jul-18	WEDNESDAY	Cockroach anatomy - Circulatory system, Excretory system, Nervous system, Respiratory system, Male and female reproductive systems			
DAY 51	12-Jul-18	THURSDAY	Frog - Morphology, Anatomy - Digestive system, Vascular system			
DAY 52	13-Jul-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 53	14-Jul-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	15-Jul-18	SUNDAY				
DAY 54	16-Jul-18	MONDAY	Frog anatomy - Excretory system, Neural control sysytem, Sense organs, Male and female reproductive systems		Study of modifications of root	
DAY 55	17-Jul-18	TUESDAY	**UNIT III - CELL STRUCTURE AND FUNCTIONS Chapter 8: Cell-the unit of life (9 Hours)** - What is a Cell?, Cell theory, Overview of cell, Prokaryotic cells			
DAY 56	18-Jul-18	WEDNESDAY	Cell envelope and its modifications, Ribosomes and Inclusion bodies			
DAY 57	19-Jul-18	THURSDAY	1st test			
DAY 58	20-Jul-18	FRIDAY	1st test			1 TEST
DAY 59	21-Jul-18	SATURDAY	1st test			
	22-Jul-18	SUNDAY				

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DAY 60	23-Jul-18	MONDAY	Eukaryotic cells, Ultra structure of plant and animal cells, Comparison		Study of modifications of stem	
DAY 61	24-Jul-18	TUESDAY	Structure of Cell membrane, Cell wall			
DAY 62	25-Jul-18	WEDNESDAY	Endomembrane system - Structure and functions of Endoplasmic reticulum and Golgi apparatus			
DAY 63	26-Jul-18	THURSDAY	Endomembrane system - Structure and functions of Lysosomes and Vacuoles,Structure and functions of Mitochondria, Plastids			
DAY 64	27-Jul-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 65	28-Jul-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	29-Jul-18	SUNDAY				
DAY 66	30-Jul-18	MONDAY	Structure and functions of Ribosomes, Cytoskeleton, Cilia and Flagella		Study of modifications of leaf	
DAY 67	31-Jul-18	TUESDAY	Structure and functions of Centrosome, Centrioles, Nucleus			
DAY 68	1-Aug-18	WEDNESDAY	Structure of chromosome, Types of chromosome, Microbodies			
DAY 69	02-Aug-18	THURSDAY	**Chapter 9: Biomolecules (7 Hours) -** How to analyse chemical compound?, Chemical and physical properties of amino acids, Zwitter ion			
DAY 70	3-Aug-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 71	04-Aug-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	5-Aug-18	SUNDAY				
DAY 72	06-Aug-18	MONDAY	Lipids - classification and examples, Heterocyclic carbon compounds, Structures (Figure 9.1)		To study and identify different types of Inflorescences	

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DAY 73	7-Aug-18	TUESDAY	Primary and secondary metabolites, Biomacromolecules, Proteins, Importance			
DAY 74	08-Aug-18	WEDNESDAY	Polysaccharides - examples, Nucleic acids, Structure of proteins, Nature of bond linking in a polymer			
DAY 75	9-Aug-18	THURSDAY	Concept of metabolism, Metabolic basis for living, Living state			
DAY 76	10-Aug-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 77	11-Aug-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	12-Aug-18	SUNDAY				
DAY 78	13-Aug-18	MONDAY	Enzymes - properties, Chemical reactions to understand enzyme action, Concept of activation energy		Study and describe flowering plants of Families Solanaceae, Fabaceae, Liliaceae	
DAY 79	14-Aug-18	TUESDAY	Factors affecting enzyme activity, Classification and nomenclature of enzymes, Cofactors			
	15-Aug-18	WEDNESDAY	INDEPENDENCE DAY			
DAY 80	16-Aug-18	THURSDAY	**Chapter 10: Cell cycle and Cell Division (3 Hours) -** Cell cycle - Phases, Interphase			
DAY 81	17-Aug-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 82	18-Aug-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	19-Aug-18	SUNDAY				
DAY 83	20-Aug-18	MONDAY	M phase, Mitosis and its phases, Cytokinesis, Significance of Mitosis		To study anatomy of stem and root of monocots and dicots	
DAY 84	21-Aug-18	TUESDAY	Meiosis I, Meiosis II, Significance of meiosis			
	22-Aug-18	WEDNESDAY	BAKRID			

DAY 85	23-Aug-18	THURSDAY	**UNIT IV - PLANT PHYSIOLOGY Chapter 11: Transport in Plants (7 Hours)** - Means of transport - Diffusion - Facilitated diffusion, Passive symport, antiport and uniport transports			
DAY 86	24-Aug-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 87	25-Aug-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	26-Aug-18	SUNDAY				
DAY 88	27-Aug-18	MONDAY	Active transport, Comparison of different transport processes, Plant water relation - Water potential, Components of water potential		To demonstrate osmosis by Potato Osmometer	
DAY 89	28-Aug-18	TUESDAY	Osmosis, Demonstration of osmosis, Plasmolysis, Imbibition			
DAY 90	29-Aug-18	WEDNESDAY	Long distance transport of water, Apoplastic and symplastic movements			
DAY 91	30-Aug-18	THURSDAY	Water movement up a plant, Root pressure, Transpiration pull, Transpiration			
DAY 92	31-Aug-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 93	01-Sep-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	2-Sep-18	SUNDAY				
DAY 94	03-Sep-18	MONDAY	Transpiration - photosynthesis a compromise, Uptake of mineral ions		Study of Plasmolysis in epidermal peel of leaf	
DAY 95	4-Sep-18	TUESDAY	Translocation of mineral ion, Phloem tranpsort, Pressure flow hypothesis			

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DAY 96	05-Sep-18	WEDNESDAY	**Chapter 12: Mineral nutrition (7 hours) -** Methods to study mineral requirements of plants, Criteria for essentiality, Macro nutrients and micro nutrients, Classification of essential elements			
DAY 97	6-Sep-18	THURSDAY	Role of macronutrients and micronutrients - N, P, K, Ca, Mg			
DAY 98	07-Sep-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 99	8-Sep-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	09-Sep-18	SUNDAY				
DAY 100	10-Sep-18	MONDAY	MID TERM EXAMINATION			
DAY 101	11-Sep-18	TUESDAY	MID TERM EXAMINATION			
DAY 102	12-Sep-18	WEDNESDAY	MID TERM EXAMINATION			
	13-Sep-18	THURSDAY	GANESH CHATURTHI			
DAY 103	14-Sep-18	FRIDAY	MID TERM EXAMINATION			
DAY 104	15-Sep-18	SATURDAY	MID TERM EXAMINATION			
	16-Sep-18	SUNDAY				
DAY 105	17-Sep-18	MONDAY	MID TERM EXAMINATION			
DAY 106	18-Sep-18	TUESDAY	MID TERM EXAMINATION			
DAY 107	19-Sep-18	WEDNESDAY	MID TERM EXAMINATION			
DAY 108	20-Sep-18	THURSDAY	MID TERM EXAMINATION			
	21-Sep-18	FRIDAY	LAST DAY OF MOHARRUM			
DAY 109	22-Sep-18	SATURDAY	Role of macronutrients and micronutrients - S, Fe, Mn, Zn, Cu			
	23-Sep-18	SUNDAY				
DAY 110	24-Sep-18	MONDAY	Role of macronutrients and micronutrients - Bo, Mb, Cl, Deficiency symptoms of essential elements, Toxicity of micronutrients		To study the distribution of stomata on upper and lower surfaces of leaves	
DAY 111	25-Sep-18	TUESDAY	Mechanism of absorption of elements, Translocation of solutes, Soil as a reservoir of essential elements			

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DAY 112	26-Sep-18	WEDNESDAY	Nitrogen cycle, Biological nitrogen fixation			
DAY 113	27-Sep-18	THURSDAY	Symbiotic bilogical nitrogen fixation, Nodule formation, Fate of ammonia			
DAY 114	28-Sep-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 115	29-Sep-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	30-Sep-18	SUNDAY				
DAY 116	01-Oct-18	MONDAY	**Chapter 13: Photosynthesis in Higher Plants (5 hours)** - Early experiments on photosynthesis, Where does photosynthesis take place?		To demonstrate difference in rates of Transpiration between two surfaces of leaf	
	2-Oct-18	TUESDAY	MAHATHMA GANDHI JAYANTHI			
DAY 117	03-Oct-18	WEDNESDAY	How many pigments are involved in photosynthesis? (Figure 13.3), What is light reaction?, The electron transport			
DAY 118	4-Oct-18	THURSDAY	Splitting of water, Cyclic and non cyclic photophosphorylations, Chemiosmotic hypothesis			
DAY 119	05-Oct-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 120	6-Oct-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	07-Oct-18	SUNDAY				
	8-Oct-18	MONDAY	MAHALAYA AMMAVASYA			
DAY 121	09-Oct-18	TUESDAY	Where are the ATP and NADPH used?, Calvin cycle, C_4 pathway, Photorespiration		To study the separation of plant pigments by Paper Chromatography	
DAY 122	10-Oct-18	WEDNESDAY	Factors affecting photosynthesis			
DAY 123	11-Oct-18	THURSDAY	**Chapter 14: Respiration in Plants (5 hours)** - Definitions of cellular respiration and respiratory substrates, ATP as energy currency, Do plants breathe?, Glycolysis			

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DAY 124	12-Oct-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 125	13-Oct-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	14-Oct-18	SUNDAY				
	15-Oct-18	MONDAY				
	16-Oct-18	TUESDAY				
	17-Oct-18	WEDNESDAY				
	18-Oct-18	THURSDAY	MAHANAVAMI			
	19-Oct-18	FRIDAY	VIJAYADASHMI			
	20-Oct-18	SATURDAY				
	21-Oct-18	SUNDAY				MID TERM
	22-Oct-18	MONDAY				
	23-Oct-18	TUESDAY				VACATION
	24-Oct-18	WEDNESDAY	VALMIKI JAYANTHI			
	25-Oct-18	THURSDAY				
	26-Oct-18	FRIDAY				
	27-Oct-18	SATURDAY				
	28-Oct-18	SUNDAY				
DAY 126	29-Oct-18	MONDAY	Fermentation, Aerobic respiration, TCA cycle		To study the rate of respiration in flower buds / germinating seeds	
DAY 127	30-Oct-18	TUESDAY	Electron tranport system and oxidative phosphorylation			
DAY 128	31-Oct-18	WEDNESDAY	ATP synthesis in mitochondria, Respiratory balance sheet			
	1-Nov-18	THURSDAY	KANNADA RAJYOTHSAVA			
DAY 129	02-Nov-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 130	3-Nov-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		

	04-Nov-18	SUNDAY				
DAY 131	5-Nov-18	MONDAY	Amphibolic pathway, Respiratory quotient		Observation and comment on experimental set up - Anaerobic Respiration, Phototropism, Apical dominance (Apical bud removal), Suction pressure due to transpiration	
	06-Nov-18	TUESDAY	NARAKA CHATURDASHI			
DAY 132	7-Nov-18	WEDNESDAY	**Chapter 15: Plant Growth and Development (7 Hours)** - Growth, Plant growth is indeterminate, Growth is measurable, Phases of growth			
	08-Nov-18	THURSDAY	BALIPADYAMI DEEPAWALI			
DAY 133	9-Nov-18	FRIDAY	Growth rates, Arithmetic growth and Geometric growth, Conditions for growth			
DAY 134	10-Nov-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	11-Nov-18	SUNDAY				
DAY 135	12-Nov-18	MONDAY	Differentiation, dedifferentiation and redifferentiation, Development, Plasticity (Heterophylly), Plant growth regulator - characteristics		To detect the presence of Carbohydrates, Proteins, Sucrose, Starch and Lipids	
DAY 136	13-Nov-18	TUESDAY	Discovery of plant growth regulators, Physiological effects of PGRs - Auxins			
DAY 137	14-Nov-18	WEDNESDAY	Physiological effects of PGRs - Gibberlins and Cytokinins			
DAY 138	15-Nov-18	THURSDAY	Physiological effects of PGRs - Ethylene, ABA (Abscisic acid)			
DAY 139	16-Nov-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 140	17-Nov-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	18-Nov-18	SUNDAY				
DAY 141	19-Nov-18	MONDAY	Photoperiodism and vernalisation		To study the activity of enzyme action of Salivary Amylase on Starch.	

DAY 142	20-Nov-18	TUESDAY	**UNIT V - HUMAN PHYSIOLOGY Chapter 16: Digestion and Absorption** (4 Hours) - Digestive system, Alimentary canal - structure			
	21-Nov-18	WEDNESDAY	EID MILAD			
DAY 143	22-Nov-18	THURSDAY	T.S. of gut, Section of small intestinal mucosa showing villi, Digestive glands			
DAY 144	23-Nov-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 145	24-Nov-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	25-Nov-18	SUNDAY				
	26-Nov-18	MONDAY	KANAKADASA JAYANTHI			
DAY 146	27-Nov-18	TUESDAY	Digestion of food - Digestion in buccal cavity, stomach and intestine		To study the presence of Sugar in the given sample of Urine	
DAY 147	28-Nov-18	WEDNESDAY	Functions of large intestine, Absorption of digested products, Disorders of digestive system			
DAY 148	29-Nov-18	THURSDAY	**Chapter 17: Breathing and Exchange of Gases** (4 Hours) - Definition of breathing, Respiratory organs, Human respiratory system			
DAY 149	30-Nov-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 150	1-Dec-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	02-Dec-18	SUNDAY				
DAY 151	3-Dec-18	MONDAY	Steps involved in respiration, Mechanism of breathing, Respiratory volumes and capacities		To study the presence of Urea in the given sample of Urine	
DAY 152	04-Dec-18	TUESDAY	Exchange of gases between alveoli and blood, Between blood and body tissues			

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DAY 153	5-Dec-18	WEDNESDAY	Transport of gases, Transport of oxygen, Transport of carbon dioxide, Regulation of respiration, Disorders of respiratory system			
DAY 154	06-Dec-18	THURSDAY	2nd test			
DAY 155	7-Dec-18	FRIDAY	2nd test			2 TEST
DAY 156	08-Dec-18	SATURDAY	2nd test			
	9-Dec-18	SUNDAY				
DAY 157	10-Dec-18	MONDAY	**Chapter 18: Body Fluids and Circulation (5 Hours)** - Difference between blood and lymph, Blood - A special connective tissue, Plasma and its contents, Formed elements			
DAY 158	11-Dec-18	TUESDAY	ABO grouping, Rh grouping, Coagulation of blood, Lymph, Tissue fluid		To study Human Skeleton	
DAY 159	12-Dec-18	WEDNESDAY	Circulatory pathways - Open and closed circulatory systems, Human circulatory system, Conduction of heart beat			
DAY 160	13-Dec-18	THURSDAY	Cardiac cycle, ECG, Double circulation			
DAY 161	14-Dec-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 162	15-Dec-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	16-Dec-18	SUNDAY				
DAY 163	17-Dec-18	MONDAY	Regulation of cardiac activity, Disorders of circulatory system		To study different types of Joints in human skeleton	
DAY 164	18-Dec-18	TUESDAY	**Chapter 19: Excretory Products and Their Elimination (4 Hours)** - Excretory products, Ammonotelic , Ureotelic and Uricotelic organisms with examples, Human excretory system			
DAY 164	19-Dec-18	WEDNESDAY	Structure of Nephron			
DAY 165	20-Dec-18	THURSDAY	Urine formation, Function of tubules			

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DAY 166	21-Dec-18	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 167	22-Dec-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	23-Dec-18	SUNDAY				
DAY 168	24-Dec-18	MONDAY	Mechanism of concentration of the filtrate, Regulation of kidney function, Micturition, Role of other organs in excretion, Disorders of excretory system			
	25-Dec-18	TUESDAY	CHRISTMAS			
DAY 169	26-Dec-18	WEDNESDAY	**Chapter 20: Locomotion and Movement (5 Hours)** - Types of movement, Muscle - Structure of a muscle fibre (Figure 20.1 and Figure 20.2)		Annual Practical Exam	
DAY 170	27-Dec-18	THURSDAY	Structure of a contractile proteins (Actin and Myosin)		Annual Practical Exam	
DAY 171	28-Dec-18	FRIDAY	Mechanism of muscle contraction		Annual Practical Exam	
DAY 172	29-Dec-18	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank	Annual Practical Exam	
	30-Dec-18	SUNDAY				
DAY 173	31-Dec-18	MONDAY	Skeletal system - Skull, Vertebral column, Appendicular skeleton, Pectoral and Pelvic girdles		Annual Practical Exam	
DAY 174	01-Jan-19	TUESDAY	Joints - Fibrous, Cartilagenous and Synovial joints, Disorders of muscular and skeletal system			
DAY 175	2-Jan-19	WEDNESDAY	**Chapter 21: Neural Control and Coordination (6 Hours)** - Definition of coardination, Neural system - Human neural system, CNS, PNS, Structure of a Neuron - Structural and functional unit of Neural system			
DAY 176	03-Jan-19	THURSDAY	Generation and conduction of nerve impulse, Transmission of impulses			

KALVI BOOKS
LEARNING MADE SIMPLE

DAY 177	4-Jan-19	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 178	05-Jan-19	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	6-Jan-19	SUNDAY				
DAY 179	07-Jan-19	MONDAY	Central neural system - Human brain structure (Forebrain, midbrain, hind brain)			
DAY 180	8-Jan-19	TUESDAY	Reflex action, Sensory reception and processing			
DAY 181	09-Jan-19	WEDNESDAY	The Eye - Structure and mechanism of vision			
DAY 182	10-Jan-19	THURSDAY	The Ear - Structure and mechanism of hearing			
DAY 183	11-Jan-19	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 184	12-Jan-19	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	13-Jan-19	SUNDAY				
DAY 185	14-Jan-19	MONDAY	**Chapter 22: Chemical Coordination and Integration (6 Hours) -** Endocrine glands and hormones, Human endocrine system, The Hypothalamus, The Pituitary gland - Hormones secreted by anterior pituitary, pars intermedia and neurohypophysis			
	15-Jan-19	TUESDAY	MAKARASANKRANTI			
DAY 186	16-Jan-19	WEDNESDAY	The Penial gland and its hormones, Thyroid gland and its hormones			
DAY 187	17-Jan-19	THURSDAY	Parathyroid gland and its hormones, Thymus and its hormones			
DAY 188	18-Jan-19	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		

SWAYAM BOOKS LEARNING MADE SIMPLE

DAY 189	19-Jan-19	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
	20-Jan-19	SUNDAY				
DAY 190	21-Jan-19	MONDAY	Adrenal gland and its hormones, Pancreas and its hormones			
DAY 191	22-Jan-19	TUESDAY	Testis and Ovary as endocrine glands and their hormones			
DAY 192	23-Jan-19	WEDNESDAY	Hormones of Heart, Kidney and Gastrointestinal tract, Mechanism of hormone action (Figure 22.5)			
DAY 193	24-Jan-19	THURSDAY	REVISION CLASS / REMEDIAL GUIDANCE			
DAY 194	25-Jan-19	FRIDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		
DAY 195	26-Jan-19	SATURDAY		Selected questions of 1M, 2M, 3M & 5M of topics covered this week from question bank		

SWAYAM BOOKS
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Design of Question Paper (Biology) I PUC

Time : 3 Hours 15 minutes (of which minutes for reading the questions paper). Max. Marks : 70

The weightage of the distribution of marks over different dimensions of the questions paper shall be as follows:

A. Weightage to Objective :

Objective	Weightage %	Marks
Knowledge	40%	42
Understanding	30%	33
Application	15%	15
Skill	15%	15

Note : 1% or 2% variation is allowed per objective.

B. Weightage to the unit/Chapter

Unit	Chapter No.	Description	No of Hours	Marks	Total Marks
I	1.	Living World	3	3	17
	2.	Biological classification	2	2	
	3.	Plant kingdom	6	5	
	4.	Animal kingdom	8	7	
II	5.	Morphology of flowering plants	5	4	15
	6.	Anatomy and flowering plants	4	4	
	7.	Structural Organization in animals	8	7	
III	8.	Cell-the unit of life	10	8	18
	9.	Biomolecules	5	5	
	10.	Cell cycle and cell division	4	5	
IV	11.	Transport in plants	7	6	27
	12.	Mineral Nutrition	7	6	
	13	Photosynthesis in higher plants	5	5	
	14.	Respiration in plants	5	5	
	15.	Plants growth and development	7	5	
V	16.	Digestion and absorption	4	3	28
	17.	Breathing and exchange of gases	4	3	
	18.	Body fluids and circulation	5	4	
	19.	Excretory products and their elimination	4	3	
	20.	Locomotion and movement	5	4	
	21.	Neural control and co-ordination	6	5	
	22.	Chemical co-ordination and integration	6	6	
Total			**120**		**105**

Note : Variation of one mark per chapter/unit is allowed. However the total marks should not exceed 105.

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...Contd.

C. Weightage to forms of questions

Part	Type of questions	Main	Number of question to be set	Number of question to be answered	Units to be covered
A	1 mark – Very short answer (VSA)		10	10	All Units (05 Units)
B	2 marks – short answer (SA1)		3	5	
C	3 marks – short answer (SA2)		8	5	
D	5 marks – long answer (LA)	Sec-I	06	04	
		Sec-II	05	03	

D. Weightage to level of difficulty :

Level	Weightage%	Marks
Easy	40%	28
Average	40%	28
Difficult	20%	14

General instructions

- Questions should be clear, unambiguous understandable and free from grammatical errors.
- Questions which are based on same concepts, law fact etc and which generate the same answer should not be repeated under different forms (VSA. SA and LA).

OSWAAL BOOKS
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BLUE PRINT, 1ST YEAR PUC, SUBJECT : BIOLOGY (36), CHAPTER-WISE WEIGHTAGE

Unit No.	Hours	CHAPTER	Hours	MARKS PER UNIT	KNOWLEDGE				UNDERSTANDING				APPLICATION APPRECIATION				SKILL				TOTAL				TOTAL MARKS	REMARKS
					1M	2M	3M	5M	1M	2M	3M	5M	1M	2M	3M	5M	1M	2M	3M	5M	1M	2M	3M	5M		
UNIT I. DIVERSITY OF LIVING ORGANISM																										
1	19	1. The living world	3	18	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	4	
		2. Biological Classification	2		-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	
		3. Plant kingdom	6		-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	
		4. Animal kingdom	8		-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1	7	
UNIT II. STRUCTURAL ORGANIZATION IN PLANTS AND ANIMALS																										
II	17	5. Morphology of flowering plants	5	15	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	4	
		6. Anatomy of flowering plants	4		-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	1	-	4	
		7. Structural organization in animals	8		-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	1	7	
UNIT III. CELL STRUCTURE AND FUNCTION																										
III	19	8. Cell-The unit of life	10	17	1	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	1	8	
		9. Biomolecules	5		-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	5	
		10. Cell cycle, cell division	4		-	-	1	-	-	-	-		1	-	-	-	-	-	-	-	1	-	1	-	4	
UNIT IV. PLANT PHYSIOLOGY																										
IV	31	11. Transport in plants	7	27	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	6	
		12. Mineral nutrition	7		1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	6	
		13. Photosynthesis in Higher Plants	5		-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	5	
		14. Respiration in Plant	5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	5	
		15. Plant growth and development	7		-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	5	
UNIT V. HUMAN PHYSLOLOGY																										
V	34	16.Digestion and Absorption	4	28	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	3	
		17. Breathing and Respiration	4		1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-	3	
		18. Body fluids and Circulation	5		1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	1	-	4	
		19. Excretory products and their elimination	4		-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-	3	
		20. Locomotion and Movement	5		-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	4	
		21. Neural control and coordination	6		-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	5	
		22. Chemical coordination and regulation	6		-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	
	120	Total	120	105							-	-	-	-	-	-	-	-	-	-	10	8	8	11	105	

BOOKS
LEARNING MADE EASY

SOLVED PAPER	I PUC Annual Examination 2018	Biology Subject Code (36) N

Time : 3 hrs 15 min **Max. Marks : 70**

Instructions :

(1) *This question paper consists of four* ***Parts–A, B, C*** *and* ***D. Part – D*** *consists of two Sections.* ***Section – I*** *and* ***Section – II.***
(2) *All the parts are compulsory.*
(3) *Draw diagrams wherever necessary. Unlabelled diagrams or illustration do not attract any marks.*

PART - A

I. Answer the following questions in one word or one sentence each : **10 × 1 = 10**

1. What is herbarium ?
2. Give an example of palmately compound leaf.
3. Name the living mechanical tissue.
4. Where is nucleolus found ?
5. What is Cytokinesis ?
6. What happens when fresh grapes are soaked in sugar solution ?
7. Define hydroponics.
8. What are alveoli ?
9. What is cardiac cycle ?
10. Name the structural and functional unit of Kidneys.

PART - B

II. Answer any FIVE of the following questions in 3 to 5 sentences each wherever applicable : **5 × 2 = 10**

11. Write any four characters of fungi.
12. Differentiate between Diploblastic and Triploblastic condition.
13. Name the four types of tissues present in the animals.
14. Draw a neat labelled diagram of mitochondria.
15. What are plant growth inhibitors ? Give two examples.
16. Define : (a) Tidal Volume
    (b) Expiratory Capacity
17. What are Uricotelic animals ? Give an example.
18. What is Osteoporosis ? Mention the common cause that leads to Osteoporosis.

PART - C

III. Answer any FIVE of the following questions in 40 to 80 words each, wherever applicable : **5 × 3 = 15**

19. Write the taxonomic hierarchy of man.
20. What is phyllotaxy ? Explain any two types.
21. List any three differences between tracheids and trachea.
22. Name the five sub phases of prophase-I in meiosis.
23. List any three applications of auxins.
24. Mention the three major types of cells present in gastric glands. Give their secretions.
25. What is systemic circulation ? Write the pathway diagram of systemic circulation.
26. Write the names of bones of forelimb of man.

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PART - D

SECTION - I

IV. Answer any FOUR of the following questions in about 200 to 250 words each, wherever applicable : **4 × 5 = 20**

27. List out the general characters of Bryophytes.
28. Write any five differences between non-chordates and chordates.
29. Draw a neat labelled diagram of digestive system of cockroach.
30. What is centromere ? Explain the types of chromosomes based on the position of the centromere.
31. Explain the classification of enzymes.
32. Describe thistle funnel experiment to demonstrate osmosis with a labelled diagram.

SECTION - II

V. Answer any THREE of the following questions in 200 to 250 words each : **3 × 5 = 15**

33. Give the schematic representation of nitrogen cycle.
34. Describe the structure of chloroplast with a neat labelled diagram.
35. Write a schematic representation of steps of glycolysis.
36. Draw a neat labelled diagram of multipolar myelinated neuron.
37. List the hormones secreted by anterior lobe of pituitary along with one function of each.

❑❑

SOLUTIONS
As Per Scheme of Valuation
(Issued by Department of PUE, Karnataka)

PART - A

1. Herbarium is a store house of collected plant species that are stored, catalogued and arranged systematically for scientific study. **1**
2. Silk cotton. **1**
3. Collenchyma/parenchyma. **1**
4. Within the nucleus. **1**
5. Division of the cytoplasm. **1**
6. Grapes shrinks and wilts due to phenomenon of exosmosis **1**
7. The technique of growing plants in a nutrient solution. **1**
8. Structural and functional units of lungs or respiratory system. **1**
9. The sequential events in heart which occurs when the heart beats.

OR

One systole and one diastole together constitute a cardiac cycle. **1**
10. Nephrons. **1**

PART - B

11. **(a)** They are heterotrophic eukaryotic organisms either parasitic or saprophytic.
(b) They are either unicellular (yeast) or multicellular, filamentous.
(c) The body consists of long slender, thread like structure called hyphae.
(d) The network of hyphae is called mycelium.
(e) Hyphae of some members are coenocytic (multinucleated). **(Write any 4, each carries ½ Mark) 2**
12. Diploblastic animals in which cells are arranged in two embryonic layers namely outer ectoderm and inner endoderm. **1**
Animals in which cells are arranged in three embryonic layers namely outer ectoderm, inner endoderm and middle mesoderm. **1**

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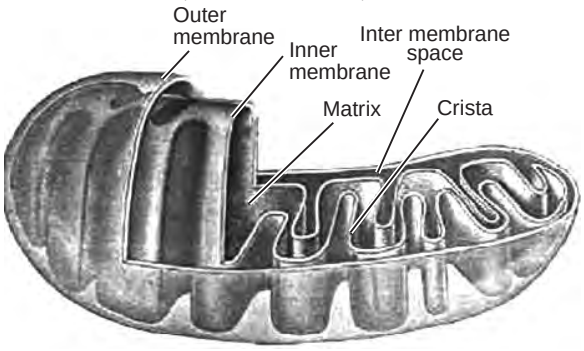
13. Epithelial tissue, Connective tissue, Muscular tissue, Neural tissue. **(Each carries ½ Mark) 2**

14.



(½ Mark for each label) 2

15. The hormones which inhibit (retard) growth rate.

Ex : Abscisic acid (ABA) and ethylene. **1 + 1**

16. **(a)** Tidal volume : It is the volume of air inspired or expired during a normal respiration. **1**

(b) Expiratory capacity : It is the total volume of air a person can expire after a normal inspiration. **1 + 1**

17. Animals which excrete nitrogenous wastes as uric acid.

Ex : Reptiles, birds, and snails and insects.

18. Osteoporosis is an age related disorder, in which bones weaken and fracture more easily. For women, a drop in estrogen at the time of menopause is a major cause of bone loss. For men, a drop in testosterone as they age can cause bone loss **2**

For men, a drop in testosterone as they age can cause bone loss.

PART - C

19.

Kingdom	Animalia
Phylum/Division	Chordata
Class	Mammalia
Order	Primates
Family	Hominidae
Genus	*Homo*
Species	*sapiens*

(Each taxon carries ½ Mark, Minimum 6 should be written) 3

20. The pattern of arrangement of leaves on the stem or branches is known as phyllotaxy. It is of three types : Alternate, Opposite and Whorled. **1**

(a) **Alternate :** Only one leaf at each node arranged alternately.

(b) **Opposite :** Two leaves are arranged in pairs at each node opposite to each other.

(c) **Whorled :** Three or more leaves arise at each node in whorls. **(Any two) 2**

21.

	Tracheids		**Trachea**
(a)	Primitive	**(a)**	advanced
(b)	Elongated	**(b)**	cylindrical
(c)	Larger	**(c)**	shorter
(d)	Narrow lumen	**(d)**	wider lumen
(e)	Less thickened wall	**(e)**	more thickened wall
(f)	Less efficient in conduction	**(f)**	more efficient in conduction

(Any 3 differences) 3

Detailed answer :

	Tracheids	**Tracheae (vessels)**
(a)	Main conducting elements of pteridophytes and gymnosperms.	Main conducting elements of angiosperms
(b)	Tracheids have comparatively narrower in diameter.	Vessels have comparatively wider diameter.
(c)	They have large pits which are less in number.	They have small pits which are larger in number.
(d)	Are less efficient in water conduction.	Are more efficient in water conduction.

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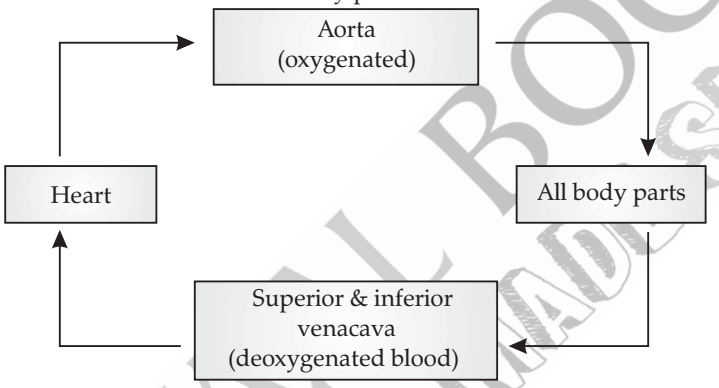
22. Leptotene
Zygotene
Pachytene
Diplotene
Diakinesis **(Each carries ½ Mark, If 4 sub phases are written–2 marks awarded) 3**

23. **(a)** Induces parthenocarpy
(b) Promotes stem elongation.
(c) Promotes cell division and cell elongation.
(d) Maintains apical dominance : The growing apical bud inhibits the growth of lateral bud. The phenomenon is called apical dominance.
(e) Prevents premature falling of leaves, flowers and fruits.
(f) Used as weedicide/herbicide. **(Any Three) 3**

24. **(a)** Parietal/oxyntic cells : Secrete HCl and intrinsic factor.
(b) Peptic/chief cells : Secretes proenzyme pepsinogen.
(c) Mucus neck cells : Secrete mucus. **(Each carries 1 Mark) 3**

25. The circulation of blood between heart and all body parts.



1 + 2

26. Humerus, Radius, Ulna, Carpals, Metacarpals and phalanges. **(Each carries ½ Mark, ½ × 6 = 3)**

PART - D

SECTION - I

27. **(i)** Bryophytes are commonly called amphibians of plant kingdom, they require water to complete their sexual reproduction.
(ii) The plant body is thallus attached to substratum.
(iii) They have root like structures called rhizoids.
(iv) Dominant phase is gametophyte (n), which produces gametes.
(v) Male and female sex organs are called antheridia and archegonia respectively.
(vi) Antheridia produce biflagellate antherozoids and archegonia produces, a single non motile egg.
(vii) Zygote is formed by the fusion of haploid male and female gametes.
(viii) Zygote (2n) develops into diploid sporophyte.
(ix) Bryophyte exhibits alternation of haploid gametophyte and diploid sporophytic generation. **(Any five) 5**

28.

	Chordates		Non-chordates
(i)	Notochord present.	**(i)**	Notochord absent.
(ii)	Central nervous system is dorsal, hollow and single.	**(ii)**	Central nervous system is ventral, solid and double.
(iii)	Pharynx perforated by gill slits.	**(iii)**	Gill slits are absent.
(iv)	Heart is ventral.	**(iv)**	Heart is dorsal (If present).
(v)	A post-anal tail is present.	**(v)**	Post-anal tail is absent.

5

29. Neat diagram carries 1 mark, 8 correct labelling carries $8 \times \frac{1}{2} = 4$ marks. **5**

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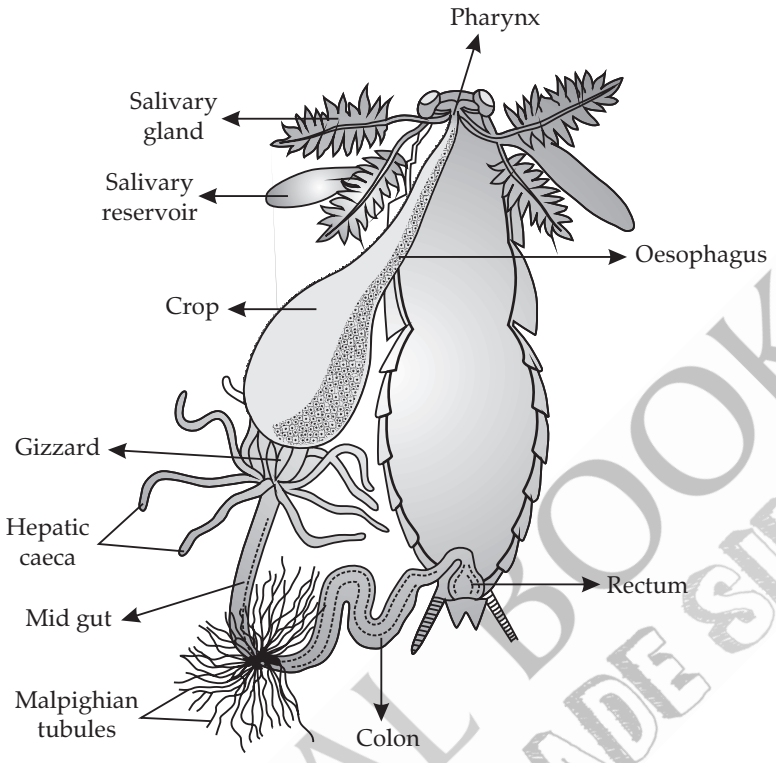


Alimentary Canal of Cockroach **4 + 1**

30. Centromere is the region of a chromosome to which the microtubules of the spindle attach via the kinetochore, during cell division. **1**

(a) **Metacentric :** Chromosome has middle centromere forming two equal arms.

(b) **Sub-metacentric :** Chromosome has centromere slightly away from the middle of the chromosome, resulting in one short and one long arm.

(c) **Acrocentric :** Chromosome has one extremely short arm and a very long arm.

(d) **Telocentric :** Chromosome has a terminal centromere. **(Each carries 1 Mark) 1 × 4 = 4**

31. (a) **Oxidoreductase/Dehydrogenase :** Enzymes that catalyses oxidoreduction between two substrates.

(b) **Transferases :** Enzyme that catalyses transfer of a group from one substrate to another.

(c) **Hydrolases :** Enzyme that catalyses hydrolysis of ester, ether, peptide, C–C, C–halide or P–N glycosidic bonds.

(d) **Lyases :** Enzymes that catalyse removal of groups by mechanism other than hydrolysis leaving double bond.

(e) **Isomerases :** Enzymes that catalysis the arrangement of atoms in a molecule to from its isomer.

(f) **Ligases :** Catalyse linking together of two compounds. **5**

32. **Experimental Procedure :**

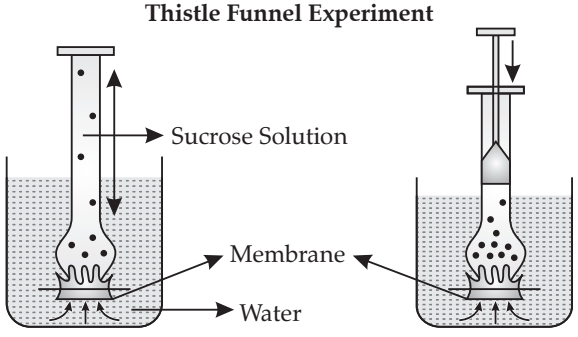
(i) A thistle funnel is taken and its mouth is tied with a parchment paper and filled with sucrose solution.

(ii) Funnel is kept inverted in a beaker containing water.

(iii) Note down the initial level of sucrose solution in the stem of the funnel.

(iv) After sometimes, rising of sucrose solution in the stem of the funnel indicates that osmosis has occurred. **2**

Thistle Funnel Experiment



3

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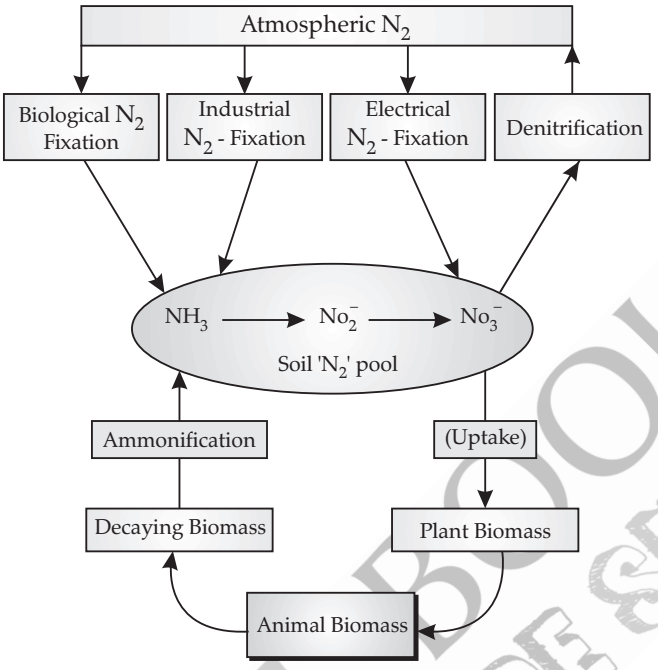
SECTION - II

33.



5

34. Neat diagram with 6 labelling $\frac{1}{2} \times 6 = 3$. Explanation carries 2 marks.

Detailed answer :

(i) Chloroplasts are double-membrane-bound structure. They are divided into outer and inner membranes, further divided into two distinct regions : Grana and stroma.'

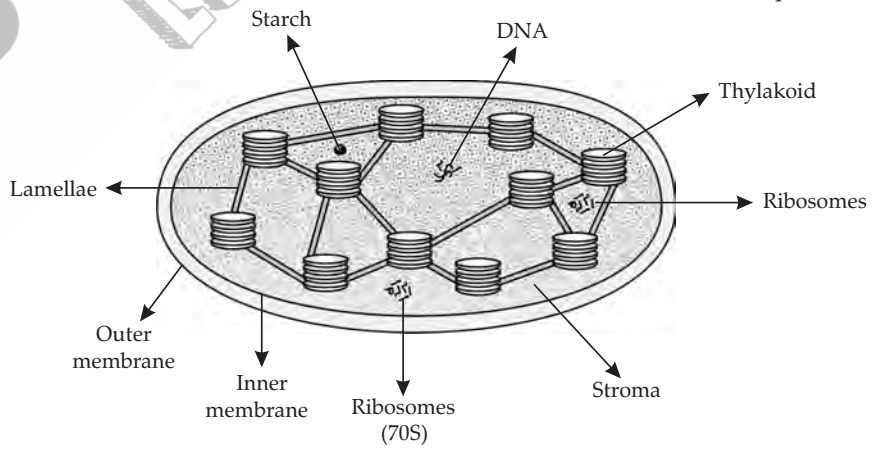
(ii) Between the outer and inner membranes, intermembrane space is present.

(iii) The inside of chloroplast is clearly marked into a colourless ground matrix called **stroma**.

(iv) **Stroma** is homogeneous matrix in which grana is embedded. Stroma contains a variety of photosynthetic enzymes, DNA and ribosomes. It is the site where all chemical reaction occurs and starch (sugar) is synthesized.

(v) **Grana** are stacks of membrane bound, flattened sacs containing the molecules of chlorophyll. One thylakoid stack is known as granum. Each thylakoid have chlorophyll molecules on their surface that trap sunlight and take part in process of photosynthesis.

(vi) The stacks of grana are connected by stromal lamellae. The lamellae act like the skeleton of chloroplast, keeping all sacs in safe distance from the other sacs. Grana are main functional units of chloroplasts.



(Structure of Chloroplast)

2

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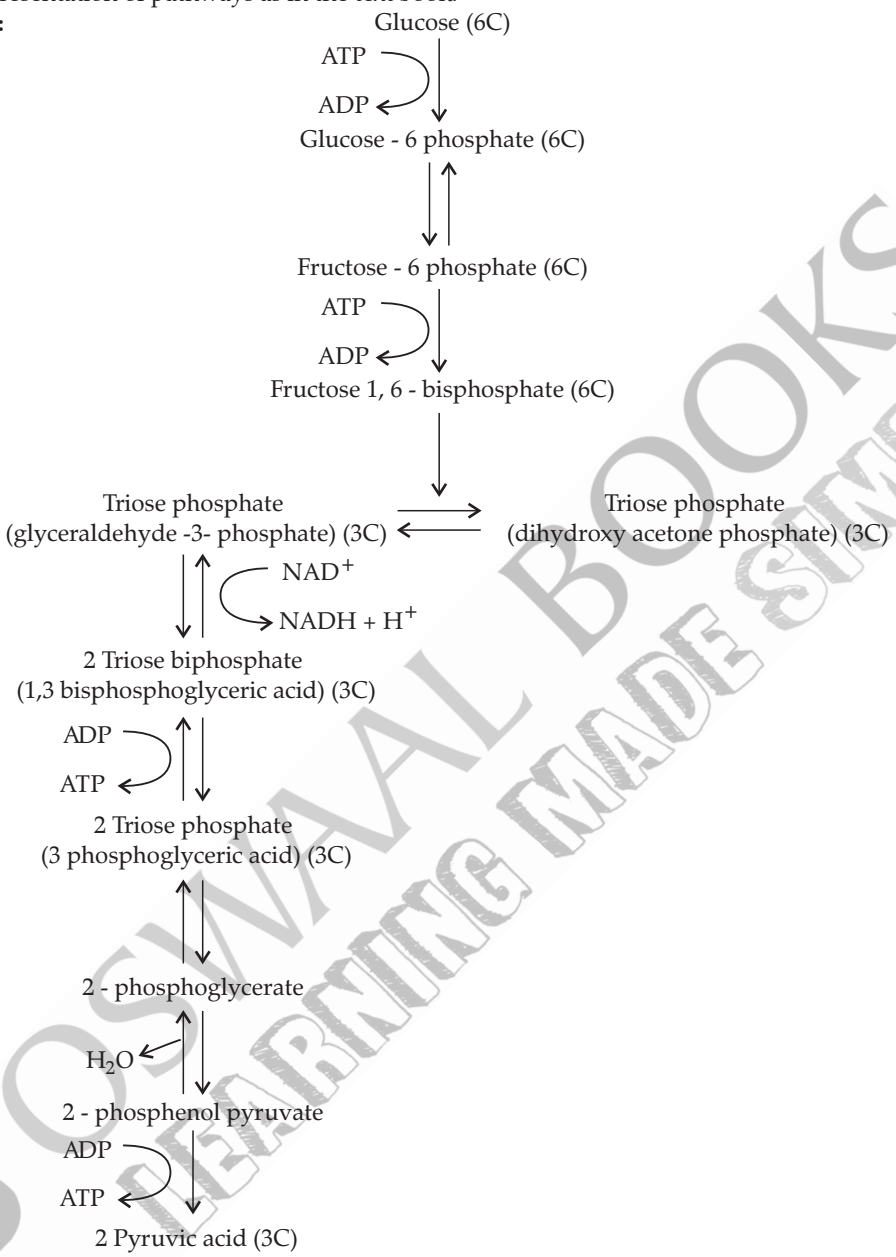
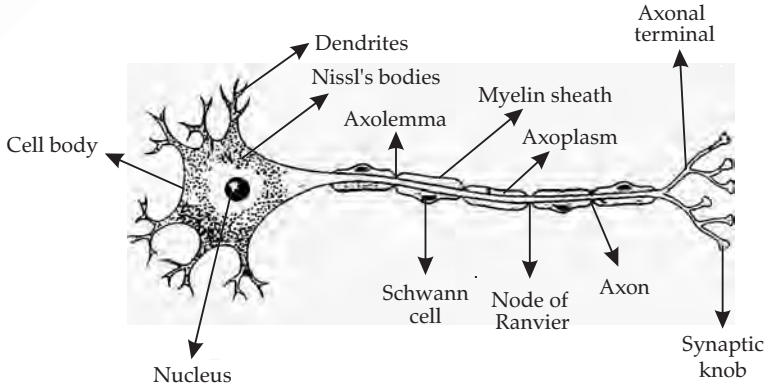
35. Correct representation of pathways as in the text book. **5**

Detailed answer :



36. Neat diagram carries 1 Mark, correct labelling carries $\frac{1}{2} \times 8 = 4$ Marks. **5**

Detailed answer :



Multipolar Myelinated Neuron

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37. Hormones secreted by anterior lobe of pituitary are :

1. **FSH (Follicle stimulating hormone) :** In female, it stimulates growth and development of ovarian follicles.
   In male, it stimulates the production of sperm in seminiferous tubules of testes.
2. **LH (Luteinizing hormone) :** In female, it induces ovulation, formation of corpus luteum and secretion of progesterone and estrogen.
   In male, it stimulates the synthesis and secretion of testosterone by interstitial cells of testes.
3. **ACTH (Adrenocortico tropic hormone) :** It stimulates adrenal cortex to produce steroid hormones. (Glucocorticoids and mineralocorticoids)
4. **TSH (Thyroid stimulating hormone) :** It stimulates thyroid gland to produce hormones (– T3, T4 and calcitonin.).
5. **PRL (Prolactin) :** It stimulate mammary gland growth and milk production.
6. **GH (Growth hormone)/Somatotropin :** It stimulates liver to produce growth factors that stimulate bone and cartilage growth.

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SOLVED PAPER	I PUC Annual Examination 2018	Biology Subject Code (36) S

Time : 3 hrs 15 min **Max. Marks : 70**

Instructions :

(1) *This question paper consists of four* ***Parts–A, B, C*** *and* ***D. Part – D*** *consists of two Sections.* ***Section – I*** *and* ***Section – II.***
(2) *All the parts are compulsory.*
(3) *Draw diagrams wherever necessary. Unlabelled diagrams or illustration do not attract any marks.*

PART - A

I. Answer the following questions in one word or one sentence each : **10 × 1 = 10**

1. What is taxon?
2. Name the type of root modification in banyan.
3. Name the family in which thew flowers show papilionaceous corolla.
4. What is closed vascular bundle?
5. Name the type of plastids which store carbohydrate.
6. During which stage does synapsis occur?
7. What are Porins?
8. Name the enzyme which helps in nitrogen reduction in prokaryotes.
9. Which cells of gastric glands secrete HCl?
10. What is serum?

PART - B

II. Answer any FIVE of the following questions in 3 to 5 sentences each wherever applicable. **5 × 2 = 10**

11. Mention any two major groups of protozoans with an example of each.
12. Distinguish between diploblastic and triploblastic animals. Give an example of each.
13. What is phyllotaxy? Name any two types.
14. What are nephridia? Mention their types.
15. Draw a neat labelled diagram of a mitochondria.
16. Write the physiological effects of Cytokinins in plants.
17. What are joints? Name any two types of joints in man.
18. What is (a) Tetany (b) Arthritis?

PART - C

III. Answer any FIVE of the following questions in 40 to 80 words each wherever applicable. **5 × 3 = 15**

19. Briefly explain any three types of taxonomical aids.
20. Draw a neat labelled diagram of phloem.
21. Mention the significance of mitosis.
22. What is photoperiodism? Classify the plants based on photoperiodism.
23. Briefly explain the role of enzymes in the digestion of disaccharides.
24. Briefly describe the transport of CO_2 in the blood.
25. Write a note on any three disorders of circulatory system.
26. Briefly explain the role of lungs, liver and skin as excretory organs.

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PART - D

SECTION-I

IV. Answer any FOUR of the following questions in about 200 to 250 words each wherever applicable. $4 \times 5 = 20$

27. List any four important characters of gymnosperms. Give two examples.

28. Write the general characters of class Aves.

29. Draw a neat labelled diagram of male reproductive system of cockroach.

30. Describe the fluid mosaic model of cell membrane.

31. **(a)** Briefly describe the factors affecting enzyme activity.

(b) What is homopolymer? Give an example.

32. Transpiration and photosynthesis in plants is a compromise. Substantiate.

SECTION-I I

V. Answer any THREE of the following questions in 200 to 250 words each wherever applicable. $3 \times 5 = 15$

33. Describe the nodule formation in leguminous plants.

34. Write the schematic representation of Z-scheme of light reaction.

35. **(a)** What is respiratory quotient (RQ)?

(b) the respiratory pathway in plants is called amphibolic pathway. Why ?
Mention the RQ values for carbohydrates, fats and proteins during aerobic respiration.

36. Draw a labelled diagram of sagittal section of the human brain.

37. Name the hormones which are responsible for the following functions:

(a) Stimulates the resorption of water and electrolytes in kidneys.

(b) Maintains sleep wake cycle.

(c) Regulates the blood calcium level.

(d) Provide immunity.

(e) Supports pregnancy.

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SOLUTIONS
As Per Scheme of Valuation
(Issued by Department of PUE, Karnataka)

PART - A

1. Unit of classification
2. Prop roots
3. Family Fabaceae
4. A vascular bundle in which cambium is absent.
5. Amyloplasts
6. Zygotene
7. Porins are proteins that form huge pores in the outer membranes of plastids, mitochondria and some bacteria allowing molecules upto the size of small proteins to pass through.
8. Nitrogenase
9. Parietal or oxyntic cell
10. Plasma without the clotting factors

PART - B

11. **(i)** Amoeboid protozoans: E.g. *Amoeba*, *Entamoeba*
(ii) Flagellated protozoans: E.g. *Trypanosoma*
(iii) Ciliated protozoans: E.g. *Paramecium*
(iv) Sporozoans: E.g. *Plasmodium* **(Any 2 with an example each (1 mark each)**

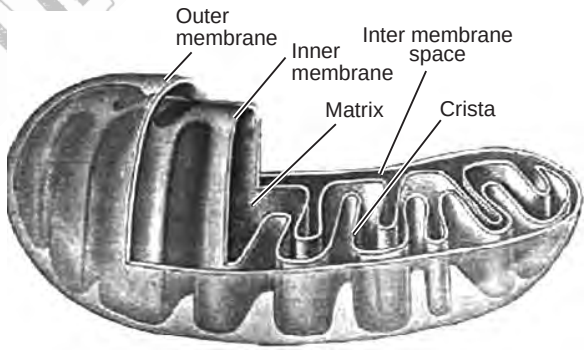
12. **Diploblastic animals :** Animals in which the cells are arranged in two embryonic layers namely ectoderm and endoderm. E.g. Coelenterates **1**
Triploblastic animals : Animals in which the cells are arranged in 3 embryonic layers namely ectoderm, mesoderm and endoderm. E.g. Platyhelminthes to chordates. **1**

13. Pattern of arrangement of leaves on the stem or branch. **1**
Types of phyllotaxy : Alternate, Opposite and whorled. **(Any two, ½ mark each)**

14. Nephridia are excretory organs in earthworms **1**
Types : Septal, integumentary and pharyngeal **(Any two, ½ mark each)**

15. Labelled diagram of mitochondria with at least 4 labellings. **(½ mark each for labellings)**

Detailed Answer :



2

16. **Physiological effects of Cytokinins :** Helps to produce new leaves, chloroplast in leaves, lateral shoot growth, adventitious shoot formation, helps to overcome apical dominance, promotes nutrient metabolism which helps in the delay of leaf senescence. **(Any four, ½ mark each)**

Detailed Answer :

Physiological effects of Cytokinins are :

- They promote cell division.
- They promote the growth of lateral branches by inhibiting apical dominance.

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- They help to produce new leaves, chloroplast in leaves, lateral shoot growth.
- They promote formation of adventitious shoot.
- They help in delaying senescence by promoting nutrient mobilization.
- Cytokinins help to overcome apical dominance.
- They promote nutrient mobilization, which helps in delay of leaf senescence. **(Any four, ½ mark each)**

17. Joints are points of contact between bones or between bones and cartilages. **1**

Types : Fibrous, cartilaginous and synovial. **(Any two, ½ mark each)**

18. (a) Tetany : Rapid spasms in muscles due to low Ca^{++} in body fluids. **1**

(b) Arthritis : Inflammation of joints. **1**

PART - C

19. (i) Herbarium : A store house of collected plant specimens that are dried, pressed and preserved on sheets.

(ii) Botanical gardens : Specialized gardens having collections of living plants for reference.

(iii) Museum : Have collections of preserved plant and animal specimens for study and reference.

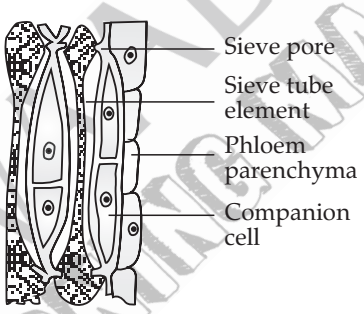
(iv) Zoological parks : Places where wild animals are kept in protected environments under human care and which enables us to learn about their food habits and behaviour.

(v) Key : Used for identification of plants and animals based on their similarities and dissimilarities.

(Mentioning any 3 taxonomical aids and describing them- 1 mark each)

20. Neat labelled diagram of phloem

Detailed Answer :



3

21. Significance of mitosis :

(i) Mode of reproduction in lower organisms, lower plants and haploid cells of some insects.

(ii) Helps in cell repair.

(iii) Mitosis in meristematic tissue and lateral cambium helps in continuous growth of plants throughout their life. **(1 mark each)**

22. Response of plants to periods of day/night to initiate flowering. **1**

Long day plants, short day plants and day neutral plants. **(Any two, 1 mark each)**

Detailed Answer :

Photoperiodism is the response of plants with respect to the duration of light (***i.e.*** period of day and light).

Based on the response to the duration of light, a plant is classified into three types:

(i) Long day plant : Long day plants flower when they are exposed to light for a period more than the critical day length. E.g. Radish.

(ii) Short day plant : Short day plants flower when they are exposed to light for a period less than the critical day length. E.g. *Chrysanthemum*.

(iii) Day neutral plant : Day neutral plants are plants where there is no such correlation between exposure to light duration and induction of flowering response. E.g. Tomato **(Any two)**

23. (a) Lactase : Helps in breakdown of lactose into a molecule of glucose and a molecule of galactose.

(b) Sucrase : Helps in breakdown of sucrose into a molecule of glucose and a molecule of fructose.

(c) Maltase : Helps in breakdown of maltose into two molecules of glucose. **1 + 1 + 1**

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OR

Chemical reactions

(Mentioning the enzymes- ½ mark each, their role- ½ mark each)

24. (i) As carbaminohaemoglobin **1**

(ii) CO_2 combines with H_2O in the presence of carbonic anhydrase to form H_2CO_3. H_2CO_3 dissociates to form $H^+ + HCO_3^-$. At the tissue site, where pCO_2 is high due to catabolism, CO_2 diffuses into blood and stores HCO_3^- and H^+. At the alveolar site, where pCO_2 is low, formation of CO_2 and H_2O takes place. Thus CO_2 trapped as HCO_3^- at the tissue level and transported to the alveoli is released as CO_2. **2**

25. **(a) High blood pressure (Hypertension) :** BP that is higher than normal BP. (120/80 mm of Hg).

(b) Coronary Artery Disease (CAD) : Lumen of blood vessels become narrow due to deposition of calcium, fat, cholesterol etc., affecting blood supply to the heart.

(c) Angina : Symptoms of acute chest pain, when enough O_2 is not reaching the heart muscle.

(d) Heart failure : Heart does not pump blood effectively to meet the needs of the body.

(Mentioning the disorder- ½ marks each, Explanation- ½ mark each)

26. **Role of lungs :** Removes large amount of CO_2 and also water. **1**

Liver : Removes bilirubin, biliverdin, cholesterol, degraded steroids, hormones, vitamins and drugs. **1**

Skin : Sweat glands help in removal of sweat containing NaCl, small amount of urea, lactic acid, etc. Sebaceous glands helps in removal of sterols, hydrocarbons and waxes through sebum. **1**

PART - D

SECTION-I

27. **Important characters of gymnosperms :**

- Naked seed plants
- Stems branched or unbranched
- Leaves simple/ compound
- Heterosporous
- Spores produced within sporangia that are borne on a sporophyll which form strobili or cones
- Male and female cones are borne on the same or different trees.
- Microspores develop into highly reduced male gametophyte.
- Megaspores develop into female gametophyte that bears 2 or more archegonia/female sex organs.
- Male and female gametophytes do not have independent existence.
- Pollination by wind/air
- After fertilization, ovule develops into seeds and zygote develops into an embryo.

(Any 4 important characters- 1 mark each)

2 examples- *Cycas, Sequoia, Pinus, Cedrus, Gingko* **(Any two, ½ mark each)**

28. **General characters of Class Aves :**

- Presence of feathers,
- Presence of beak,
- Forelimbs modified into wings,
- Hind limbs modified for walking, swimming, clasping.
- Skin is dry and non-glandular,
- Pneumatic bones,
- Digestive system has crop and gizzard,
- Homeotherms or warm blooded,
- Oviparous,
- 4-chambered heart,
- Respiration by lungs,
- Sexes are separate,
- Fertilisation is internal and development is direct. **(Any five characters, 1 mark each)**

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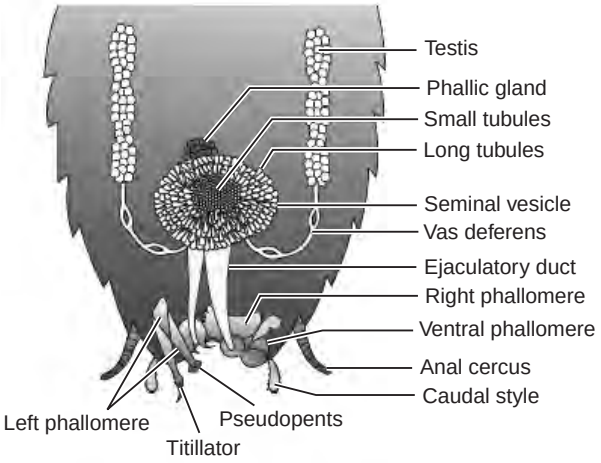
29. Labelled diagram with at least 8 labelling- **½ mark each**

Neatness- **1 mark**

Detailed Answer :

Reproductive system of male cockroach :



4 + 1

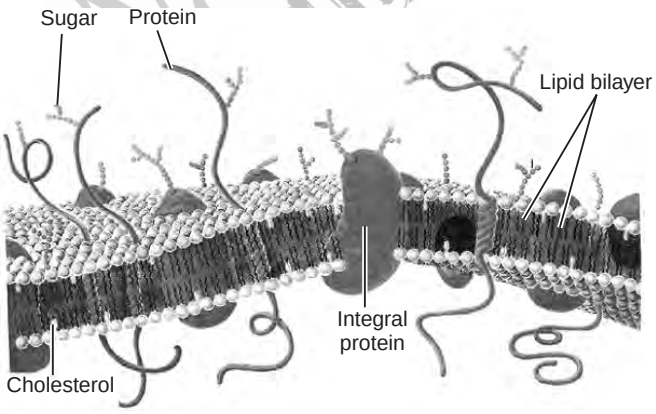
30. Labelled diagram of fluid mosaic model **2**

Explanation : Cell membrane is composed of lipid bilayer. Lipids are arranged within the membrane with the polar heads towards the outer side and non-polar tails towards the inner part. Cell membrane also possesses proteins and carbohydrates. Membrane proteins are classified as peripheral proteins and integral proteins.

Carbohydrates are attached either to the proteins or lipids. The quasi fluid nature of lipid enables lateral movements of proteins within the bilayer. **3**

Detailed Answer :

Fluid mosaic model of cell membrane :



31. (a) Factors affecting enzyme activity :

(i) Temperature and pH : Enzymes generally function within a narrow range of temperature and pH. Each enzymes shows highest activity at an optimum temperature and pH. At low or high temperature and pH, enzymes become inactive. **2**

(ii) Concentration of substrates : With the increase in substrate concentration, the velocity of the enzymatic activity rises at first, reaches a maximum velocity beyond which it does not increase further when concentration of substrate is increased. **1**

(b) Homopolymer : A polysaccharide consisting of only 1 type of monosaccharide. **1**

E.g. Cellulose, inulin, starch, glycogen **(Any one) 1**

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32. Transpiration creates transpiration pull for absorption and transport of plants.

- Supplies water for photosynthesis
- Transports mineral from the soil to all parts of the plants.
- Cools leaf surfaces
- Maintains the shape and structure of the plants by keeping cells turgid. **2½**

Plants need water for photosynthesis and it can be limited by availability of water, which can be swiftly depleted by transpiration. The humidity of rainforest is due to cycling of water. The evolution of C_4 photosynthetic pathway helps in maximizing the availability of CO_2 while minimizing water loss. **2½**

SECTION-I I

33. Nodule formation in leguminous plants takes place due to interaction between *Rhizobium* and roots of the leguminous plants. **1**

Rhizobia multiply and colonise the surroundings of roots and get attached to epidermal and root hair cells, the root hair curl and bacteria invade the root hair. **1**

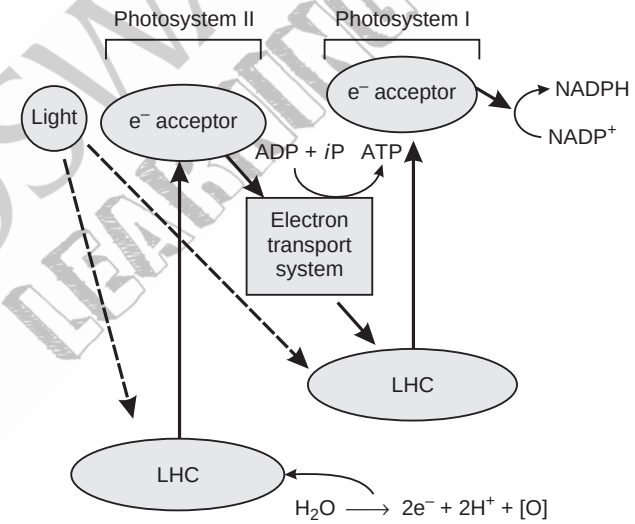
An infection thread is produced carrying the bacteria into the cortex of the root, where they initiate the nodule formation. **1**

The bacteria are then released from the thread into the cells which leads to the differentiation of specialized nitrogen fixing cells. The nodule thus formed, establishes a direct vascular connection with the host for exchange of nutrients. **1**

The nodule contains nitrogenase and leg haemoglobin which helps in nitrogen fixation. The nitrogenase enzyme catalyses the conversion of atmospheric N_2 to ammonia. The nitrogenase is highly sensitive to O_2. Therefore, the nodules have an O_2 scavenger leg haemoglobin. **1**

34. Schematic representation of Z- Scheme of light reaction **5**

Detailed Answer :



35. **(a)** The ratio of volume of CO_2 evolved to the volume of O_2 consumed during respiration.

OR

RQ = Volume of CO_2 evolved / Volume of O_2 consumed **1**

RQ of carbohydrates-1, fats less than 1 and proteins is less than 1 **1**

(b) Because respiratory pathway involves both anabolism and catabolism **1**

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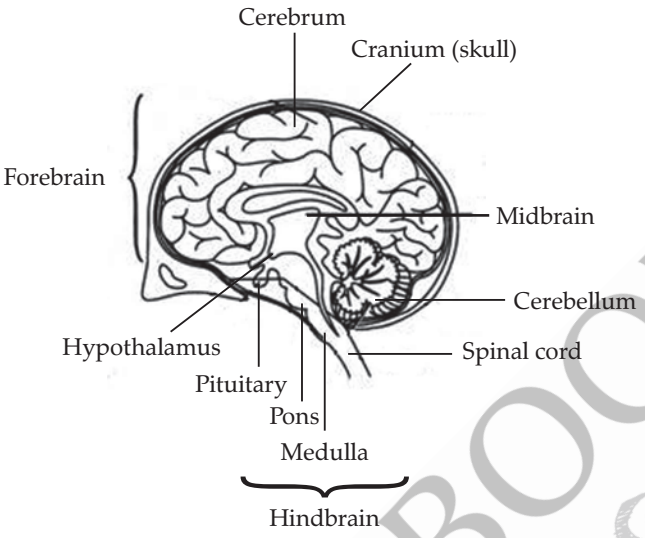
36. Enzyme with at least 8 labelling **4**

Neatness **1**

Detailed Answer :



37. **(a)** ADH or vasopressin **1**

(b) Melatonin **1**

(c) Calcitonin **1**

(d) Thymosin **1**

(e) Progesterone **1**

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