

NEET

TEST-10-SOLUTIONS

STANDARD ANSWER KEY											
Q	1	2	3	4	5	6	7	8	9	10	11
A	D	C	D	C	C	D	B	B	D	B	A
Q	12	13	14	15	16	17	18	19	20	21	22
A	A	B	B	B	D	B	D	B	C	C	C
Q	23	24	25	26	27	28	29	30	31	32	33
A	C	A	C	B	B	D	A	B	D	A	C
Q	34	35	36	37	38	39	40	41	42	43	44
A	A	D	C	C	C	C	C	A	B	C	C
Q	45	46	47	48	49	50	51	52	53	54	55
A	C	B	C	A	C	B	C	D	A	B	A
Q	56	57	58	59	60	61	62	63	64	65	66
A	D	A	C	C	B	C	A	B	C	B	B
Q	67	68	69	70	71	72	73	74	75	76	77
A	C	A	D	D	A	D	D	B	D	B	C
Q	78	79	80	81	82	83	84	85	86	87	88
A	A	C	C	A	B	A	D	A	B	C	D
Q	89	90	91	92	93	94	95	96	97	98	99
A	A	C	C	B	B	A	D	D	C	B	D
Q	100	101	102	103	104	105	106	107	108	109	110
A	A	D	A	D	D	C	D	A	D	B	B
Q	111	112	113	114	115	116	117	118	119	120	121
A	A	B	A	D	B	C	C	B	A	A	D
Q	122	123	124	125	126	127	128	129	130	131	132
A	C	C	A	C	C	D	B	C	A	C	A
Q	133	134	135	136	137	138	139	140	141	142	143
A	B	A	D	B	C	D	A	C	B	B	A
Q	144	145	146	147	148	149	150	151	152	153	154
A	B	D	B	D	B	D	C	A	A	D	B
Q	155	156	157	158	159	160	161	162	163	164	165
A	A	B	C	B	C	C	A	C	C	A	D
Q	166	167	168	169	170	171	172	173	174	175	176
A	B	D	A	C	B	B	D	C	B	B	C
Q	177	178	179	180							
A	C	B	C	B							

(17) (B). The polymers which disintegrate by themselves during a certain period of time by enzymatic hydrolysis and to some extent by oxidation, are known as biodegradable polymers. Example :

Poly- β -hydroxy-butyrate-co- β -hydroxyvalerate (PHBV), which is used in orthopaedic devices and in controlled drug release, and poly (glycollic acid) poly (lactic acid) or commonly known as dextron, which is used for stitching of wounds after operation.

(18) (D). Glycogen chains are much shorter, branching take place between 10–14 glucose units.

(19) (B).

(A) Sucralose is an artificial sweetening agent.

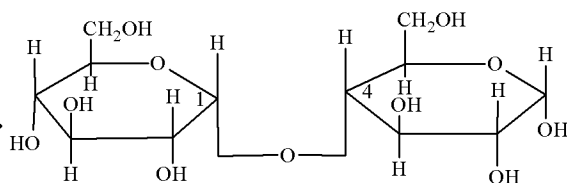
(B) Antimicrobials are commonly used in food industry to ensure safe wholesome food products. Traditionally, lactic acid, which is a weak organic acid and a natural food preservative has been widely used to control growth of pathogenic bacteria in food.

(C) Seconal is a tranquillizer.

(D) Chloroxylenol is an antiseptic.

(20) (C). Examples for chain growth polymer, Polyethylene, PVC polypropylene etc.

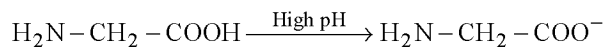
(21) (C). Configuration at a particular chiral carbon (highest chiral centre)



(22) (C). In maltose 1st carbon atom of one L – D (+) glucose unit is linked to 4th carbon atom of adjacent glucose unit through glycosidic linkage.

(23) (C). Oxytocin is an example for hormone (biochemical messengers)

(24) (A). In alkaline medium (high pH) amino acids exists as negatively charged particle (carboxyl group donates proton).



(25) (C). Glucose is a true solution & protein is a colloid.

(26) (B).

(27) (B). In sucrose molecule, 1st carbon atom of glucose reducing part react with 2nd carbon atom of fructose reducing part and eliminated as water molecule. Hence it does not contain reducing group.

(28) (D).

(29) (A). Oleates are glycerides of unsaturated oleic acid. Glycerides are unsaturated acids are liquid at room temperature.

(30) (B).

(31) (D). 1.78 g - 448 cm³

? - 22400 cm³

$$\text{Mol mass of L-amino acid} = \frac{1.78 \times 22400}{448} = 89$$

\therefore Mol mass of protein is 100 - 0.25

? - 89

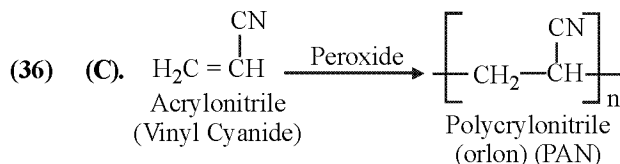
$$= \frac{100 \times 89}{0.25} = 35,600 \text{ g/mol}$$

(32) (A). BHA and BHT are used as antioxidants.

(33) (C). Br₂ water oxidises aldose to corresponding acid and it get decolourises. Ketoses are not oxidised by Br₂ water.

(34) (A).

(35) (D). When adenine (Purine base) combines with ribose sugar Adenosine is formed. It is a nucleoside.



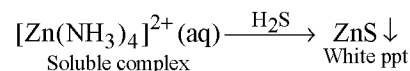
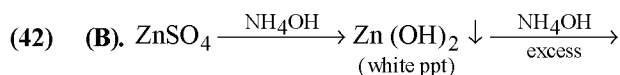
(37) (C). Sucrose on hydrolysis yields equimolar mixture of D-(-)-fructose and D-(+)-glucose. Since specific rotation of (-)-fructose is greater than (+)-glucose D the mixture is laevorotatory.

(38) (C). Essential amino acid – Leucine, Isoleucine, Lysine.

(39) (C).

(40) (C). Prontosil is converted to sulphanilamide in the body.

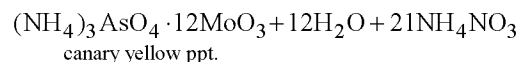
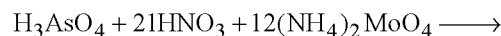
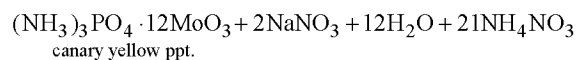
(41) (A). Chromyl chloride + water + lead acetate → lead chromate



(43) (C). In HCl, the dissociation H₂S is suppressed. Hence it will have lower concentration of S²⁻ ions, which results in the precipitation of those sulphides having very low solubility product.

(44) (C). Cu⁺² form insoluble blue coloured ppt of Cu(OH)₂ whereas Zn⁺² forms soluble complex, [Zn(OH)₄]²⁻.

(45) (C). Na₂HPO₄ + 12(NH₄)₂MoO₄ + 23HNO₃ →

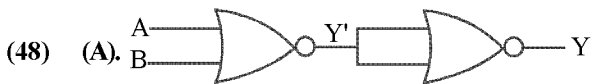


Thus both PO₄³⁻ and As³⁺ give canary yellow ppt.

(46) (B). The forbidden gap in the energy band of Si = 1.1 eV.

(47) (C). If we make a truth table for the outputs given in the question. It matches with the truth table of an NOR gate. $Y = \overline{A + B}$

A	B	Y (output)
1	0	1
0	1	0
0	0	1



Truth Table of this gate

A	B	Y'	Y
0	0	1	0
1	0	0	1
0	1	0	1
1	1	0	1

$$Y' = \overline{A+B} = \bar{A} \cdot \bar{B}$$

and $Y' = \bar{Y}' = \overline{\bar{A} \cdot \bar{B}} = \bar{\bar{A}} + \bar{\bar{B}} = A + B$

This is the boolean expression for the OR gate.

(49) (C). Here, $h = 50 \text{ m}$

$$\text{Area covered} = \pi d^2 = \pi \times 2hR \quad (\because d^2 = 2hR)$$

where $R = 6.4 \times 10^6 \text{ m}$ (radius of earth)

$$\therefore \text{Area covered} = \pi \times 2hR = \pi \times 2 \times 50 \times 6.4 \times 10^6$$

$$= 640\pi \times 10^6 \text{ m}^2 = 640\pi \text{ km}^2$$

(50) (B). The direction of electric field is from N-side to P-side in PN junction diode.

(51) (C). Current gain $\beta = \frac{\Delta i_c}{\Delta i_b}$

$$\Delta i_c = (4 - 0.2) \text{ mA} = 3.8 \times 10^{-3} \text{ A}$$

$$\Delta i_b = (140 - 45) \mu\text{A} = 95 \times 10^{-6} \text{ A}$$

$$\therefore \beta = \frac{3.8 \times 10^{-3}}{95 \times 10^{-5}} = 40$$

(52) (D). $\beta = \frac{\Delta i_c}{\Delta i_b} ; 80 = \frac{\Delta i_c}{250 \times 10^{-6}}$

$$\Delta i_c = 80 \times 250 \times 10^{-6} = 20000 \times 10^{-6}$$

$$= 20 \times 10^{-3} = 20 \text{ mA}$$

(53) (A). $I = \frac{8 - 0.5}{2.2 \times 10^3} = \frac{7.5}{2.2} \text{ mA} = 3.4 \text{ mA}$

(54) (B). $\omega_c ; \omega_c \pm \omega_m$

(55) (A). $E_g = \frac{hc}{\lambda} \Rightarrow \lambda = \frac{hc}{E_g} = \frac{1240}{1.9} = 650 \text{ nm}$

(56) (D).

(57) (A).

(58) (C). $E = \frac{12400}{\lambda} \text{ (eV)} ; \lambda = \frac{12400}{0.72} = 17222 \text{ \AA}$

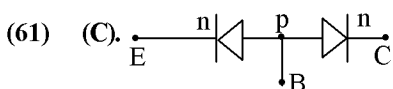
(59) (C).

(60) (B). Frequencies of resultant signal are

$$f_e + f_m, f_e \text{ and } f_e - f_m$$

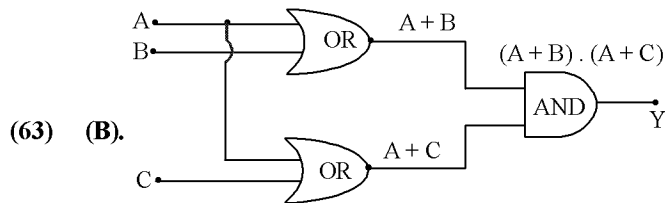
$$(2000 + 5) \text{ kHz}, 2000 \text{ kHz}, (2000 - 5) \text{ kHz},$$

$$2005 \text{ kHz}, 2000 \text{ kHz}, 1995 \text{ kHz}$$



(62) (A). In p region direction of conventional current is same as flow of holes.

In n region direction of conventional current is opposite to direction of flow e^{-} s.



(64) (C). ${}^6\text{C} = 1s^2, 2s^2 2p^2$

$${}^{14}\text{Si} = 1s^2, 2s^2 2p^6, 3s^2 3p^2$$

As they are away from Nucleus, so effect of nucleus is low for Si even for Sn and Pb are almost mettalic.

(65) (B).

(66) (B). On cooling, resistance of semiconductor increases and that of conductor decreases.

(67) (C). Gallium is trivalent element

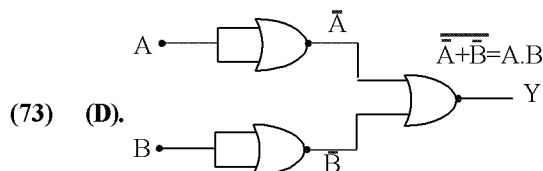
(68) (A). Thickness of depletion layer increases in reverse Bias.

(69) (D). Input must be in forward bias and output must be in reverse bias.

(70) (D). If packing fraction is negative, the element is stable.

(71) (A). AM broadcasting station has a vertical telescopic transmitting antenna and a receiver has a vertical telescopic antenna. The receiver will respond to electric component of the electromagnetic wave produced by antenna

(72) (D).



(74) (B). $\beta = \frac{\alpha}{1 - \alpha} = \frac{0.98}{0.02} = 49$

(75) (D). $f = \frac{1}{2\pi\sqrt{LC}} \Rightarrow \sqrt{LC} = \frac{1}{2\pi f} = \frac{1}{2\pi \times 2 \times 10^6} = \frac{1}{4\pi \times 10^6}$

(76) (B).

(77) (C). $\frac{\Delta Q}{Q} = 3 \frac{\Delta x}{x} + 2 \frac{\Delta y}{y} + \frac{\Delta z}{z} = 3 \times 1 + 2 \times 2 + 4 = 11\%$

(78) (A). In (i) circuit, the emitter base junction is not biased, so no current flows across L; hence lamp L does not light. In (ii) circuit, the emitter base junction is forward biased so emitter and hence collector current flows and lamp L lights up.

(79) (C). $\mu = \frac{v}{E} ; \sigma E = J = nev ; \sigma = ne\mu$

$$n = \frac{\sigma}{e\mu} = \frac{6.4 \times 10^2}{1.6 \times 10^{-19}} \times 4 \times 10^{-1} = 10^{22} / \text{m}^3$$

- (80) (C). Because As is pentavalent impurity.
- (81) (A). In the propagation of television frequency and radar signal, the frequency range used is 80 MHz to 200MHz, for which satellite communication is used.
- (82) (B). 10 kHz cannot be radiated (antenna size), 1 GHz and 1000 GHz will penetrate.
- (83) (A). In Intrinsic semiconductors, electrons and holes both are charge carriers. In P-type semiconductors (Extrinsic semiconductors) holes are majority charge carriers.
- (84) (D). If a radio receiver amplifies all the signal frequencies equally well, it is said to have high fidelity.
- (85) (A). Frequency of radiation
 $\nu = 200 \text{ MHz} = 200 \times 10^6 \text{ Hz}$
 Speed of light, $C = 3 \times 10^8 \text{ m/sec}$
 Wavelength of wave, $\lambda = \frac{C}{\nu} = \frac{3 \times 10^8}{200 \times 10^6} = 1.5 \text{ m}$
 Length of half wave dipole antenna = $\frac{\lambda}{2} = \frac{1.5}{2} = 0.75 \text{ m}$
- (86) (B). Let h be the height of a transmission tower.
 Population density, $\rho = 1000 \text{ km}^{-2} = 1000 \times 10^{-6} \text{ m}^{-2} = 10^{-3} \text{ m}^{-2}$
 Now, $d = \sqrt{2Rh}$ (where R is radius of the earth)
 Population covered = $\rho \pi d^2 = \rho \pi \cdot 2hR$
 $\therefore 20 \times 10^5 = 10^{-3} \times \frac{22}{7} \times 2 \times h \times 6400 \times 10^3 \therefore h = 50 \text{ m}$
- (87) (C). The given circuit is full wave rectifier.
- (88) (D). In the circuit Zener diode is used as voltage regulating device. The output voltage $V_0 = 6 \text{ V}$ which is the potential across the Zener diode because in parallel, the potential remains the same.
- (89) (A). Actual $R = \frac{8}{2} = 4$
 % error in R = % error in V + % error in I
 $= \frac{0.5}{8} \times 100\% + \frac{0.2}{2} \times 100\% = 16.25\%$
 $R = 4\Omega \pm 16.25\%$
- (90) (C). Value of one division of vernier scale = $\frac{N-1}{N} \text{ mm}$
 Value of one division of main scale = 1mm
 L.C. = $1 - \frac{N-1}{N} = \frac{1}{N} \text{ mm}$
- (91) (C). Denitrifying bacteria convert NO_3 to free nitrogen. Nitrifying bacteria convert the ammonium ion into nitrites and then into nitrates. Nitrogenfixing bacteria convert free nitrogen into the ammonium ion.
- (92) (B). The tundra is bitterly cold with high winds that are responsible for the absence of trees. It is a frozen desert with a permafrost, ground that never thaws. It is considered a desert because of the lack of water; ice and snow are not available sources of water. Tundra is characteristic of central Alaska, the arctic, and high mountaintops at all latitudes.
- (93) (B). A niche is determined by what an organism feeds on. Species that utilize the same source of nutrition in one area occupy the same niche and are in competition. Autotrophs are producers. Secondary consumers feed on primary consumers. Only when two secondary consumers feed on the same primary consumer are they sharing a niche and competing with each other. Symbionts are organisms that live closely together. Examples of symbiotic relationships are parasitism, commensalism, and mutualism.
- (94) (A). The oceans make up the marine biome. It is the largest biome and provides the greatest proportion of the earth's oxygen (due to the photosynthesis of algae and archaea) and nutrition.
- (95) (D). Free oxygen was not present in the early earth's atmosphere. Oxygen is a highly reactive and corrosive molecule. If it had been present in the early earth's atmosphere, it would have reacted with the molecules that were present and would have degraded them. With free oxygen, the early earth would have evolved very differently.
- (96) (D). Add up the values of the right and left side of the graph below age 20.
- (97) (C). There are twice as many males (1%) as females (0.5%) between the ages of 65 and 69.
- (98) (B). The environmental factors which can check the growth of population size constitute the environmental resistance. These include predators, food, water, nesting sites, similar competitors, etc. All living things tend to reproduce until the point at which their environment becomes a limiting factor. No population, human or otherwise, can grow indefinitely; eventually, some biotic or abiotic variable will begin to limit population growth.
- (99) (D). Symbiosis means "living together". It is a beneficial coaction between two (or more) different species in which one or both the species are benefited and neither species is harmed. Symbiotic relationships are manifested through commensalism, proto cooperation and mutualism and are widespread in nature. Commensalism is an association or relationship between two different organisms in which one is always benefited while the other is neither benefited nor harmed. This relationship may be permanent or temporary and the benefit derived from the other organism may consist of protection, transportation, living space and food. Proto cooperation is a relationship between two species, which is favourable but not obligatory to both. Mutualism is a relationship between two or more individuals of different species in which all are benefited by one another.

- (139) (A). The climatic features of tropical deciduous forest are warm summers, cold winters and well spaced rainfall amounting to about 75-100 cm, year. In India these forests possess important trees of genera such as *Terminalia*, *Tectona* (teak), *Dalbergia* (sisham), *Shorea* (sal) and *Acacia*. These are very important timber tree.
- Tropical rain forests** grow in regions with plenty of moisture and heat and no winter. The trees are about 25-40 meters tall and most of the plants are evergreen.
- (140) (C).
- (141) (B). Persistent pesticides (like DDT) are non-biodegradable, therefore, they can get incorporated into the food chain and ultimately deposited in the fatty tissue of animals and humans. This magnification of these pesticides in the successive higher trophic levels is known as biological magnification.
- (142) (B). In 1973, Chipko movement was launched by Chandi Prasad Bhatt and Sunder Lal Bahuguna against the large scale felling of trees by timber contractors in the Uttarakhand hills.
- (143) (A). As the energy passes into higher trophic levels along with food, its amount decreases because of its dissipation as heat and use in overcoming entropy as well as for performing various body activities. Thus, pyramid of energy is always upright.
- (144) (B). Two populations share the same environment but cannot interbreed.
- (145) (D). (146) (B). (147) (D).
- (148) (B). A keystone species is a species that has a disproportionately large effect on its environment relative to its abundance. Such species play a critical role in maintaining the structure of an ecological community, affecting many other organisms in an ecosystem and helping to determine the types and numbers of various other species in the community.
- (149) (D). Overgrazing by animals is one of the causes of soil erosion (human cause)
- (150) (C). Extinct bird of Mauritius island.
- (151) (A). (152) (A).
- (153) (D). Fishes have more species diversity, followed by birds.
- (154) (B). Lead is heavy metal and nonbiodegradable.
- (155) (A). UV is filtered by ozone layer. IR radiation (heat waves) are directed towards earth by green house gases.
- (156) (B) (157) (C) (158) (B)
- (159) (C) (160) (C)
- (161) (A).
- (162) (C) (163) (C) (164) (A)
- (165) (D). One organism is benefited, other is affected. Parasitism is an interaction between two species in which one species (parasite) derives benefit while the other species (host) is harmed. For example, ticks and lice (parasites) present on the human body represent this interaction where in the parasites receive benefit (as they derive nourishment by feeding on the blood of humans). On the other hand, these parasites reduce host fitness and cause harm to the human body.
- (166) (B). Zooplankton are primary consumers in aquatic food chains that feed upon phytoplankton. Therefore, they are present at the second trophic level in a lake.
- (167) (D). Plants are the only producers. Thus, they are called primary producers. There are no other producers in a food chain.
- (168) (A). India has only 2.4 per cent of the world's land area, its share of the global species diversity is an impressive 8.1 per cent.
- (169) (C).
- (170) (B).
- (171) (B). The term ecology was coined by combining two Greek words, *oikos* (meaning 'house' or 'dwelling place') and *logos* (meaning 'the study of') to denote such relationships between the organisms and their environment. Thus, literally, ecology is the study of organisms 'at home'.
- (172) (D).
- (173) (C).
- (174) (B). The peppered moth (*Biston betularia*) is a temperate species of night-flying moth. Peppered moth evolution is often used by educators as an example of natural selection. Peppered moths are cryptically camouflaged against their backgrounds when they rest on the tree trunk.
- (175) (B). The amount of oxygen consumed if all the organic matter in 1000 ml of water were oxidized by bacteria.
- (176) (C). Recreation and Nutrient cycle < 10%
Climate regulation – 6%
- (177) (C). Because, methane is a green house gas.
- (178) (B). Endemic species is restricted to one area only.
- (179) (C) (180) (B)