become incredibly large icrofilm.

cause.

(B) Emotional disturbance
(D) All these

(D)

er does not take place in infection, drug action or a occurs. If this condition velops that may prove to condition is constipation, ibsorption of water.

is called.

(B) Food poisoning
(D) Bulimia nervose

(A)

on digestion is called disease in instep but ders or diseases. This is discomfort. Flatulence, g. Dyspepsia may occur omach or faulty function

ite due to the fear of

(B) Dyspepsia
(D) Anorexia nervosa

(A)

ss, which largely affects 2 to 21 years The illness of appetite due to the fear ected girl overestimates nsists to be overweight. ture psychologically and challenge of puberty and

od, alcoholic beverage, s lead to.

(B) Hemorrhoid
(D) Ulcer

(D)

um wall caused because stive enzymes is called so severe that contents of minal cavity, leading to prove to be fatal, If not

TEST NO.7

1. The carrying capacity of blood is increased by the presence of hemoglobin by how many times

(A) 50 times (B) 75 times
(C) 98 times (D) 100 times

Explanatory Answer: (B)

Hemoglobin in man increases the oxygen carrying capacity of the blood to about 75 times.

2. The affinity of which of the following is much higher to combine with oxygen

(A) Myoglobin (B) Sodium in plasma
(C) Haemoglobin (D) Potassium in corpuscles

Explanatory Answer: (A)

The affinity of myoglobin to combine with oxygen is much higher than that of hemoglobin.

3. Water constitute how much of plasma

(A) 45% (B) 55%
(C) 90% (D) 10%

Explanatory Answer: (C)

10% are dissolved substances such as glucose, proteins, urea etc.

4. The normal pH of human blood is

(A) 7.4 (B) 7.0
(C) 2 (D) 14

Explanatory Answer: (A)

The normal pH of human blood is 7.4 and it is maintained between narrow limits, because change is pH would affect the chemical reactions of the body.

5. The nitrogenous waste product(s) in the plasma

(A) Urea (B) Uric acid
(C) Both a and b (D) None of these

Explanatory Answer: (C)

Plasma contains nitrogenous waste products: urea and small amounts of uric acid.

6. In embryonic life the RBCs are produced in

(A) Red bone marrow of short bones (B) Liver and spleen
(C) Lymphatic (D) Lymph nodes

system

Explanatory Answer: (B)

Red blood cells are formed principally in the red bone marrow of short bones, such as sternum, ribs and vertebrae. In the embryonic life, they are formed in the liver and spleen.

7. The erythrocytes are more abundant in

(A) Males (B) Females
(C) Not found in females (D) Present equally in both

Explanatory Answer: (A)

Erythrocytes, commonly called red blood cells are the most numerous cells in the blood. A cubic millimeter contains 5051/2 million red blood cells is males and 4-41/2 million in females.

8. All of the following are leucocytes except

(A) Basophils (B) Lymphocytes
(C) Eosinophils (D) Platelets

Explanatory Answer: (D)

Platelets are fragments are of large cells called magakaryocytes. There is no nucleus and pigment in them. Leucocytes protect the body against foreign invaders. Neutrophils destroy small particles by phagocytosis; eosinophils inactivates inflammation-producing substances and attack parasite, basophils release heparin to prevent blood clotting and histamine which causes inflammation; monocytes give rise to macrophages which destroy larger particles by phagocytosis; lymphocytes produce antibodies.

9. Pus comprises of dead

(A) White blood cells (B) Red blood cells
(C) Platelets (D) Megakaryocytes

Explanatory Answer: (A)

Macrophages and neutrophils (WBCs) feed on bacteria or other foreign cells including cancer cells, and some of these die in the process. Their dead bodies accumulate and contribute to the white substance called pus seen at infection sites.

10. The blood cells that convert fibrinogen to fibrin

(A) Platelets (B) Erythrocytes
(C) Leucocytes (D) None of these

Explanatory Answer: (A)

Platelets convert fibrinogen, a plasma protein, into its insoluble form fibrin. The fibrin treads enmesh red blood ce3lls and other platelets in the area of damaged tissue, ultimately forming a blood colt.

11. Uncontrolled production of leucocytes leads to

(A) Leukemia (B) Thalassaemia
(C) Oedema (D) None of these

Explanatory Answer: (A)

Leukemia or blood cancer is the result of uncontrolled production of white blood cells caused by a cancerous mutation of myelogenous (bone marrow cells) or lymphoneous cell. It is characterized by greatly increased numbers of abnormal white blood cells in the circulating blood. Bone marrow cells may spread throughout the body so that white blood cell m. U in other organs also.

12. A disorder related to blood known as Cooley's anaemia

(A) Leukemia (B) Thalassaemia
(C) Oedema (D) Pyrosis

Explanatory Answer: (B)

Thalassaemia, also called Cooley's anaemia, is a genetically transmitted haemoglobin abnormality. It is characterized by presence or microcytes; splenomegaly (enlargement of spleen), and by changes in the bone and skin. The disease is more common in children. Haemoglobin molecules in most cases does not have beta-chains in it, instead F-chain is present.

13. Renal retention of salts and water lead to

(A) Leukemia (B) Thalassaemia
(C) Oedema (D) Blood cancer

Explanatory Answer: (D)

Oedema is caused by renal retention of salts and water. It characterized by presence of excess fluids in the cells or outside the cells. The intracellular oedema causes depression of metabolic system due to lack of nutrition and oxygen in the tissues. The extracellular oedema caused either by abnormal leakage of fluid from blood or failure of lymphatic system to take up fluid from interstitial fluid.

14. Myocardium of heart is made up of

(A) Skeletal muscles (B) Cardiac Muscles
(C) Smooth muscles (D) All these

Explanatory Answer: (B)

The wall of the heart is composed of three layers: epicardium, myocardium and endocardium. Myocardium is made up to special type of muscles.

the cardiac muscles. These muscles contain myofibrils, myogilaments of myosin and actin, and possess branched cells, which are separated by junctions called intercalated discs. The contraction of heart is controlled by autonomic nervous system.

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16. Bicuspid valve (mitral valve) is present between

(A) Right ventricle & pulmonary artery (B) Left atrium & left ventricle
(C) Right atrium & right ventricle (D) Pulmonary veins into left atrium

Explanatory Answer: (B)

The blood in left atrium passes via bicuspid valve into right ventricle. There are two flaps in the valve that are attached to the papillary muscles in the wall of left ventricle by chrodae tendineae.

17. Outlet valve of heart is called

(A) Tricuspid valve (B) Semilunar valve
(C) Bicuspid valve (D) Mitral valve

Explanatory Answer: (B)

When right ventricle contracts the blood passes to pulmonary trunk that carry blood via left and right pulmonary trunk, semilunar valves are present. When left ventricle contracts oxygenated blood flows into the aorta to all parts of the body. Semilunar valves are also present at the base of the aorta.

18. The first pair of arteries that arise from aorta

(A) Iliac veins (B) Coronary arteries
(C) Hepatic portal vein (D) Renal arteries

Explanatory Answer: (B)

At the base of aorta, first pair of arteries, the coronary arteries arise and supply blood to the heart. Hepatic portal vein is formed by many veins collecting deoxygenated blood with absorbed food from different parts of the alimentary food from different parts of the alimentary canal and enters the liver. Iliac veins collect blood back from legs. Renal arteries supply blood to kidneys.

19. The sequence of events, which take place during the completion of one heart beat

(A) Diastole (B) Systole
(C) Cardiac cycle (D) Cardiogram

Explanatory Answer: (C)

The sequence of events, which take place during the completion of one heartbeat is called cardiac cycle. Heartbeat involves three distinct stage; diastole (relaxed period heart chambers), atrial systole and ventricular systole.

20. Relaxed period of heart chambers is called

(A) Diastole (B) Systole
(C) Atrial systole (D) Ventricular systole

Explanatory Answer: (A)

The walls of both atria an ventricles are relaxed before the blood enters them. As the atria are filed with blood, they become distended and have more pressure then the ventricles. This relaxed period of heart chambers is called diastole.

21. The "lubb" sound is made when

(A) When bicuspid valve close (B) When tricuspid valve close
(C) When semilunar valve close (D) When bicuspid and tricuspid valve close

Explanatory Answer: (D)

When ventricles contract the blood is pumped to pulmonary arteries and aorta. The tricuspid and bicuspid valves close, and lubb sound is made. Afterwards ventricles relax and semilunar valves at the base of pulmonary artery and aorta close simultaneously, and "dub" sound is made.

22. The heartbeat cycle start with

(A) Pace maker (B) Ac node
(C) E.C.G (D) Mitral valve

Explanatory Answer: (A)

The hear beat cycle starts when the sino-atrial node (S-A node) or pace maker at the upper end of right atrium sends out electrical impulses to atrial muscles that cause both atria to contract. The sino-atrial node consists of a small number of diffusely oriented cardiac fibres, possessing few myofibrils; and few nerve endings from the autonamic nervous system. From SA node, the impulses travel to atrio-ventricular node (VA node) beginning ventricular systole.

23. ☛ The artificial pacemaker is useful

(A) When flow of electrical impulse is blocked
(B) When impulses initiated by SA node are weak
(C) When AV node is blocked
(D) All of these

Explanatory Answer: (D)

When flow of electrical impulses is blocked, or if impulses initiated by SA node are weak or AV pathway is blocked, an artificial pacemaker may be used. It provides continued rhythmic impulses.

24. ☛ The measure of force with which blood pushes up against blood vessel walls is:

(A) Blood pressure
(B) Hypertension
(C) Osmotic potential
(D) Tension

Explanatory Answer: (A)

The measure of force with which blood pushes up against blood vessel walls is called blood pressure. It is the force that keeps the blood flowing from the heart to all capillary networks in the body. This pressure is generated by the contraction of ventricles and is highest in aorta, then gradually reduces in arteries.

25. ☛ Necrosis or damage to a portion of heart muscle

(A) Stroke
(B) Thrombosis
(C) Cerebral infraction
(D) Mycocardial infraction

Explanatory Answer: (D)

Blockage of blood vessel in the heart by an embolus or locally formed thrombus causes necrosis or damage to portion of heart muscles, a condition called myocardial infarction. The formation thrombus is known as thrombosis.

26. ☛ The blood vessels with walls that are only one cell thick are

(A) Arteries
(B) Veins
(C) Venules
(D) Capillaries

Explanatory Answer: (D)

The walls of capillaries are only one cell in thickness. The water and dissolved substances in blood permeate out exchanging gases, dissolved food and excretory products with the tissues surrounding the capillaries.

27. ☛ The preventive measures to get rid of stroke, hypertension and heart attack.

(A) Taking in less cholesterol
(B) Regular exercise
(C) no smoking
(D) All of these

Explanatory Answer: (D)

Eating food low in cholesterol help in maintenance of normal blood pressure. Similarly regular exercise and no smoking help avoiding stroke and heart attack.

28. ☛ The systolic pressure in normal individual is

(A) 120 mm of Hg
(B) 75 mm of Hg
(C) 85 mm of Hg

Explanatory Answer: (D,A)

Between 75-85mm of Hg

(a) The blood pressure reaches its highest point during systole that is 120mm of Hg in normal individuals, and its low point during diastole that ranges between 75-85 mm of Hg.

29. ☛ Which is not true for thrombus formation?

(A) It is a solid mass of blood constitute
(B) When it is carried to some other
(C) The cause may be pneumonia, tuberculosis, emphysema
(D) It result in discharge of blood from vessels

Explanatory Answer: (D)

Thrombus is solid mass of plug of blood constituents (clot) in a blood vessel. It may block the vessel wholly or partially in which it forms, or it may be carried to some other location in the circulartory system (embolus), Irritation or infection of blood vesseis; reduced rate of blood flow due to long period of inactivity; and pneumonia, tuberculosis and emphysema are the causes of thrombus formation.

30. ☛ Stroke involves

(A) Embolus formation in a vessel in brain
(B) Causes necrosis or death of neural tissue

(C) Lack of O2 leads to cerebral infraction (D) All the above

Explanatory Answer: (D)

If the normal flow of blood is blocked by an embolus or locally formed thrombus, in a blood vessel in the brain, the surrounding neural tissue dies of oxygen shortage. This condition is called cerebral infraction of stroke.

31. Antibodies are manufactured in

(A) Thymus (B) B-Lymphocytes
(C) T-Lymphocytes (D) All these

Explanatory Answer: (B)

Antibodies are secreted in B-lymphocytes and then secreted into the lymph and blood where they circulate freely.

32. In humans lymph nodes are present in

(A) Neck region (B) Axilla
(C) Groin (D) All these

Explanatory Answer: (D)

Lymph nodes are present in the neck region, axilla and groin of humans

33. The blood is filtered at

(A) Lymph nodes (B) Lymph masses
(C) Spleen (D) Thymus

Explanatory Answer: (C)

The spleen filters blood exposing it to macrophages and lymphocytes that destroy foreign particles and aged red blood cells.

TEST NO.8

1. The detoxification of ammonia excretion to urea requires the precursor of

(A) Ornithine (B) Citrulline
(C) Arginine (D) None of these

Explanatory Answer: (A)

In urea cycle one molecule of ammonia combines with carbon dioxide and already available precursor from previous cycle ornithine to form citrulline. Subsequently another ammonia molecule combines to form arginine.

2. Which one of the following splits to form urea during urea cycle?

(A) Ornithine (B) Citruline
(C) Arginine (D) All of these

Explanatory Answer: (C)

The arginine splits by arginase to form urea and precursor ornithine for next cycle.

3. In sufficient water supply, the secretion of which hormone is inhibited.

(A) Adrenaline (B) Insulin
(C) Aldosterone (D) Antidiuretic hormone(ADH)

Explanatory Answer: (D)

In sufficient or excess supply of water, reabsorption of water from the filtrate is reduced, specifically due to inhibition of release of antidiuretic hormone (ADH). The reduction in reabsorption causes large volume of diluted urine. Mammalian kidney including human is adapted to conserve water by over 99.5% reabsorption of glomerular filtrate.

4. Hormone that helps the ascending limb of loop of Henle to absorb Na+ ions

(A) Insulin (B) Aldosterone
(C) ADH (D) Glucagon

Explanatory Answer: (B)

The active uptake of Na+ ions in the ascending limb of loop of Henle is promoted by the action of aldosterone, the hormone secreted from adrenal cortex.

5. Metabolic altered state(s) that generally cause kidney stone formation

(A) Uremia (B) Hyperoxaluria
(C) Hypercalcemia (D) Both b and c

Explanatory Answer: (D)

Stony materials are found in kidney and these cause urinary obstruction and infections. These stones have specified chemical nature. These are formed in metabolic diseases: hypercalcemia (high level of circulating calcium because of other diseases); or hyperoxaluria (higher blood level or oxalates)

6. High degree renal failure is termed

(A) Uremia (B) Pyrexia
(C) Pelage (D) Panting

Explanatory Answer: (A)

High degree renal failure is termed uremia. Surgical transplantation of a matching donor is only the option left as the permanent treatment.

7. The technique used to break up stones

formed in kidney, ureter or gall bladder by using shock waves is

(A) Hemodialysis (B) Lithotripsy
(C) Uremia (D) Hyperoxulatria

Explanatory Answer: (B)

Lithortipsy is used for non-syrgical removal of stone in kideny, ureter or gall bladder. The technique involves use of shock waves of high concentration X-rays or ultrasound directed from a machine to break the stone. The stone is converted to tiny places or into sand and removed with urine.

8. The type of adaptation responsible for shivering thermogenesis is

(A) Structural (B) Physiological
(C) Behavioral (D) None of these

Explanatory Answer: (B)

Mammals including humans maintain their high body temperature within a narrow range of about 36-38°C. They regulate the rate of metabolic heat production either by shivering thermogenesis or non-shivering thermo genesis. The rate of heat production is increased by increased muscle contraction by movements or shivering and is called shivering thermogenesis. Hormones, for example thyroid hormones, can also increase rate of heat production and it is called non-shivering thermogenesis.

9. The homeostatic thermostat in humans is

(A) Liver (B) Kidney
(C) Hypothalamus (D) Pituitary

Explanatory Answer: (C)

The body temperature regulation in humans is based on complex homeostatic systems facilitated by feedback mechanisms. The homeostatic thermostat is present in the hypothalamus, a brain part. It responds top changes in the temperature above and below a set point which is 37°C.

10. Which of the following is a component of internal environment?

(A) Water (B) Solutes
(C) Temperature (D) All of these

Explanatory Answer: (D)

Most susceptible components of internal environment that may be affected by fluctuations in external environments are water, solutes and temperature.

11. Which of the following is a component of internal environment?

(A) Water (B) Solutes
(C) Temperature (D) All of these

Explanatory Answer: (D)

Most susceptible components of internal environment that may be affected by fluctuations in external environments are water, solutes and temperature.

12. Detection of change and signaling for effector's response to control system is a

(A) Feedback mechanism (B) Negative feedback
(C) Homeostasis (D) Positive feedback

Explanatory Answer: (A)

Detection of change and signaling for effctor's response to control system is a feedback machanism. An inverse effector's response to the change in external environment is negative feedback.

13. Lower quantities of nitrogen is excreted in the form of

(A) Creatinine (B) Creatine
(C) Trimethyamine oxide (D) All these

Explanatory Answer: (D)

Lower quantities of nitrogen are excreted in the form of compounds such as creatinine creatine and trimethylamine oxide.

14. Bilirubin is the end product of

(A) Nucleic acid (B) Muscle creatine
(C) Haemoglobin breakdown (D) Metabolism of amino acids

Explanatory Answer: (C)

The generation of wastes is primarily done at metabolic level and these are called metabolic wastes. These include: urea produced from the metabolism of amino acids: creatinine produced from muscle creatine; uric acid from nucleic acids; and bilirubin the end product of haemoglobin and certain hormones.

15. The secondary site of excretion in human is

(A) Skin (B) Liver
(C) Lungs (D) All of these

Explanatory Answer: (A)

Excess salts with water and sebum is removed though sweat glands and sebaceous glands in skin. The sebum protects the skin against microorganisms. Water removed assists in thermoregulation.

16. ☛ One of the following is not an effect of liver on homeostasis

(A) Oxygenation of tissues (B) Energy reserve

(C) Regulation of blood chemistry (D) Removal of sebum

Explanatory Answer: (D)

Liver recycles contents of old red blood cells releasing iron and other constituents of haemoglobin. Iron is used to synthesize haemoglobin, the oxygen transport protein. Excess glucose and lactic acid is converted into glycongen and stored in the liver. Liver synthesized plasma proteins lipids, cholesterol, lipoproteins, etc. therefore help regulate chemistry of blood sebum is removed by sebaceous glands.

TEST NO.9

1. ☛ The structure in which meiosis takes place during spermatogenesis

(A) Spermatogonia (B) Primary spermatocytes

(C) Secondary spermatocytes (D) Spermatids

Explanatory Answer: (B)

Each testis is comprises of a highly complex duct system called seminiferous tubules where repeated divisions by cells of germinal epithelium produced spematogonia. These increase in size and differentiate into primary spermatocytes that undergo meiosis to produce secondary spermatocytes and spermatids.

2. ☛ Under what conditions the menstrual cycle stops?

(A) Emotional stress (B) Malnourishment

(C) Ovulation (D) Both a and b

Explanatory Answer: (D)

Malnourishment and emotional stresses effect the female reproductive cycle and it may be disturbed. It is not completed in 28 days.

3. ☛ Follicle artesian refers to

(A) Breakdown of corpus luteum (B) Breakdown of cervix

(C) Breakdown of follicles without eggs (D) Ovulation

Explanatory Answer: (C)

At onset of puberty, the puberty, the pituitary release FSH which stimulates the development of several primary follicles at a time. However, only one of these follicles continuous to grow and the rest degenerate. This process is called follicle atresia.

4. ☛ Testosterone is secreted by

(A) Epididymis (B) Seminiferous tubules

(C) Sertoli cells (D) Interstitial cells

Explanatory Answer: (D)

The interstitial cells between seminiferous tubules secrete testosterone, a hormone essential for successful production sperms and that also controls the development of male secondary sex characters during puberty.

5. ☛ Hormone secreted by ovary

(A) FSH (B) Estrogen

(C) LH (D) LTH

Explanatory Answer: (B)

Ovary, under the stimulus of FSH, secretes estrogen that stimulates the endometrium (internal lining of uterus) and vascularize it. It also inhibits the secretion of FSH from pituitary.

6. ☛ One of the following hormones induce ovulation

(A) FSH (B) LH

(C) LTH (D) ICSH

Explanatory Answer: (B)

Decrease in level of FSH and increase in level of estrogen causes the pituitary gland to secret luteinizing hormone (LH) which induces ovulation

7. ☛ Test tube babies

(A) Develop outside the female body (B) Parental sperm and ovum is fertilized in vitro

(C) Develop inside the female body (D) Both b and c are correct

Explanatory Answer: (D)

In test tube babies parental sperm and ovum are fertilized in vitro (in test tube) and the zygote is implanted back into mother uterus. Placenta establishes and remaining development takes place in the body of the mother leading to normal birth

8. ☛ Tetrtogens are

(A) Inherited (B) Metabolic

	abnormalities		defects
(C)	Environmental factors	(D)	Abnormal number of chromosomes

Explanatory Answer: (C)

Environmental factor causing or contributing to abnormal development are grouped together as tetratogens.

9. Treponema palladium causes

(A) Gonorrhea (B) Syphilis
(C) Genital herpes (D) AIDS

Explanatory Answer: (B)

Syphilis is caused by a spirochete Treponema pallidum. It damages the reproductive organs, eye bones joints, central nervous system, heart and skin Sexual contact is a major source of its spread.

TEST NO.10

1. Honey-bee male produces sperms by

(A) Apomixis (B) Non-disjunction
(C) Mitosis (D) All of these

Explanatory Answer: (C)

In honey bees males are haploid and produce sperms by mitosis.

2. Cells of which region of developing embryo are capable of inducing a complete embryo

(A) Dorsal lip (B) Lateral lip
(C) Ventral lip (D) All of these

Explanatory Answer: (A)

Spemann and Mangold worked on embryonic induction. They took two embryos of salamander at gastrula stage and removed a piece of dorsal blastopore lip from one embryo and transplanted it into a ventral or lateral position of another salamander gastrula. It invaginated and developed notochord and somites. It also induced second embryo to form neural tube and a complete nervous system was formed where dorsal blastopore lipp was placed. The developing embryo had both the grafted tissue and induced lost tissue. Later on, it was seen that only cells from the dorsal lip of blastopore were capable of inducing a complete embryo.

3. In chick; 24-hours old embryo is called

(A) Morula (B) Blastula
(C) Gastrula (D) Neurula

Explanatory Answer: (D)

Presumptive neural ectoderm is present in the form of band on the dorsal surface of gastrula. As gastrula elongates, the band thickness to form a neural plate. In chicks of 18 hours, neural plate can be see as a flat, thicknened area of ectoderm. In embryos of 21-22 hours, a longitudinal folding occurs. In 24 hours the folding or neural plate is clearly visible. At this stage the embryo is called neurula.

4. Testosterone is secreted by

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(C) Sertoli cell (D) Interstitial cells

Explanatory Answer: (D)

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(C) Ovulation (D) Both a and b

Explanatory Answer: (D)

Malnutrition and emotional stresses affect the female reproduvtive cycle and it may be disturbed. It is not is not completed in 28 days. With age at about 45 menstruation stops, a process called menopause.

7. All of the following are metabolic defects except

(A) Cleft palate (B) Polydactyly
(C) Klinefelter's syndrome (D) Microcephyal

Explanatory Answer: (C)

Metabolic defects lead to structural deviations from the normal. During organogenesis vaious body organs are formed, sometimes one organ or its part is missing or is repeated leading to formation of abnormal organs or body parts. The common metabolic defects are cleft palate in which individual's upper lip is folded or it has herelip; microcephally, where the individuals are born with small skull; and polydactyly when fingers in hand or feet or more than five Klinefelter's syndrome is an abnormality of chromosome number. The individual possesses one extra X chromosome (XXY).

8. ☛ In chick embryo the mesodermal cells do not invaginate as in amphibians, but migrate medially and causdally from both sides and create a mid-line thickening called

(A) hanesen's node (B) Primitive streack
(C) Gastrocoel (D) Neurula

Explanatory Answer: (B)

In chick embryo the mesodermal cells do not invaginate as in amphibians, but migrate medially and caudally from both sides and create a mid-line thickening called primitive streak. The anterior end of primitive streak is occupied by a group of closely packed cells that from a thickening called hansen's node.

9. ☛ Follicle artesian refers to

(A) Breakdown of carpus leteum (B) Breakdown of cervix
(C) Breakdown of follicles without eggs (D) Ovulation

Explanatory Answer: (C)

At onset of puberty, the pituitary release FSH which stimulates the development of several primary follicles at a time. However, only one of these follicles continuous to grow and the rest degenerate. This process is called follicle atresia.

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(C) Secondary spermatocytes (D) Spermatids

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Each testis is comprised of a highly complex duct system called seminiferous tubules where repeated divisions by cells of germinal epithelium produced spermtogonia. These increase in size and differentiate into primary spermatocytes that under go meiosis to produce secondary spermatocytes and spermatids.

11. ☛ Identical twins are produced from

(A) Zygote by mitosis (B) Egg fertilized by two sperms
(C) Two separate zygotes (D) Two somatic cells

Explanatory Answer: (A)

In higher vertebrates including man zygote divides by mitosis and when the embryo is at two-called stage, the blastomeres separate and each develops into a new individual independently. Both are genetically identical and are called indentical twins.

12. ☛ The initial stage of birth are stimulated by which hormone

(A) ACTH (B) Corticosteriods
(C) Progesterone (D) oxytocin

Explanatory Answer: (A)

It was thought that decrease in progesterone level is responsible for onset of birth. But recent evidence suggests that there is a high degree of fetal involvement in the timing of birth. The initial stages of birth are the result of stimuli from fetal pituitary. The ACTH released from fetal pituitary stimulates the fetal adrenal gland to release corticosteroids, which cross the placental barriers and enter the maternal circulation causing a decrease in progesterone production. The reduction of progesterone level stimulates pituitary gland to produce oxytocin that induces labour pains.

13. ☛ Test tube babies

(A) Develop outside the female body
(B) Parental sperm and ovum is fertilized in vitro
(C) Develop inside the female body
(D) Both b and c are correct

Explanatory Answer: (D)

In test tube babies parental sperm and oveum are fertilized in vitro (in test tube) and the zygote is implanted back into mother uterus. Placenta establishes and remaining development takes place in the body of the mother leading to normal birth.

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15. ☛ During the development of nervous system in frog

(A) Ectoderm is independent
(B) Mesoderm from nervous system
(C) Mesoderm stimulates ectoderm
(D) Endoderm is independent

Explanatory Answer: (C)

Spemann working with frog embryo found that mesoderm had some effect on ectoderm to stimulate the ectodermal cells to form nervous system.

16. ☛ Acetabularia is a/an

(A) Algae
(B) Fungi
(C) Animal
(D) Lichen

Explanatory Answer: (A)

Acetabularia is largest single-called alga. It consists or rhizoid that is attached to the ground; and a long stalk arise from the rhizoid that bears either regular-shaped cap (Acetabularia mediterranea) or umbrell-shaped cap (Acetabularia cernulata), depending upon species.

17. ☛ Development of unfertilized egg produced after meiosis is known as

(A) haploid parthernogenesis
(B) Diploid partheogenesis
(C) Apomixis
(D) Non-disjunction

Explanatory Answer: (A)

Parthenogenesis is the development of an egg without fertilization. Ants bees and wasps exhibit parthenogenesis. When haploid egg produced as result of meiosis develops into haploid off spring, it is called haploid parthenogenesis.

18. ☛ In oviparous animals

(A) Fertilization is internal
(B) Development is external
(C) Eggs may have a shell or hard covering
(D) All of these are correct

Explanatory Answer: (D)

Some terrestrial animals, for example reptiles lay shelled eggs to protect developing embryo from the harms of terrestrial environment. Such animals are called oviparous. The fertilization in these animals is internal and the development is external.

19. ☛In which of the following animals fertilization and development is internal.

(A) Oviparous
(B) Viviparous
(C) Ovoviviparous
(D) Both b & c

Explanatory Answer: (D)

Malnourishment and emotional stresses effect the female reproductive cycle and it may be distrubed. It is not completed in 28 days.

20. ☛ Treponema palladium causes

(A) Gonorrhea
(B) Syphilis
(C) Genital herpes
(D) AIDS

Explanatory Answer: (B)

Syphilis is caused by a spirochete Treponema pallidum. It damages the reproductive organs, eye bones joints, sentral nervous system, heart and skin. Sexual contact is a major source of its spread.

21. ☛ Which one of the following is mainly presumptive ectoderm and mesoderm?

(A) Epiblast
(B) Hypoblast
(C) Blastoderm
(D) Primitive streak

Explanatory Answer: (A)

During gastrulation the mestoderm splits into two layers: an upper layer of cells called epiblast, and a lower layer of cells called hypoblast,

22. ☛ Gray crescent area

(A) Is present on unfertilized egg
(B) Is present on fertilized egg
(C) It contains some pigment
(D) Crescent shows no further development

Explanatory Answer: (D)

Gray crescent is the pigment free area that appears at the time of fertilization. The half lacking gary.

23. ☛ Morphgenetic determinants are the component of

(A) Nucleus
(B) Cell membrane
(C) Cell wall
(D) Cytoplasm

Explanatory Answer: (D)

It is known that different cytoplasmic components contain different morphogenetic determinants that are responsible for cell differentiation. These determinants are present in blastomeres.

24. ☛ Which cytoplasm gives rise to muscles of an organism?

(A) Clear (B) Yellow
(C) Gray vegetal (D) Gray equatorial

Explanatory Answer: (B)

The fertilized egg of an ascidian contains cytoplasm of five different colours that is segregated into different blastomeric. Yellow cytoplam gives rise to muscle cells.

25. In Acetabutaria cap formation is under the control of
(A) Cytoplasm (B) Nucleus
(C) Rhizoid (D) Both a and b

Explanatory Answer: (B)

Haemmerling experimented with Acetabularia species and suggested that cap regeneration in Acetabulairs is determined by nucleus.

26. Tetratogens are
(A) Inherited abnormalities (B) Metabolic defects
(C) Environmental factor (D) Abnormal number of chromosomes

Explanatory Answer: (C)

Environmental factors causing or contributing to abnormal development are grouped together as tetratogens.

TEST NO.11

1. Mature bone cell is known as
(A) Osteoblast (B) Osteoclast
(C) Osteocytes (D) Chondrocyte

Explanatory Answer: (C)

Mature bone cells are called osteocytes, while osteoclasts are bone-forming cells and osteoblasts are bone-dissolving cells. Osteoclasts dissolve the cartilage and osteoblasts replace it with bone.

2. All of the following structure contain fibro-cartilage except
(A) Ear pinnae (B) Epiglottis
(C) Ends of bones (D) Both a and b

Explanatory Answer: (D)

Fibro-cartilage consist of matrix consisting of bundles of collagen fibers that surround the chondrocytes. It forms external pinnae of ear and found in epiglottis

3. The number of vertebrae in lumber region
(A) 9 (B) 5
(C) 12 (D) 7

Explanatory Answer: (B)

Vertebrae are bones that form vertebral column or backbone. In all 33 vertebrae are present in the back bone and these are named according to their location. The vertebrae in neck region are called cervical (7 vertebrae); in thorax are known as thoracic (12 vertebrae); which are present in the abdominal region are lumber (5 vertebrae) and coccyx (4 fused vertebrae)

4. Sacrum is a set of vertebrae associated with which region of vertebrae column.
(A) Cervical (B) Lumber
(C) Pelvic (D) Thoracic

Explanatory Answer: (C)

Sacrum is a set of five anterior vertebrae of pelvic region.

5. Pelvic girdle consists of
(A) Two coxal bones (B) Ilium
(C) Ischium (D) Pubis

Explanatory Answer: (A)

Pelvic girdle consists of two coxal bones. Each is formed by fusion of three bones ilium, ischium and pubis. It attaches the hind limb to the vertebral column.

6. Select the correctly matched pair
(A) Humerus _ Bone of thigh (B) Femur _ Bone of arm
(C) Hip girdle _ Pelvic girdle (D) Clavicle _ Bone of wrist

Explanatory Answer: (C)

Humerus is the first bone in forelimb; femur is present in hind limb; the pelvic girdle is also attaches hind limb to vertebral column and is also called hip girdle; and clavicle is bone in pectoral girdle.

7. Fibrous joints are found in
(A) Skull (B) Leg
(C) Arm (D) Rib cage

Explanatory Answer: (A)

Fibrous joints are present in the skull and also fix teen into the jaws. These are held together by short fibers embedded in connective tissue.

8. Ligament is a component of which joint.
(A) Fibrous (B) Cartilaginous

(C) Synovial (D) All of these

Explanatory Answer: (C)

The synovial joints are present at elbow and knee. A layer of connective tissue called fibrous capsule and their inner layer the synovial membrane surrounds each joint. The joint contains a cavity filled with synovial fluid that reduces friction between the moving joints. Some parts of the capsule may be modified to from distinct ligament that hold bones together.

9. ☛ A genetic deformity of skeleton that lead to inhalation of food into the lungs causing aspiration pneumonia.

(A) Cleft palate (B) Microcephaly
(C) Osteroporosis (D) Osteoarithrities

Explanatory Answer: (A)

It is a condition in which palatine processes of maxilla and palatine fail to fuse. The persistent opening between the oral and nasal cavity interferes with sucking, therefore can lead to inhalation of food into lungs causing aspiration pneumonia.

10. ☛ Which statement is not true for osteoporosis

(A) Occurs mostly in aged women (B) The bone mass is reduced
(C) Promoted by diet poor in calcium and protein (D) A nutritional skeletal deformity

Explanatory Answer: (D)

Osteoporosis is ho9rmonal deformity of skeleton that mostly occurs is aged women and is related to decreased estrogen level and diet poor in calcium and protein. The bone mass is reduced however the chemical composition of the matrix remains normal.

11. ☛ The process that does not take place during the repair of a bone.

(A) Hematoma formation (B) Callus formation
(C) Realignment (D) Remodeling

Explanatory Answer: (C)

The repair process of a simple fracture takes place in four phases: hematoma formation during which a mass of clotted blood is formed at fracture site: soft callus formation in which capillaries grow in hematoma, debris is cleared and soft callus formation starts; bony callus formation during which osteoblasts and osteoclasts continue to migrate inwardly and convert the soft callus into bony callus; and remodeling in which the bony callus is remodeled.

12. ☛ The smallest contractile unit of muscle fiber is

(A) Myofilament (B) Z-lines
(C) A-band (D) Sarcomere

Explanatory Answer: (D)

The region of myofibril between two successive Z-lines is called sarcomere. It is the smallest contractile unit of muscle fiber.

13. ☛ The earliest form of the muscle to evolve and found throughout animal kingdom.

(A) Smooth muscles (B) Skeleton muscles
(C) Cardiac muscles (D) None of these

Explanatory Answer: (A)

Smooth muscles are believed to be the earliest evolved form of muscle and are found throughout animal kingdom. These are long, spindle-shaped, involuntary non-striated found in blood vessels, digestive tract, etc.

14. ☛ Which muscle in humans is striated, involuntary and has intercalated discs?

(A) Smooth muscles (B) Skeleton muscles
(C) Cardiac muscles (D) All these

Explanatory Answer: (C)

The cardiac muscles constitute most of the mass of the heart walls. Each cardiac muscle is composed of chains of single cell, each with its own nucleus. These chains are organized into branched and interconnected fibers.

15. ☛ Each end of entire muscle is attached to a bone by a bundle of collagen, non-elastic fibers called

(A) Ligaments (B) Tendons
(C) Myofibrils (D) Myofilaments

Explanatory Answer: (B)

Tendons attach muscle to the ends of a bone.

16. ☛ The part of the muscle that contracts.

(A) Insertion (B) Belly
(C) Origin (D) All these

Explanatory Answer: (B)

Origin is the end of muscle which remains fixed when muscle contracts; insertion is the end of muscle that moves the bone; and belly is the part between origin and insertion which contracts.

17. **Which muscle band disappears when the sarcomere shorten?**

(A) A-band (B) H-band
(C) I-band (D) Z-line

Explanatory Answer: (B)

The myofibrils consist of smaller contractile units, the sarcomeres. Each sarcomere is a series of dark and light bands are known as I-bands and light bands are known as I-bands. Each A-band has lighter stripes in its midsection known as H-zone. The H-zone is bisected by a dark line called M-line. The I bands have a midline called Z-line. The H-bands have a midline called Z-line. The H-zone disappears when sarcomere shortens.

18. **A state of physiological inability of muscles to contract is:**

(A) Tetany (B) Muscle fatigue
(C) Rigor mortis (D) Cramp

Explanatory Answer: (B)

The state physiological inability of muscle to contract is termed muscle fatigue. It results from relative deficit of ATP. In addition accumulation of lactic acid and ionic imbalance also contribute to muscle fatigue.

19. **The mammals that tend to walk on their digits and their first digit is usually reduced or completely lost**

(A) Plantigrades (B) Digit grades
(C) Unguligrades (D) None of these

Explanatory Answer: (B)

The mammals that tend to walk on their digits, e.g., rabbits, rodents, etc. They run faster than plantigrades and their first digit is usually reduced or completely lost.

TEST NO.12

1. **One of the followings makes possible the integration of functions essential to organismic behaviour**

(A) Coordination (B) Control
(C) Growth (D) Development

Explanatory Answer: (B)

Coordination makes possible the integration of functions essential to organismic behaviour.

2. **Cells in human nervous system that make up a much as half of the nervous system.**

(A) Associative neurons (B) Neuroglia
(C) Nissl's granules (D) Nerves

Explanatory Answer: (B)

Neuroglia make about half of the human nervous system. These cells provide protection and nutrition to the neurons.

3. **The smaller fibers in a neuron that carry towards cells body**

(A) Axons (B) Dendron
(C) Dendrites (D) Schwann cells

Explanatory Answer: (C)

Cytoplasmic processes arise from the cell body of a neuron. These are of two types: on called dendron that carries impulse towards cell body; and axon that conduct impulse away from cell body. Dendron is usually a single fiber, but in most cases these are in the form of smaller fibres called dendrites.

4. **Which in NOT true for nerve impulse?**

(A) It is an electrochemical wave (B) It travels along neurolemma
(C) It is conducted when inside of neuron membrane is more negative (D) It involves movement of ions across the cell membrane

Explanatory Answer: (C)

Nerve impulse is a wave of electrochemical changes that travels along the length of the neuron involving chemical reactions and movement of ions across the cell membrane. When inside of neuron membrane is more negative the membrane is at resting potential and nerve impulse is conducted during active membrane potential when inner side of cells membrane has excess positive charges than the outer surface.

5. **During resting membrane potential K+ ions are**

(A) Twenty times more inside (B) Ten times more inside
(C) Twenty time more outside (D) Ten times more outside

Explanatory Answer: (A)

During resting membrane potential potassium ions are twenty times more concentrated inside the membrane than outside, and sodium ions are ten folds higher in concentration outside then inside the membrane.

6. ☛ Active Na+ and K+ pump is located in which part of neuron.

(A) Cell membrane (B) Nucleus
(C) Cytoplasm (D) All of these

Explanatory Answer: (A)

All the neurons have very active sodium and potassium pumps located in the cell membrane. These pumps are driven by ATP and they transport Na+ out and K+ ions into the cell, both against their respective concentration gradients.

7. ☛ Active Na+ and K+ pump is located in which part of neuron.

(A) Cell membrane (B) Nucleus
(C) Cytoplasm (D) All of these

Explanatory Answer: (A)

All the neurons have very active sodium and potassium pumps located in the cell membrane. These pumps are driven by ATP and they transport Na+ out and K+ ions into the cells, both against their respective concentration gradients.

8. ☛ The contact point between consecutive neuron in the forms of microscopic gap is

(A) Saltatory impulse (B) Synapse
(C) Action potential (D) Neurotransmitter

Explanatory Answer: (B)

Consecutive neurons are so arranged that the axon endings of the neurons are connected to the dendrites of the next neuron in such a way that a microscopic gap is left between the two, however there is no cytoplasmic connection between the two neurons. This point of contact is called synapse.

9. ☛ All of the following are transmitters for synapses lie inside the central nervous system EXCEPT

(A) Adrenaline (B) Acetylcholine
(C) Serotonin (D) Dopamine

Explanatory Answer: (B)

Acetylchline is the main transmitter for synapse that lie outside the central nervous system. Others are mostly involved in synaptic transmission within the brain and spinal cord.

10. ☛ Parkinson's disease usually occurs in the age of:

(A) 30's and 40's (B) 40's and 50's
(C) 50's and 60's (D) 20's and 30's

Explanatory Answer: (C)

Parkinson's disease is a nervous disorder characterized by involuntary tremors, diminished motor power and rigidity, however the mental faculties are not affected. The disease is believed to be caused by cell death in a brain area that produces dopamine. The onset of disease is usually in 50's and 60's. The disease may result by head trauma. Effective drugs include L-dopa.

11. ☛ One of the followings is convulsive disorder of nerves believed to be caused by rapid electric discharges in gray matter.

(A) Parkinson's disease (B) Epilepsy
(C) Epilepsy (D) Alzheimer's disease

Explanatory Answer: (B)

Epilepsy is one the convulsive disorders of nerves characterized by abrupt symptoms of motor, sensory, psychic or autonomic nature frequently associated with changes in consciousness. These changes are believed to be because of rapid electric discharges in gray matter. The onset of epilepsy is usually before the age of 30. The most important test in the study of disease is electroencephalography. Anticonvulscent drugs are used to treat the disease.

12. ☛ How many cranial nerves are present in man?

(A) 10 pairs (B) 12 pairs
(C) 31 pairs (D) 43 pairs

Explanatory Answer: (B)

The nerves that arise from brain or lead to brain are called cranial nerve. There are 12 pairs of cranial nerves in human beings.

13. ☛ The part of pituitary gland often referred to as the master gland.

(A) The anterior lobe (B) Median lobe
(C) The posterior lobe (D) All of these

Explanatory Answer: (A)

Pituitary is a gland connected to brain through a short stalk, the infundibulum. It consists of three lobes: anterior, median and posterior. The anterior lobe of pituitary is often referred to as the master gland because in addition to producing hormones, it produces tropic hormones which control the secretion of hormones in many other endocrine glands.

14. The bony covering of human brain is called

(A) Skull (B) Cranium
(C) Meninges (D) Cervical

Explanatory Answer: (B)

The part of the skull that protects the brain and neural arches is called cranium. Skull comprises of cranium and facial bones.

15. The main components of human nervous system are:

(A) Central nervous system (B) Peripheral nervous system
(C) Autonomic nervous system (D) All these

Explanatory Answer: (D)

Human nervous system is centralized nervous system. It can be classified into central nervous system (CNS) consisting of brain and spinal cord that receives and processes information and initiates action; peripheral nervous system (PNS) comprises of sensory and motor neurons which transmits signals between CNS and rest of the body; and autonomic nervous system made of motor nervous that control involuntary responses by influencing organs, glands, and smooth muscles.

16. How many meninges cover the human brain?

(A) Three (B) One
(C) Two (D) Four

Explanatory Answer: (A)

The brain and spinal cord are covered with 3-layered meninges. In between these layers cerebrospinal fluid (CSF) is present. It is similar to blood plasma in composition and protects the brain and spinal cord against bumps and jolts.

17. A disease characterized by decline in brain function and whose symptoms are similar to those diseases (memory loss). Also there is evidence that high levels of aluminum may contribute to onset of this disease.

(A) Parkinson's disease (B) Epilepsy
(C) Alzheimer's disease (D)

Explanatory Answer: (C)

Alzheimer's disease is characterized by the decline in brain function. Its symptoms are similar to those diseases that cause dementia (memory loss). The disease tends to run in families and there is also evidence that high levels of aluminium may contribute to the onset of the disease.

TEST NO.13

1. How many endocrine glands/tissues are present in man?

(A) 15 (B) 20
(C) 25 (D) 22

Explanatory Answer: (A)

Endocrine system consists of 20 endocrine glands/tissues lying in different parts of the body.

2. One of the followings is not the function of hormones.

(A) Affect target cells (B) Initiate new biochemical reactions
(C) Regulate chemical reactions (D) All of these

Explanatory Answer: (B)

Hormones do not initiate new biochemical reactions but produce their effect by regulating enzymatic and other chemical reactions already present.

3. Part of the forebrain where many sensory stimuli of nervous system are converted into hormonal response.

(A) Pituitary (B) Hypothalamus
(C) Hippocampus (D) Pituitary

Explanatory Answer: (B)

Hypothalamus is part of forebrain that produce oxytocin and antidiuretic hormone (ADH) which travel down the nerves to the posterior lobe of the pituitary to be stored.

4. Sensory stimuli are converted into hormonal responses by which part of brain?

(A) Fore brain (B) Mid brain
(C) Mind brain (D) Spinal cord

Explanatory Answer: (A)