SAMPLE PAPER

2019 AIIMS

BIOLOGY

SET–1

Roll No. | | | | | | | |

ANSWER AND SOLUTION

1. (c)
In photorespiration uptake of oxygen and evolution of carbon dioxide are light dependent. RuBP carboxylase acts as RuBP oxygenase. Photorespiration. occurs in chloroplast and requires the help of peroxisomes and mitochondrion.

2. (b)
Commercial coir is obtained from the fibrous husk (mesocarp) of fruits of coconut palm. The fibre is valued for its lightness and exceedingly high resistance to mechanical water and dampness.

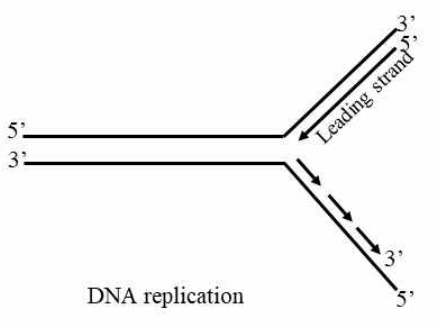
3. (d)
Wuchereria bancrofti is a dreaded human parasite. It is digenetic parasite completing its life cycle in two hosts, the final host is man harbouring the adult worm. The adult worm live coiled up in the gland and lymph vessels of man.

4. (c)
Echinodermata, Hemichordata, Porifera

5. (a)
In *Entamoeba histolytica,* the precystic or minute forms encyst only on the lumen of the intestine. In precystic stage. the chromatid bodies are found which disappear as the cysts mature.

6. (b)
The association between fungi and algae in lichen is regarded as the true mutual relationship, in which both the partners are benefitted. In lichen, fungus loves on the algae which manufactures food by virtue of the chlorophyll present in its cell, while the algae enjoys the protection afforded by the fungal envelope, to live dry conditions.

7. (d)
Replication takes place discontinuously and short pieces called okazaki fragments are synthesized. One strand may synthesize a continuous strand and the other okazaki fragments, or both strands amy synthesize okazaki fragments. Both new stands are synthesized in 5'-3' direction. Thus one strand is synthesized forwards and the other backwards.



DNA replication

8. (d)
A synapse occurs where the axon of one neuron (the pre-synaptic neuron) meets either the dendrite or the cell body of another (the post-synaptic neuron). At the tip of the pre-synaptic axon is a button shaped swelling called a synaptic knob. inside which are numerous mitochondria and vesicles packed with a substance called a neurotransmitter is present. This neurotransmitters at the time of nerve impulse diffuse across the space and bind to receptors in the membrane of the post-synaptic membrane of the post-synaptic cell resulting in a charge in the post-synaptic cell's membrane potential and (if the cell is sufficiently excited) in the consequent generation of a nerve impulse.

9. (b)
The photosynthetic bacteria (e.g. purple non-sulphur bacteria) photosynthesise using bacterio chlorophylls *a* and *b* in anoxic environment, such as the bottom mud of ponds and other stagnant water, although they are able to survive in air. The reducing. agent involved in hydrogen rather than water, so oxygen is not produced. These bacteria efficiently use infrared light for photosynthesis.

10. (b)
SARS (severe acute respiratory syndrome) has how affected 30 countries on five continents. with more than 8,000 cases and more then 900 deaths. The disease is due to infection with the SARS coronavirus (SARS-CoV). The genome of this virus has been completely sequenced. When viruses resembling SARS-CoV were isolated from Himalayan plam civets found in a live animal market in the Guangdone Province of Chine; it implicated these animals as the reservoir of the virus.

11. (a)
In the given chart the disease in inherited by female child from his father and none of the male child is affected hence. it show that the disease is X linked. Moreover. in the progeny the disease in expressed phenotypically by female child even if it is carrier, so the disease is dominant. Hence the pattern of disease is X linked dominant.

12. (d)
Gastrin is a polypeptide hormone produced by the enteroendocrine cells of the stomach. It plays an important role in the control of gastric acid secretion. Inhibin hormone is secreted from corpus luteum, placenta and testes. It supplements the effect of excess sex hormone for depressing gonadotrophic activity (FSH, LH, ICSH) target of inhibin is anterior lobe of pituitary. Duodenal enterokinase converts trypsinogen to activate trypsin which, in turn, activates the other pancreatic enzymes. Atrial natriuretic factor (ANF) is released by walls of the cardiac atrium in response to high sodium concentration, high extracellular fluid volume, or high blood volume. It then acts *via* various mechanisms to excrete Na, and to cause vasodilation in the circulatory system. It dilates the afferent glomerular arteriole, constricts the efferent glomerular arteriole, and relaxes the mesangial cells. This increases the glomerular filtration rate, resulting in greater excretion of Na^+ and water. It also decreases Na resorption in the renal distal convoluted tubule and cortical collecting duct. It also inhibits renin secretion.

13. (b)
Menstruation is a part of the female reproductive cycle that starts when girls become sexually mature at the time of puberty. The parts of the body. involved gland. uterus and cervix, ovaries, fallopian tubes and vagina. The following events given in the options occur in a normal menstrual cycle.
(i) Release of egg called ovulation usually takes place roughly 14 days after the first day of the start of a period for fertilization
(ii) Following menstruation endometrium regenerates about 8 days during the proliferative phase.
(iii) Implantation occurs after 7 days of fertilization.
(iv) Progesterone level rises ovulation which occurs after 14 days.

14. (b)
Millipede : Millipedes belongs to Phylum Arthropoda. Millipedes are called thousands leggers because of possession of numerous legs. Inspite of this they move very slowly. Duckbill Chordata and Class Mammalia. Silverfish **:** *Lepisma saccharina* is commonly known as silver fish because its glistening silvery white fish like body. It belongs to the insect Order Thysanura. Sea anemone : Sea anemone (Admasia), belongs to Phylum Cnidaria shows commensalism. It is found attached to the empty shell of gastropods occupied by hermit crab. Its body wall is two layered *i.e.,* outer epidermis and inner gastrodermis. In between these who layers is present mesogloea.

15. (d)
Pollination by birds is called ornithophily, eg. humming birds, honey eaters, sunbirds etc. are sensitive to colours and have powerful vision. Plants like *Bombax, Butea,* etc are ornithophilous plants. There flowers are characterised by tubular, cup shaped corolla, bright colour to attract insect, excess of nectar and pollens. They are generally odourless. Bauhinia is mostly visited by hummingbirds and their propagules are dispersed by birds.

16. (a)
Genetic variation present among plants cells of a culture is called somaclonal variation. The terms is also used for the genetic variation present in plants regenerated from a single culture. This variation has been used to develop sexual/useful variations.

17. (a)
The phenomenon by which a gene suppresses the phenotypic expression of a nonallelic gene is called epistasis. The ratio for epistatic gene is 12 : 3 : 1 in F_2 generation. The alleles which do not show dominant recessive relationship and are able to express are called codominant alleles. Supplementary genes ar a pair of nonallelic genes, one of which produces its effect independently in the dominant state while the dominant allele of the second gene is without any independent effect but is able to modify the effect of the former to produce a new trait.

18. (c)
All the given options are hydrophyes in nature which grow in extremely wet or watery conditions. But among them only in Ceratophyllum roots are completely absent even in embryonic stage. They remain under water completely. *Nymphea* is a rooted hydrophyte with floating leaves, *Vallisneria* is rooted submerged hydrophyte and Sagittaria is rooted emergent hydrophyte.

19. (c)
Solution culture is being used for raising flowers and vegetables at home. This soilless production of plants is called hydroponics (Gk, *hydor*—water, *ponas*—excretion) plans are raised in small tanks of concrete or metal; The tanks are covered over by wire netting or gauze. They are filled up with a water solution containing appropriate quantities of all mineral elements. The solution is changed from time to time. There is a mechanisms for aeration and circulation. *pH* is checked and corrections are made regularly. iron is added as Fe-EDTA otherwise is gets precipitated, especially in alkaline *pH*. The agent which keeps metals in the soluble sate is called chelating agent or ligand. EDTA (EDTA complex is called chelate. As soon as the plants enlarge they are tied to the roof of the chambers by means of strings. Hydroponics is useful in areas having thin, infertile and dry soils. They conserve water. Additionally hydroponics can regulate *p*H optimum for a particular crop. control soil borne pathogens, avoid problem of weeding and obtain consistently better yield.

20. (c)
Tropical rain forests are mainly found in central America, along Amazon and Orinoco rivers, South America, Congo river basin of Africa, Malagasy Republic and South east Asia including India. Diversity of live is so high that a hectare of the forest may have as many as 200 species of trees, 70% -80% of all insects and 80-85% of all birds are known from tropical forests. Productivity of this biome is also very high and life is abundant. It has different varieties and number of plants and animals.

21. (d)
Diptheria, leprosy and plague are the bacterial disease of humans. Diptheria is a serious air-borne contagious disease. It is caused by *Cornybacterium diptheriae* which is a Gram-postive bacterium. It is inhaled through droplets and reaches to respiratory tract and infects it. Leprosy or Hansen's disease is a contact disease, caused by bacterium *Mycobacterium leprae.* It degenerates the tissues and deforms the body organs. Plague is a disease caused by bacterium *Yersinia pestis or Pasteurella pestis.*

22. (b)
Growth regulators are organic substances. other than nutrients, which in low concentration regulate growth, differentiation and development by promoting or inhibiting the same. Phytohormones are growth regulators produced naturally in plants and translocated to another region for regulating one or more physiological reactions when present in low concentration. Phytohormone can have a promoting or inhibiting effect on a process.

23. (d)
Bacteria attacking the dad animals represent the end o the food chain and are decomposers. These are the organisms that obtain energy from chemical breakdown of organisms. They secrete enzymes onto dead matter and then absorb the breakdown product. Bacteria are specialied to breakdown organic materials that are difficult for other organisms to digest. They also fulfil a vital role in the ecosystem, returning the constituents of organic matter to the environment in inorganic forms so that they can again be assimilated by producers.

24. (c)
In electron transport chain electrons transport through a series of carriers, H^+ of $NADH^+$ (received from Krebs cycle) is accepted by FAD as a result of which FAD is reduced to $FADH^+$ and $NADH^+$ is oxidised to NAD. Reduced $FADH^+$ is oxidised by CoQ with the formation of $CoQH^+$. H^+ ions then move to Cyt b, then Cyt c, Cyt a and Cyt aa_3. Ultimately these H^+ are acceped by O_2 and H_2O is formed.

25. (a)
The first bioherbicide is devine, which is a mycoherbicide, based on fungus *Phytophthora palmivora.* It is being used since 1981 to control *Morrenia odorate* (milkweed vines) in Citrus orchards.

26. (b)
Active transport is the uphill movement of materials across the membrane where the solute particles move against their concentration gradient or electro-chemical gradient. It takes place through the agency of special organic molecules called carrier molecules, carrier particles or carrier proteins. There is a special carrier molecule. for each solute particle (ion molecule). The carrier has its binding site on two surfaces of the membrane. The solute particle (or substrate) combines with the carrier to form carrier solute complex. In the bound state the carrier undergoes. a conformational change which transports the solute to the other side of the membrane. Here the solute is released. Energy is used in bringing about the conformational change in the carrier It is provided by ATP.

27. (a)
Gonadotropin releasing hormone (GnRH), stimulates the anterior lobe of the pituitary gland to secrete two gonadotropic hormones, follicle stimulating hormone (FSH) and luteinising hormone (LH). In male LH activates the Leydig's (interstitial) cells of the testis to secrete androgens.

28. (a)
AIDS or acquired immunodeficiency syndrome or acquired immune deficiency syndrome (a death warrant) is a serious disease (also called slim disease) caused by a retrovirus HIV (human immunodeficiency virus). It is a set of symptoms and infections resulting from the damage to the human immune system by the virus, that depletes primarily the number of

T-lymphocytes (CD-4 T cells or helper T-cells) and render the patient susceptible to opportunistic infections *i.e.* infection caused by non-pathogens.

29. (a)
Cyclic photophosphorylation is a process of photophosphorylation in which an electron expelled by the exited photocentre is returned to it after passing through a series of electron carriers. Cyclic photosystem I only. The electron is circulated within the photosystem and the phosphorylation occurs due to cyclic flow of electron. The excited electron does not pass on to $NADP^+$ but is cycled back to the PS I complex through the electron transport chain. The cyclic flow hence, results only in the synthesis on ATP, but not of NADPH + H^+.

30. (b)
Panthera tigris – Tiger
Mangifera indica – Mango
Musca domestica – Housefly
Periplaneta americana – Cockroach
Rana tigerina – Common India frog

31. (d)
Common cold can take place from one person to other as it is a communicable in nature. A healthy person can get infected by being in close vicinity of infected person when he/she sneezes, coughs, as the droplets generated by sneeze and cough contain infecting agents. Typhoid occurs by the intake of contaminated water & food. While ringworm is one of the skin disease which can transfer form one person to other by the use of infected towel & handkerchief. AIDS (Acquired Immuno deficiency) does not occur or transfer by shaking hands.

32. (a)
Hermann Henking discovered the X chromosome while studying insects in the early 1890s. The sex chromosomes in birds are opposite of that in humans. Humans males are force exerted by the cell wall over the protoplast is called wall pressure. Normally wall pressure is equal and opposite to turgor pressure except when the cell become flaccid.

33. (c)
In given diagram (A) represents denitrification and (B) represents ammonification. Denitrification is conversion of nitrates into nitrogen gas by some microorganism *e.g., Pseudomonas* denitrifications, *Thiobacillus* denitrificans, Micrococcus *denitrifications.* Ammonification is conversion of dead remain of living organisms into ammonia with the help of microorganisms like *Bacillus ramosus*, *B*, *vulgaris, B. mesentericus* etc.

34. (a)
Muscle contraction is brought about by sliding of the actin filaments over myosin filaments. When a muscle fibril contracts, its A band remains constant and I band shortens. H zone also disappears as the action filaments of both side in each sarcomere may overlap each other at M line.

35. (b)
The C_4 plants are adapted to dry tropical regions and have greater productivity of biomass. They have special type of leaf anatomy known as Kranz anatomy. In this type of anatomy the bundle sheath cells form several layers around the vascular bundles; they are characterized by having a

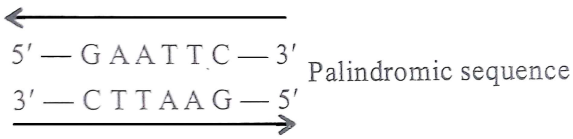
large number of chloroplasts, thick walls impervious to gaseous exchange and no intercellular spaces.

36. (b)
The adrenal medulla secretes two hormones called adrenaline or epinephrine and noradrenaline or norepinephrine. These are commonly called as catecholamines. These are rapidly secreted in response to stress of any kind and during emergency situation and are called emergency hormones or hormones of fight or flight. These hormone increase alertness, pupillary dilation, piloerection (raising of hairs), sweating, etc. Both the hormone increase the heart beat, the strength of heart contraction and the rate of respiration. Catecholamines also stimulate the breakdown of glycogen, lipids and proteins.

37. (b)
RBCs contain haemoglobin. It has four polypeptide chains and four haem groups attached to it or 4 atoms of iron in groups attached to it or 4 atoms of iron in ferrous form (Fe^{2+}), thus it can react with 4 molecules of oxygen to form oxyhaemoglobin.

38. (a)
Blood is the medium of transport of O_2 and CO_2. Nearly 20-25% of CO_2 is transported by of it is carried as bicarbonate through palsma. About 7% of CO_2 is carried in dissolved state through plasma. The largest fraction of CO_2 is converted to biacrbonate ions (HCO^-_3) and transported in plasma. When CO_2 diffuses into the RBCs, it combines with H_2O, forming carbonic acid (H_2CO_3). H_2CO_3 is unstable and quickly dissociates into hydrogen ions and bicarbonate ions.

39. (c)
The palindromes in DNA are base pair sequence that are the same when read forward (left to right) or backward (right to left) from a central axis of symmetry. The following sequence reads the same on the two strands in 5'→3' direction. This is also true when we read in the 3'→5' direction.



Restriction endonuclease enzymes recognize palindromic sequences in DNA and cut them.

40. (c)
Oxytocin is released by posterior pituitary. Vasopressin decreases the amount of urine by increasing reabsorption of water from DCT and collecting tubules. It also stimulates the contraction of walls of blood vessels. thereby raising the blood pressure. Glucagon stimulates liver to convert stored glycogen into glucose and thus raises the blood sugar level. Thymus releases thymosin which aids in proliferation of T-lymphocytes.

41. (a)
Mast cells act on body's defense mechanism. When some allergens like different pollutants, smog, smoke, pollen grains etc. come in contact with mast cells, they stimulate the mast cells. The allergic reaction is triggered by cross linking of IgE molecule on the surface of mast cell by allergen and ultimately must cell release excessive amounts of inflammatory chemicals which cause allergic reactions.

42. (d)
Micropropagation is used for rapid vegetative multiplication of plants. As the size of the propagule in minute thus the technique is name micropropagation. Each, such plant, will be genetically identical to the parent plant. Generally, apical or axillary meristems are free from viruses. Hence, can be used as explants in tissue culture to produce virus free plants.

43. (c)
Cephalisation is the concentration of nervous tissue and sense organs in or towards the anterior end forming a distinct head. It provides greater prominence and domination. of the head over the rest of the body. However, it does not improve the appearance of the animal.

44. The parts of the plants that show the deficiency symptoms also depend on the mobility of the elements in the plant. For elements that are actively mobilised within the plants and exported to young developing tissues, the deficiency symptoms tend to appear first in the older tissues. For example, the deficiency symptoms of nitrogen. potassium and magnesium are visible first in the senescent leaves. In the older leaves, biomolecules containing these elements are broken down, making these elements available for mobilising to younger leaves.

45. (d)
The relationship between the sequence of amino acids in a polypeptide and nucleotide sequence of DNA or mRNA is called genetic code is triplet. One codon codes for only one amino acid, hence it is unambiguous and specific. Some amino acids are coded by more than one codon. hence the code is degenerate.

46. (c)
The enlarged Q and R waves indicate a myocardial infarction (heart attack). QRS complex beings as small downward deflection (Q) and continues as large upright (R) and triangular wave ending as downward wave (S) at its base. It represents ventricular depolarisation (ventricular contraction).

47. (d)
Yest (*Saccharomyces cerevisiae*) is used for commercial production of ethanol. A bioactive molecule, cyclosporin A which is used as an immunosuppressive agent in organ-transplant patient, is produced by the fungus *Trichoderma polysporum.*

48. (a)
One of the hormones released by the placenta is human chorionic gonadotropin (hCG). This hormone is secreted by the trophoblast cell even before they become the chorinon, and is the hormone assayed in the pregnancy test. Because its action is almost identical to that of luteinizing hormone (LH), hCG maintains the mother's corpus luteum. The corpus luteum, in turn, continues to secrete oestrogens and progesterone, thereby preventing menstruation and further ovulations. At around 10^{th} week, the secretion of human chorionic gonadotropin (gCG) by placenta declines, and the corpus luteum regresses as a result. However, menstruation does not occur because placenta itself secretes oestrogens and progesterone. In fact, the amounts of these hormones secreted by the placenta far exceed the amounts that are ever secreted by the ovaries. The high levels of oestrogens and progesterone in the blood during pregnancy continue to inhibit the release of FSH and LH, thereby preventing ovulation. They also help maintain the uterusand

eventually prepare it for labour and delivery, and they stimulate the development of the mammary glands in the preparation for lactation after delivery.

49. (b)
Pulse is the rhythmic contraction and relaxation in the aorta and its main arteries. It is a regular jerk of an artery. The pulse rate is exactly the same as the heart rate because an artery pulses every time the heart beats. Pulse is usually taken on the radial artery in the wrist but it can be taken on any artery that flows near enough to the surface of the body to be felt. The heart beat originates from the sinoatrial node
(SA Node)- pacemaker, which lies in the wall of the right atrium near the opening of the superior vena cave. The SA node is a mass of neuromuscular tissue. Another mass of neuromuscular tissue, the atrioventricular node (AV node) is situated in the wall of the right atrium. The AV node picks up the wave of contraction propagated by SA node. A mass of specialized fibres, the bundle of His, originates from the AV node. The bundle of His divides into two branches, one going to each ventricle. Within the myocardium of the ventricles, the branches of bundle of His divides into a network of fine fibres called the Purkinje fibres. The bundle of His and the Purkinje fibres convey impulse of contraction from AV node to the myocardium of the ventricles.

50. (b)
Hotspots are areas with high density of biodiversity or megadiversity which are also the most threatened ones. Ecologically hotspots are determined by four factors.
(i) Number of species/species diversity.
(ii) Degree of endemism
(iii) Degree of threat to habitat due to its degradation and fragmentation.
(iv) Degree of exploitation.
Myers (1988) initially identified 12 hot sports. Today the number of hotspots indentified by ecologists is 34 covering an area less than 2% of land surface with about 20% of human population living there.

51. (c)
There are two types of food chains: grazing food chain and detritus food chain. Detritus food chains are those which start form the dead bodies of animals or fallen leaves etc. In terrestrial ecosystem, detritus food chain is the major conduit of energy flow, while in aquatic ecosystem, grazing food chain is the major conduit of energy of flow. As the detritus food chains depend upon the dead organic mater hence, these are not directly dependent upon solar energy.

52. (b)
The first step in photosynthesis is the light-driven oxidation (splitting or photolysis) of water. It provides the electrons for the photosynthetic electron transport chains as well as protons for the establishment of a proton gradient. It occurs on the lumenal side of the thylakoid membrane. During photolysis. water is oxidised to oxygen, proton and electrons. Protons accumulate in the lumen.

53. (a)
Vessels are much elongated tubes which are closed at either end and are formed by the union of several short, wide and thickened cells called vessels elements. The end walls of vessels elements are transverse or oblique. They are often completely dissolved. The condition is called

simple perforation plate. In a few cases the end walls remain intact. and posses several pores in reticulate, scalariform or forminate forms. Such an end wall is called multiple perforation plate. Sieve tubes are elongated tubular conducting channels of phloem formed of several cells called sieve tube elements or members or sieve tube cells. Sieve tube members are placed end to end. The end walls are generally bulged out. They may be transverse or oblique. They have many small pores or sieve pits. Due to the presence of sieve pits the end walls of sieve elements possess more than one porous area. Such an end wall is called compound sieve plate. Gymnosperms & pteriodophytes lack these two vascular structures *i.e.* vessels and sieve elements. In angiosperms presence of vessels & sieve elements n addition to all other vascular tissues make their food & water transport more efficient.

54. (b)
A healthy person acquires infection when a female *Anopheles* mosquito, containing infective stages of parasite (sporozoites) in its salivary glands, bites him for sucking his blood. The mosquito punctures the host's skin by its proboscis and first introduces some saliva into blood stream. Along with saliva, thousands of sporozoites containing therein are also inoculated. Sporozoites represent the infective forms of parasite. These are small spindle-shaped, slightly curved or sickle-shaped, and uninucleate organisms, measuring 11-12µm in length and 0.5-1µm in width. After infection sporozoites enter liver cells here after a few division, micrometacryptomerozotes are formed that enter RBC's and gametocytes are formed here in RBC's

55. (a)
The blood of cockroach, also called as haemolymph is a mobile connective tissue composed of corpuscles and a colourless fluid, the plasm. It does not contain any respiratory pigment and therefore plays no role in respiration. Respiratory organs of cockroach are spiracles, tracheae and tracheoles. The respiratory system consists of a network of trachea, that open through 10 pairs of small holes called spiracles present on the lateral side of the body. Thin branching tubes carry oxygen from the air to all the parts. The opening of the spiracles is regulated by the sphincters. Exchange of gases take place at the tracheoles by diffusion.

56. (a)
Shrinkage of the protoplast of a cell (due to water loss) under the influence of a hypertonic solution is called plasmolysis. Hypertonic solution causes exosmosis or withdrawal of water from cytoplasm and then the central vacuole of cell. The size of cytoplasm as well as central vacuole and hence protoplast becomes reduced. The pressure on the wall is simultaneously reduced and the elastic wall contracts causing a reduction in cell size.

57. (a)
Based on the mode of secretion, the glands are of three types : mesocrine, apocrine and holocrine. Mammary glands that are present in mammals to feed the young ones with milk are the example of apocrine glands. In apocrine glands, the secretion accumulates as secretory granules in the distal part of the cell. This part later breaks down and leaves as a secretion.

58. (b)
Most of the animals have sex organs. They are either males or females. But in some lower animals, the organs of both the sexes are found in the same individual. These are called bisexual or monoecious animals or hermaphrodites. In these animals, testes and ovaries do not

mature simultaneously. For example in earthworm, testes mature earlier, while in others, e.g. sea-squirt, ovaries mature earlier. These conditions are respectively called protandry and protogyny. They ensure cross fertilization. Cross fertilization is a process in which gametes derived from different individuals are united to form zygote. It involves the mixing of two different genetic materials. This is better than self-fertilization as it introduces variation by combining traits of two individuals.

59. (d)
Dark reaction is also known as light-independent phase. Unlike, light-independent phase. Unlike, light reaction, it does not require light as an essential factor. Thus can takes place both in the presence or absence of light. The term dark reaction does not mean that it takes place only in dark period or at night. CO_2 fixation occurs in both C_3 and C_4 cycle. In C_3 cycle, CO_2 is added by the enzyme, RuBisco to a 5 carbon compound RuBP that is converted to 2 molecules of 3-carbon PGA. In C_4 cycle the first product of CO_2 fixation (takes place in mesophyll) is a 4-carbon compound, oxaloacetic acid. It is seen in some tropical plants.

60. (b)
The fossil of Java Apeman was discovered from pleistocene rocks in central Java. The fossil of Peking man was discovered from the lime stone caves of Choukoutien near Peking while that of Heidelberg man was discovered in mid pleistocene. All these three fossils come under the category of Homo erectus.
Homo erectus appeared about 1.7 million years ago in middle pleistocene. H. erectus evolved from Homo habilis. He was about 1.5-1.8 metres tall. He had erect posture. His skull was flatter than that of modern man. He had protruding jaws, molar teeth. He made more elaborate tools of stones and bones, hunted big game and perhaps knew use of fire.