

ANSWERS KEYS

1	a	26	c	51	d	76	a
2	a	27	b	52	b	77	b
3	b	28	b	53	d	78	a
4	d	29	a	54	d	79	d
5	a	30	c	55	a	80	d
6	a	31	a	56	c	81	a
7	d	32	a	57	b	82	c
8	c	33	a	58	d	83	b
9	b	34	d	59	c	84	b
10	c	35	b	60	c	85	c
11	c	36	d	61	b	86	d
12	b	37	c	62	c	87	b
13	c	38	a	63	c	88	d
14	a	39	b	64	a	89	d
15	c	40	b	65	b	90	a
16	c	41	b	66	d	91	c
17	c	42	d	67	d	92	b
18	c	43	b	68	c	93	b
19	a	44	a	69	c	94	c
20	c	45	c	70	a	95	d
21	a	46	a	71	b	96	d
22	a	47	d	72	d	97	d
23	d	48	c	73	b	98	b
24	c	49	c	74	d	99	b
25	c	50	d	75	c	100	d

1. (a)

Statement 1 is correct. The leishmaniasis are a group of diseases caused by protozoan parasites from more than 20 Leishmania species. These parasites are transmitted to humans by the bite of an infected female phlebotomine sandfly, a tiny – 2–3 mm long – insect vector.

The most common forms are cutaneous leishmaniasis, which causes skin sores, and visceral leishmaniasis, which affects several internal organs (usually spleen, liver, and bone marrow).

Some people have a silent infection, without any symptoms or signs. People who develop clinical evidence of infection usually have fever, weight loss, enlargement (swelling) of the spleen and liver, and abnormal blood tests.

Statement 2 is incorrect. If not treated, severe (advanced) cases of visceral leishmaniasis typically are fatal.

2.(a)

Statement 1 is correct. Cancer is the name given to a collection of related diseases. In all types of cancer, some of the body's cells begin to divide without stopping and spread into surrounding tissues.

Cancer cells differ from normal cells in many ways that allow them to grow out of control and become invasive. One important difference is that cancer cells are less specialized than normal cells. That is, whereas normal cells mature into very distinct cell types with specific functions, cancer cells do not. This is one reason that, unlike normal cells, cancer cells continue to divide without stopping.

Statement 2 is incorrect. National pharmaceutical Pricing Authority (NPPA) regulates the prices of all Drugs as per the Drug Price Control Order (DPCO) 2013.

3.(b)

Aptamers are oligonucleotide or peptide molecules that bind to a specific target molecule. Aptamers can be classified as: DNA or RNA aptamers consisting of (usually short) strands of oligonucleotides and Peptide aptamers consisting of one (or more) short variable peptide domains, attached at both ends to a protein scaffold.

4.(d)

5.(a)

Statement 1 is correct. Glanders is an infectious disease that is caused by the bacterium Burkholderia mallei.

Statement 2 is incorrect. Though not common, people have gotten glanders from sick animals. People who are in close contact with animals that have glanders are more likely to get the disease than those who are not.

6.(a)

Option 1 and 2 are correct. Passive immunity is the transfer of antibody produced by one human or another animal to another. Passive immunity provides protection against some infections, but this protection is temporary.

Option 3 is incorrect. Active immunity is stimulation of the immune system to produce antigen-specific humoral (antibody) and cellular immunity. Unlike passive immunity, which is temporary, active immunity usually lasts for many years, often for a lifetime.

7.(d)

8.(c)

9.(b)

Statement 1 is incorrect. The SARS-CoV-2 is a positive-sense single-stranded RNA virus.

An RNA virus is a virus that has RNA (ribonucleic acid) as its genetic material. RNA viruses replicate their genomes using virally encoded RNA-dependent RNA polymerase (RdRp). The RNA may be either double- or single-stranded.

Statement 2 is correct. The SARS-COV-2 has spike proteins which binds with the Angiotensin-converting enzyme 2 (ACE2) on cell membranes in human body.

10.(c)

Both statements are correct.

Thalassemia is an inherited blood disorder caused when the body doesn't make enough of a protein called hemoglobin, an important part of red blood cells.

When there isn't enough hemoglobin, the body's red blood cells don't function properly and they last shorter periods of time, so there are fewer healthy red blood cells traveling in the bloodstream.

11.(c)

Statement 1 is correct. **Adenoviruses** are common viruses that cause a range of illness. They can cause cold-like symptoms, fever, sore throat, bronchitis, pneumonia, diarrhea, and pink eye (conjunctivitis).

Statement 2 is correct. **Vectors** are viruses that have had the gene responsible for replication removed.

Therefore, they no longer pose any threat of infection. Adenoviral vectors are considered safe, and are some of the easiest to engineer.

12.(b)

The **case-fatality rate** is the proportion of persons with a particular condition (cases) who die from that condition.

Ebola virus disease (EVD), formerly known as Ebola haemorrhagic fever, is a rare but severe, often fatal illness in humans. The **average EVD case fatality rate is around 50%**.

13.(c)

Sickle Cell Disease is a group of **inherited red blood cell disorders**.

Healthy red blood cells are round, and they move through small blood vessels to carry oxygen to all parts of the body. In someone who has SCD, the red blood cells become hard and sticky and look like a C-shaped farm tool called a "sickle".

14.(a)

Statement 1 is correct. **Severe fever with thrombocytopenia syndrome virus (SFTSV)** is a tickborne virus (genus Phlebovirus, family Phenuiviridae) that can cause a mild to severe febrile illness similar to hemorrhagic fever.

Statement 2 is incorrect. Severe fever with thrombocytopenia syndrome (SFTS) illness was **first confirmed in China in 2009**. It was retrospectively identified in South Korea in 2010 and the western regions of Japan in 2013.

15.(c)

Angiotensin-converting enzyme 2 (ACE2) ACE2 is a protein on the surface of many cell types. It is an enzyme that generates small proteins – by cutting up the larger protein angiotensinogen.

The **SARS-CoV-2** virus binds to ACE2, using the **spike-like protein** on its surface, prior to entry and infection of cells.

16.(c)

Statement 1 is correct. **Convalescent plasma**, extracted from the blood of patients recovering from an infection, is a source of antibodies against the infection. The therapy involves using their plasma to help others recover.

Statement 2 is correct. Blood is a specialized body fluid. It has four main components:

plasma, red blood cells, white blood cells, and platelets.

17.(c)

Statement 1 is correct. **Hepatitis C is a liver disease** caused by the hepatitis C virus (HCV): the virus can cause both acute and chronic hepatitis, ranging in severity from a mild illness lasting a few weeks to a serious, lifelong illness.

Hepatitis C is a major cause of liver cancer.

Statement 2 is correct. The hepatitis C virus is a **bloodborne** virus: the most common modes of infection are through exposure to small quantities of blood.

18.(c)

The **National Viral Hepatitis Control Program** was launched by Ministry of Health and Family Welfare on the World Hepatitis Day, 28th July 2018.

It is an integrated initiative for the prevention and control of viral hepatitis in India to achieve Sustainable Development Goal (SDG) 3.3 which aims to ending viral hepatitis by 2030.

Statement 1 is correct.

Statement 2 is correct.

Components of NVHCP: Prevention, Diagnosis and treatment, Monitoring and Evaluation, Surveillance and Research; and Training and Capacity Building.

19(a)

20(c)

21(a)

Immunogenicity is the ability of a foreign substance, such as an antigen, to provoke an immune response in the body of a human or other animal. It is the ability to induce a humoral and/or cell-mediated immune responses.
 22(a)

Statement 1 is correct. **Trans fats** are a byproduct of a process called hydrogenation that is used to turn healthy oils into solids and to prevent them from becoming rancid.

Statement 2 is incorrect. **Trans fats raise the bad (LDL) cholesterol** levels and lower good (high-density lipoprotein) HDL cholesterol levels. Eating trans fats increases risk of developing heart disease and stroke. It's also associated with a higher risk of developing type 2 diabetes.

23(d)

24(c)

Statement 1 is correct. The immune system develops a defense against antigens, which are substances that can stimulate the immune system. This defense is known as the immune response and usually involves the production of:

–**Protein molecules (immunoglobulins** or antibodies, the major component of humoral immunity) by B-lymphocytes (B-cells)

-Specific cells, including T-lymphocytes (also known as cell-mediated immunity).

Statement 2 is correct. There are **five immunoglobulin classes** (isotypes) of antibody molecules: IgG, IgM, IgA, IgE, and IgD

25.(c)

Statement 1 is correct. **Droplet transmission** occurs when a person is in close contact (within 1 m) with someone who has respiratory symptoms (e.g., coughing or sneezing) and is therefore at risk of having his/her mucosae (mouth and nose) or conjunctiva (eyes) exposed to potentially infective respiratory droplets.

Statement 2 is correct. **Airborne transmission** refers to situations where droplet nuclei (residue from evaporated droplets) or dust particles containing microorganisms can remain suspended in air for long periods of time.

26.(c)

Statement 1 is correct. Each one consists of genetic material—either **DNA or RNA**—encapsulated in a protein pocket called a **capsid**. Some are additionally enveloped in a soft, lipid wrapping.

Statement 2 is correct. Due to their simple structure, **viruses cannot move or even reproduce** without the help of a host cell. But when it finds a host, a virus can multiply and spread rapidly.

27.(b)

Statement 1 is incorrect. **Myelin** is an insulating layer, or sheath that forms around **nerves**, including those in the brain and spinal cord. It is made up of protein and fatty substances.

Statement 2 is correct. This myelin sheath allows **electrical impulses** to transmit quickly and efficiently along the nerve cells. If myelin is damaged, these impulses slow down. This can cause diseases such as multiple sclerosis.

28.(b)

Option 1 is incorrectly matched. **Hypoesthesia** is a decrease in your normal sensations such as touch or temperature.

Anosmia is an absent or decreased sense of smell.

Option 2 is correctly matched. **Ageusia** is the loss of taste functions of the tongue.

Option 3 is correctly matched. **Insomnia** is the inability to fall asleep or stay asleep at night

29.(a)

Statement 1 is correct. The **1918 influenza (Spanish flu)** pandemic was the most severe pandemic in recent history. It was caused by an H1N1 virus with genes of avian origin.

Statement 2 is incorrect. 1918 flu pandemic in India as a part of the worldwide Spanish flu pandemic severely affected Indian population. Also referred to as the **Bombay Influenza or the Bombay Fever** in India, the pandemic is believed to have killed up to 14 -17 million people in the country.

30.(c)

31.(a)

Statement 1 is correct. **Sandal spike disease** has several symptoms; there is a **reduction in leaf size**, loss of apical dominance of the branches giving a “witches-broom” condition and phyllody of the flowers, stiffening and reduction of internode length.

Statement 2 is incorrect. **SPIKE disease of Sandal (Santalum album L.)** is of considerable importance to the **sandalwood industry of southern India**. It has been one of the major causes for the decline in sandalwood production in the country for over a century. The disease was first reported in Kodagu in **1899**.

32.(a)

statement 1 is correct. **Herd immunity** happens when so many people in a community become immune to an infectious disease. As many viral and bacterial infections spread from person to person. This chain is broken when most people don't get or transmit the infection.

This provides **indirect protection (herd protection)** to those who are not immune to the disease.

Statement 2 is incorrect. Herd Immunity can be developed when many people in the population:—**contract the disease** and in time build up an immune response to it (natural immunity).

33.(a)

Statement 1 is correct. **Coronaviruses** are a large group of viruses that cause diseases in animals and humans. They often circulate among camels, cats, and bats, and can sometimes evolve and infect people.

Statement 2 is incorrect. Corona viruses are named for the **crown-like spikes** on their surface. Human corona viruses were **first identified in the mid-1960s**.

34.(d)

35.(b)

36.(d)

Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death.

37.(c)

Statement 1 is correct. A **concussion is a type of traumatic brain injury (TBI)** caused by a bump, blow, or jolt to the head or by a hit to the body that causes the head and brain to move rapidly back and forth. This sudden movement can cause the brain to bounce around or twist in the skull, creating chemical changes in the brain and sometimes stretching and damaging brain cells.

Statement 2 is correct. A **contusion** happens when an injured capillary or blood vessel leaks blood into the surrounding area. Contusions are a type of hematoma, which refers to any collection of blood outside of a blood vessel. It is a medical term for the common bruise.

38.(a)

Vasoplegia is the syndrome of pathological low systemic vascular resistance, the dominant clinical feature of which is reduced blood pressure in the presence of a normal or raised cardiac output.

39.(b)

Statement 1 is incorrect. It is **not a serological test**. Serologic tests measure the antibody response in an individual.

Statement 2 is correct. The benefits of **RT-LAMP** are important for the viability of broadscale use of this technology. Chief among these is that amplification of genetic material is done quickly under isothermal conditions, which removes the requirements for a thermal cycler.

40.(b)

The study, named **SHINE (Shorter Treatment for Minimal Tuberculosis in Children)**, was sponsored by University College London (UCL).

Children often have mild forms of TB and it is likely that they could be successfully treated for less than the standard 6 months. This would have major advantages for the child, their family and carers, and for overburdened health systems, by reducing the number of clinic visits children need to make to take their drugs.

This study examined whether a shorter 4-month regimen will be non-inferior to the standard 6-month regimen in terms of unfavourable outcomes at 72 weeks.

The **trial has found no significant differences** between children who received the shortened four-month long treatment compared to those who received the standard six-month treatment plan.

41. (b)

Recombinant DNA technology has allowed the production Vaccines on large scale production. e.g., hepatitis B vaccine produced from yeast. That means Option b is wrong

42. (d)

CRISPR genome editing tool can be used for accomplishing statement#1.statement#3 was done in

China. So, #3 is correct,

43. (b)

- This vaccine is 80% effective against meningitis, sepsis and pneumonia So #1 is right.
- Pneumococcal b conjugate vaccines have reduced the burden of antibiotic-resistant bacterial disease globally So #2 is right.
- Various research papers have indicated that vaccine may cause certain side effects and allergic reactions so, #3 is wrong. Accordingly, Answer is b

44. (a) Deficiency of vitamin C causes Scurvy, disease of gums. Deficiency of vitamin D causes Rickets (disease of bones) and Deficiency of Vitamin A causes night blindness, disease of eyes

45. (c) Hibernation is a state of inactivity and metabolic depression in endotherms characterized by low body temperature, slow breathing and heart rate, and low metabolic rate. It is found in Bat, bear and rodents etc.

46. (a)

- The largest bone in human body is femur.
- Cholera is caused by a bacteria *Vibrio cholerae*,
- Athlete's foot disease is caused by parasitic fungus of genus *Trichophyton*

47. (d) (i) A virus is a small infectious agent that replicates only inside the living cells of other organisms. Viruses can infect all types of life forms, from animals and plants to microorganisms, including bacteria and fungi.

(ii) According to the type of the host they infect, viruses are classified mainly into the following four types:

- Plant viruses including algal viruses-RNA/DNA
- Animal viruses including human viruses-DNA/RNA
- Fungal viruses (Mycoviruses)-ds RNA
- Bacterial viruses (Bacteriophages) including cyanophages-DNA

Hence answer "(d)".

48. (c) Dengue, Zika and chikungunya are spread through a common vector, the *Aedes aegypti* mosquito. So first statement is right. Although Zika virus is primarily transmitted through mosquitoes, it can also be sexually transmitted as well. So second statement is also right

49. (c) Assertion is true because a balanced diet is a diet which contains the correct amount of carbohydrates, proteins and fats. But the reason is false, because human body cells synthesize various fatty acids except linoleic and linolenic fatty acids

50. (d): Thorn is not a 'leaf modification', it is an 'aerial modification of stem'. "Spine" is a leaf modification to protect the plant and help in reducing transpiration. So by elimination Answer should 'B'. However, "Desert plants have few or no leaves, and the foliage is either waxy, leathery, hairy or needle shaped to reduce water loss through transpiration. Some of them are entirely leafless, with prickles or thorns." So accordingly Answer should be D. Thus, experts were divided between a or d. UPSC has kept 'D' as the official answer.

51. (d)

- Cobras, the pythons, the keelbacks don't lay eggs so they're called 'viviparous' as bring out live young. So, #4 is right. Answer could be b, c or d, in all these options, #2 is common so we've to accept 'Some species of fish are herbivores' are true without verification.
- Depending on the species, sea turtles may be carnivorous (meat eating), herbivorous (plant eating), or omnivorous (eating both meat and plants). So #1 is right and by elimination we are left with answer d: all statements are correct.

52. (b)

Overuse and misuse of antimicrobial agents is the single most important cause of development of resistance.

They are also used indiscriminately as growth promoters in animals or used to prevent diseases in healthy animals. The antibiotics used in livestock are ingested by humans when they consume food. The transfer of resistant bacteria to humans by farm animals was first noted more than 35 years ago. (says American medical journal). So, #2 & #3 are right this eliminates A and C. Because they don't contain 2 or 3. So, we are at 50:50 between B or D. As per the official UPSC Answerkey, correct answer is "b".

53. (d) Human Genome Project is not at all limited to only genetic diseases. There are some 30K genes and the genome sequence would provide great help to build the tools to conquer diseases. Here we must note that all diseases have a genetic component, whether inherited (genetic) or resulting from the body's response to environmental stresses like viruses or toxins. The successes of the HGP have even enabled researchers to pinpoint errors in genes—the smallest units of heredity—that cause or contribute to

disease. Thus second statement stands correct.

54.d

55.a

56.c

57. (b) Carbon, Hydrogen, Nitrogen

58.. (d) Lachrymal is a tear produced gland which does not function due to deficiency of vitamin -A.

Deficiency of vitamin - B1 causes loss of appetite, heart disorders, muscular weakness etc.

59. (c) Aflatoxins are produced by many species of *Aspergillus*, a fungus. *Aspergillus Flavus* and *Aspergillus parasiticus* are weedy moulds that grow on a large number of substrates, particular under high moisture conditions.

60.182. (c) Excretion of urea by animals adds nitrogen to the soil,as urea is the main nitrogen containing substance in the urine of mammals, therefore urea is widely used in fertilizers as the convenient source of nitrogen.

Death of vegetation adds up in soil organic matters including humus. As organic matters decompose inorganic nitrogen is released into the soil.

61. (b) Body piercing or getting one's body tattooed may cost one a huge price- Infection of Hepatitis B and C virus is absolutely possible. The needle used in the act may just be infected with the said virus causing liver disease, which in its ultimate stage often turns cancerous. This is deemed to happen if the needle is not properly sterilized.

62. (c) Calcium is the most common and abundant mineral in the body. It is important for healthy bones and teeth, helps muscle relax and contract, important in nerve functioning,blood clotting etc. Sodium is needed for proper fluid balance,nerve transmission and muscle contraction.

63. (c) Both the statement is correct.

- HCl is secreted, providing an acid medium for pepsin action and kill most bacteria and helps in digestion of food.When the food enters in duodenum (small intestine), secretin is produced by intestine that stimulates pancreas for pancreatic juice secretion.

- Enterogastrone is produced in small intestine

64. (a) Viruses have no metabolic enzymes and cannot generate their own energy. Viruses require a growth medium containing living cell therefore cannot be cultured in any synthetic medium. Viruses are transmitted from one organism to another not only by biological vectors but also by mechanical vectors.

Mechanical vector like an arthropod vector which transmit an infective organism from one host to another but it is not essential to the life of cycle of the parasite.

65. (b) A nephron consists of a network of tiny blood vessels,the glomerulus surrounded by Bowman's capsule. Pressure forces much of the blood plasma through the glomerulus and into Bowman's capsule. The resulting tubular fluid,which contains water and dissolved chemicals then passes into convoluted tubule and loop of Henle. This capillary network provides a mean for pick up and delivery of materials that are reabsorbed and secreted by the kidney

66. (d) Blood has more platelets than corpuscles. A microlitre of blood contains 5,000-10,000 of White blood cells (WBC) and 150,000-500,000 platelets.

67. (d) Assertion is false, but reason is true. Essential amino acids are those which are taken form food and not synthesised in the body, whereas non-essential amino acids need not be supplied in the diet and synthesised in the body. Glycine, serine and tyrosine are non-essential amino acids.

68. (c) The bottom part of the brain stem is called the Medulla oblongata. The medulla oblongata has nerve centres to control many vital body processes like swallowing, vomiting,breathing and heart beat etc.

69. (c) Urination can be induced within some minutes after a person consumes alcohol, because when the kidney filters the waste, the capillaries constricts and affects the filtering ability of kidney. When the

body needs to conserve water, the pituitary gland excretes a hormone called vasopressin, which causes the nephron filters to become permeable retaining more water in the blood stream and allowing less

water to be excreted in the urine. Alcohol decreases vasopressin secretion.

70. (a) **Scientist**

A. Arber and Smith

B. Feldman

C. Mullis

D. Temin & Baltimore

Achievements

2. Discovered endonuclease

1. Developed transgenic plants with *Agrobacterium* T-DNA

4. Discovered polymerase chain reaction.

3. Discovered reverse transcriptase

71. (b) Asiatic wild ass – *Equus hemionus* Barasingha – *Cervus duvauceli* Chinkara – *Gazella gazella* Nilgai – *Boselaphus tragocamelus*

72. (d)

- Testes of man produce hormone testosterone and progesterone hormone is secreted by ovary of woman.
- Adrenal hormone releases the hormone cortisol.

73. (b)

- Tape worms are hermaphrodite (both male and female reproductive organ present).
- Round worms are unisexual (separate sex).
- Filaria is caused by *Wuchereria bancrofti* which is a parasitic nematode.
- Guinea worm is a long and very thin nematode, not an Annelid

74. (d) Breast bone – Sternum

Collar bone – Clavicle

Knee Cap – Patella

Shoulder Blade – It connects the humerus (upper arm bone) with the clavicle. It is known as scapula

75. (c) The liver secretes bile that forms and stores glycogen and plays an important role in metabolism of protein and fat. It does not contain digestive enzymes and as such does not take part directly in digestion.

76. (a) **Ptyalin** – It is present in saliva that catalyzes the hydrolysis of starch into maltose and dextrin.

Pepsin – It is an enzyme released in stomach that degrades food proteins into peptides.

Renin – It is an enzyme that is present in kidney and converts angiotensinogen into angiotensin balancing sodium and potassium level in blood.

Oxytocin – It induces contraction of smooth muscles.

77. (b) Metastasis is the spread of cancer from its primary site to other places in the body (*i.e.* brain, liver).

Cancer cells can break away from a primary tumour, penetrate into lymphatic and blood vessels, circulate through the blood stream and grow to a normal tissues in the body.

78. (a) Double helix structure of DNA contains 2 complementary strands which transmits genetic transmits information from generation to generation.

79.d

the son is the colourblind but the daughter is the carrier

80. (d) **Achievement Scientist**

A. Discovery of transduction – 3. Lederberg and conjugation in bacteria

B. Establishing the sex linked – 4. Morgan inheritance

C. Isolation of DNA Polymerase – 2. Kornberg from *E. coli*

D. Establishing the complete – 1. Khurana genetic code

81. (a) There is no A and B antigen on RBC of "O-" blood group, So O, Rh- is known as universal blood donor

82. (c) Progesterone is secreted from gonads. Growth hormone is secreted from pituitary gland. Insulin hormone is secreted from pancreas. Cortisone is secreted from adrenal gland

83. (b) Haemophilia – Genetic disease caused in sex- linked gene.

Diabetes – Hormonal disorder disease caused by imbalance of insulin hormone.

Rickets – Nutritional deficiency disease caused by deficiency of vitamin-D.

Ringworm – Caused by fungus

84. **(b)** It is difficult to develop an effective malaria vaccine, because repeated natural infection does not produce detectable resistance to exo-erythrocytic cycle of malaria in man.
85. **(c)** Hepatitis-B is a potentially life-threatening liver infection caused by the hepatitis B virus. It can cause chronic liver disease and puts people at high risk of death from cirrhosis of liver and liver cancer. Hepatitis-B virus is transmitted between people by contact with blood or other body fluid of an contact with the blood or other body fluid
86. **(d)** Aspartame is metabolized by the body into two constituent amino acids and methanol. These hydrolysis products are handled by the body in the same way as aspartic acid, L-Phenylalanine and methanol from other consumed foods. These components yield no calorie and add nothing new to the diet
87. **(b)** Dengue viruses are transmitted to humans through the bites of infective female *Aedes* mosquito. The symptoms of disease is characterized by high fever, severe muscle pain, joint pain and rashes in body.
88. **(d)** All are infectious diseases
89. **(d)** Assertion is false because protein digestion occurs in stomach and small intestine. But reason is true because the proteolytic enzyme from pancreas secretion immediately enters to small intestine from the stomach
90. **(a)** Assertion is correct and reason is the correct explanation of assertion. Amoeba is a unicellular animal. It reproduce by the process of asexual reproduction. Fission is one of the processes of asexual reproduction, where amoeba divides in half to produce off spring
91. **(c)** Assertion is correct but the reason is false. Deficiency of vasopressin results *Diabetes insipidus*. In this disease the patients produce enormous quantities of dilute urine and the patient consequently feels thirsty
92. b
93. **(b)** Bile duct and pancreatic duct both releases its contents into duodenum. The digestive enzyme (pancreatic juices) releases to duodenum from pancreatic duct
94. **(c)** Adrenaline is the hormone prepares the body to deal with anger, fear and danger. Estrogen hormone releases from ovary of female. Insulin controls the level of glucagon in blood. Pheromones attracts partners through sense of smell
95. **(d)** Caffeine is most commonly consumed by humans in infusions extracted from the bean of the coffee plant and the leaves of the tea bush, as well as from various foods and drinks containing products derived from the kola nut. Acids are added to soft drinks for extra bite and mouth feel. The primary acid used in colas is phosphoric acid, while the one used in citrus flavoured drinks is usually citric acid. Citric acid is a good substitution of ascorbic acid as per nutritional value.
96. **(d)** ELISA Test is employed as the first and most basic test for an individual to detect HIV/AIDS. 85% of human beings possess Rh+ and 15% are Rh-. Rh+ and Rh- are the factors present in blood, discovered by Karl Landsteiner.
97. **(d)** Assertion is false. In human, sex determination of offspring depends on male because male sperm contains XY chromosome, whereas female has XX chromosome in their ovum.
98. **(b)** Cloning a human embryo for the first time took place in U.S.A. Cloning is a process when identical types of progenies are produced from one individual.
99. **(b)** Meningococcal meningitis is transmitted from person to person through cough and having a body contact on a regular basis. It is called droplet transmission
100. **(d)** Ether is used as an anesthesia at the time of surgery to prevent pain. Atropine is used as eye drops to dilate the pupil before eye examination. Nitroglycerine is widely used in the treatment of heart. Pyrethrin is biodegradable, non-persistent pesticide which is used to kill mosquitoes, fleas and other insects