

### Topic :- Human Health & Disease

- 1 (c)  
The flower tops leaves and the resin of the plant *Cannabis sativa* are used in various combinations to produce marijuana, hashish, charas and ganja. Generally taken by inhalation and oral ingestion, these are known for their effect on cardiovascular system of the body. A group of chemicals **cannabinoids** interact with cannabinoid receptors present principally in the brain. Natural cannabinoids are obtained from the inflorescence of the plant *Cannabis sativa*.
- 2 (a)  
Typhoid is caused by pathogenic bacterium *Salmonella typhi*. It is spread by contaminated food and water.  
Pneumonia is caused by bacteria *Streptococcus pneumoniae* and *Haemophilus influenzae*. It is spread by inhaling droplets/aerosol from infected persons and sharing glasses and utensils with an infected person
- 3 (d)  
Malaria, amoebiasis and sleeping sickness all are protozoan diseases caused by the protozoans *Plasmodium*, *Amoeba* and *Trypanosoma* respectively.
- 4 (c)  
Antibody is connected with immune system. B-lymphocytes or B-cells produce an army of proteins called antibodies in blood, in response to pathogens
- 5 (a)  
Vaccination schedule for babies (for first six months) comprises-

Age	Vaccination	Three Dose
Birth-12 months	DTP-whooping cough/pertussis and tetanus)and Haemophilus influenzae type-B	$1\frac{1}{1}, 2\frac{2}{2}, 3\frac{1}{2}$ months
	Polio	$1\frac{1}{2}, 2\frac{1}{2}, 3\frac{1}{2}$ months
	Hepatitis-B and A BCG against TB(Bacillus Calmette Guerin)	Birth, 1 month, 6 months

		One dose
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- 6 **(a)**  
Interferons block viral reproduction in healthy cells
- 7 **(c)**  
Histamine is released from mast cells during allergic reactions. Histamine can occur in various tissues but is concentrated in connective tissue. It is formed from the amino acids histidine . It causes dilation and increases permeability of small blood vessels, which results in such symptoms as localised swelling, itching, sneezing and runny eyes and nose.
- 8 **(b)**  
The acquisition of the antibodies in colostrum by an infant is an example of (naturally acquired) passive immunity. The yellowish fluid colostrum secreted by mother during the initial days of lactation has abundant antibodies (IgA) to protect the infant
- 9 **(b)**  
IgA.  
IgA antibody is secretory antibody and is present abundantly in mucous linings of gastrointestinal, respiratory and genitourinary tracts, tears, colostrum and saliva. Thus, secretory IgA contributes to the humoral defense mechanism against the pathogens on mucosal surfaces
- 10 **(a)**  
Mast cells are involved in inflammatory reactions and immediate sensitivity allergic reactions because immunoglobulins IgE is found to the surface of mast cells and release histamine.
- 11 **(c)**  
The enzymes used for labelling in ELISA include horse radish peroxidase, alkaline phosphataes,  $\beta$ -galactosidase, lactoperoxidase, etc.
- 12 **(c)**  
The symptoms of pneumonia includes fever, chills, cough and headache. In severe cases, the lips and finger nails may turn gray to bluish in colour
- 13 **(a)**  
Blood cells are made in the bone marrow. Erythrocytes or red blood cells, are constantly being produced and released from marrow tissue. Leukocytes or white blood cells are also produced in the bone marrow. B-cells are leukocytes that are made and mature in the bone marrow while T-cells mature in thymus
- 14 **(b)**  
The tendency of the body to manifest a characteristic and unpleasant withdrawal syndrome on abrupt discontinuation of regular dose of drugs/alcohol is called dependence
- 15 **(c)**  
Rhinovirus represents one such group of viruses, which causes one of the most infectious human ailments- the common cold. They infect the nose and respiratory passage. Symptoms of common cold are nasal congestion and discharge, sore throat, hoarseness, cough, headache, tiredness, etc.
- 16 **(d)**  
Mast cells play a critical role in allergy and inflammation. Allergy is due to the release of chemicals like histamine and serotonin from the mast cells

- 17 **(b)**  
The term humor refers to plasma and lymph. **B-lymphocytes** mature within the bone marrow. The progeny of B-cells differentiate into memory B-cells and effector B-cells called plasma cells. A single plasma cell can secrete more than 2000 molecule of antibody per second. Secreted antibodies are major effector molecules of humoral immunity.
- 18 **(a)**  
The second line of non-specific defence is primarily dependent upon neutrophils and macrophages, phagocytic white cells (phagocytes) in blood and lymph. Natural killer cells (NK-cells) also participate in it. The temperature response results in a fever that stimulates phagocytosis, inhibits microbial growth and reduces blood iron levels.
- 19 **(a)**  
BCG vaccine is used against TB (tuberculosis), which is a bacterial disease caused by *Mycobacterium tuberculosis*. BCG vaccine was developed by **Calmette** and **Guerin**.
- 20 **(b)**  
Allergens are non-infections foreign substances that cause allergic reaction. The common allergens are dust, pollen, mould spores, fabrics, lipsticks, nailpaints, fur, heat, bacteria, etc. Allergy involves mainly the secretion of IgE antibodies and histamine. The allergy causes marked dilation of all the peripheral blood vessels.

PE

ANSWER-KEY										
<b>Q.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>A.</b>	<b>C</b>	<b>A</b>	<b>D</b>	<b>C</b>	<b>A</b>	<b>A</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>A</b>
<b>Q.</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
<b>A.</b>	<b>C</b>	<b>C</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>B</b>	<b>A</b>	<b>A</b>	<b>B</b>