Questions

1.7 Blood and Lymph Vascular Systems.

273. Functions of peripheral blood include:
   (a) cellular defense against invasion by microorganisms
   (b) transport of nutrients to tissues and cells
   (c) transport of waste materials to the excretory organs
   (d) preservation of vascular integrity after physical damage
   (e) thermoregulation.

274. Blood participates in:
   (a) hormone transport
   (b) regulation of heat distribution
   (c) regulation of body acid-base balance
   (d) regulation of body osmotic balance
   (e) oxygen transport to all the tissue of the body

275. Romanivsky-type stains for studying blood smears (Giemsa's, Wright's Leishman's)
   (a) contain hematoxyline
   (b) contain eosin
   (c) involve reduction of methylene blue
   (d) involve oxidation of methylene blue
   (e) result in the formation of azures.

276. Hemoglobin is:
   (a) synthesized by erythrocytes
   (b) a conjugated protein
   (c) a pigment incorporating iron
   (d) able to form stable combination with carbon monoxide
   (e) Chemically different in the fetus from that of the adult.

277. The maturation process of developing erythrocytes involves a decrease in:
   (a) cell volume
   (b) nucleolar volume
   (c) nuclear volume
   (d) the number of polyribosomes
   (e) the amount of hemoglobin.

278. Erythrocytes develop in the fetus in the:
   (a) lymph nodes
   (b) spleen
   (c) yolk sac
   (d) bone marrow
   (e) liver.

279. Erythrocytes in adults develop in the
(a) peripheral blood
(b) reticular tissue of red bone marrow
(c) lymph nodes
(d) spleen
(e) liver.

280. Erythrocytes in adults:
(a) have a life span of about three weeks
(b) develop directly from polychromatophilic erythroblasts
(c) when fully formed stain basophilic
(d) are more numerous per unit volume in female
(e) are broken down when aged in the spleen

281. Erythrocytes in man:
(a) are flexible
(b) participate actively in hormone transport
(c) transport nutrients from the digestive tract to the tissues
(d) mediate in the process of gaseous exchange
(e) transport waste materials to the kidneys.

282. Mature erythrocytes:
(a) are biconcave disks
(b) are nucleated cells
(c) contain myoglobin
(d) possess carbonic anhydrase activity
(e) have cytoplasmic organelles.

283. Reticulocytes are:
(a) only found in bone marrow
(b) found in peripheral blood
(c) precursors of leukocytes
(d) precursors of erythrocytes
(e) stained by cresyl blue because of cytoplasmic ribosomal RNA.

284. Bone marrow contains:
(a) developed crythrocytes
(b) adipose cells
(c) megakaryocytes
(d) reticular fibers
(e) lymphatic vessels

285. Blood plasma proteins include:
   (a) hemoglobin
   (b) fibrinogen
   (c) albumin
   (d) prothrombin
   (e) myoglobin

286. Basophils have:
   (a) smaller dimensions than erythrocytes
   (b) segmented nuclei
   (c) irregular twisted S-shaped nuclei
   (d) irregular coarse granules
   (e) fine regular granules

287. Basophils:
   (a) contain histamine
   (b) contain heparin
   (c) have metachromatic granules
   (d) are identical to mast cells
   (e) are capable of ameboid movement

288. Eosinophils posses:
   (a) spherical nuclei
   (b) bilobed nuclei
   (c) polymorphic nuclei
   (d) well-developed Golgi bodies and rough endoplasmic reticulum
   (e) coarse specific granules

289. Eosinpophils:
   (a) have granules containing crystalloids
   (b) have granules containing lysosomal enzymes
   (c) may be phagocytic
   (d) are reduced in number by corticosteroids
   (e) contain profibrinolysin whose function is connected with maintaining blood fluidity.

290. The granules of neutrophils represent
   (a) mitochondria
   (b) concentrations of ribosomes
   (c) typical lysosomes
   (d) glycogen
   (e) structures identical to granules of mast cells.

291. Neutrophils possess:
(a) a segmented nucleus
(b) a rounded regular nucleus
(c) large acidophilic granules
(d) small and large basophilic granules
(e) small delicate granules that stain purple with Giemsa's blood stain.

292. In peripheral blood smears the 'drumstick' is found in:
(a) all leukocytes
(b) neutrophils only
(c) neutrophils males mainly
(d) neutrophils of females mainly
(e) sites of condensation of the Y chromosome

293. Phagocytins are:
(a) antibacterial
(b) proteins
(c) identical to lysosomes
(d) found in neutrophils
(e) found in specific granules

294. Pus that accumulates in boils or abscesses is mainly composed of:
(a) mucus
(b) lymph
(c) monocytes
(d) dead bacteria
(e) neutrophils

295. Monocytes:
(a) develop into plasma cells
(b) develop in the bone marrow
(c) pass from the blood to connective tissue unidirectionally
(d) belong to the Mononuclear Phagocytic System (MPS)
(e) are able to survive in the tissue for several months

296. The nuclei of monocytes are typically:
(a) segmented
(b) bilobed
(c) horseshoe or kidney-shaped
(d) with loose flocculent, poorly stained chromatin
(e) with two or three nucleoli

297. Lymphocytes in the blood of man:
(a) constitute 25-30% of all the leukocytes
(b) are included in the category of 'granulocytes'
(c) produce fibrinogen
(d) multiply in the bone marrow
(e) develop from stem cells that originate in the bone marrow

298. Small lymphocytes are:
(a) end forms that cannot be converted into other cell types or multiply
(b) a uniform population of cells in terms of morphology and function
(c) found only in the peripheral blood
(d) important as part of the immunological system
(e) able to be changed into lymphoblasts after antigenic stimulus

299. T lymphocytes:
(a) are most numerous in blood and lymph
(b) are derived form precursor cells of the bone marrow
(c) are very long-lived cells
(d) are most numerous in the thymus
(e) reach maturity in the paracortical area of the thymus

300. B lymphocytes:
(a) can be distinguished from T lymphocytes on their appearance in the scanning election microscope
(b) participate in the humoral immune response
(c) participate in the cell-mediated response
(d) develop from stem cells in lymphoid structures analogous to the Bursa of Fabricius of birds
(e) can be converted to plasma cells in response to antigenic stimulus

301. Blood platelets in man:
(a) possess nuclei
(b) develop in the spleen
(c) develop from megakaryocytes
(d) contain dense granules with serotonin (5-HT)
(e) change their shape during platelet aggregation.

302. Blood platelests:
(a) contain glycogen
(b) synthesize serotonin (5-HT)
(c) synthesize epinephrine
(d) possess marginal bundles of microtubules
(e) release vasoconstrictors during blood clotting

303. Red bone marrow in adults in present in the:
(a) sternum
(b) vertebrae
(c) ribs
(d) diploe of flat bones of the skull vault
(e) diaphyses of long bones

304. The main functions of red bone marrow include:
(a) erythrocyte production
(b) erythrocyte destruction
(c) production of megakaryocytes
(d) production of undifferentiated B lymphocyte precursors (stem cells)
(e) production of undifferentiated T lymphocyte precursors (stem cells)

305. Iron in the form of ferritin or hemosiderin may be stored in:
(a) brain tissue
(b) hepatocytes
(c) skeletal muscle fibers
(d) spleen macrophages
(e) lymph glands

306. Typical muscular arteries possess:
(a) a musclar adventitia
(b) an inner elastic limiting membrane
(c) many concentric elastic membranes in the tunica media
(d) concentric smooth muscle fibers in the tunica media
(e) vasa vasorum that penetrate to the tunica intima

307. The smooth muscle of arterial walls:
(a) is in a state of tonus to help maintain the diameter of the vessel
(b) helps propel blood forward
(c) helps maintain blood pressure
(d) irrigate only specific areas of a tissue or organ
(e) include the coronary arteries of the heart

308. Anatomical end arteries:
(a) are identical to functional end arteries
(b) form anastomoses with adjacent vessels in the event of obstruction
(c) when ligatured or blocked cause necrosis or infarct of the tisse

309. Vasa vasorum are:
   (a) small blood vessels
   (b) highly branched vessels
   (c) found in the adventitial layer of arteries
   (d) found in the tunica media of veins
   (e) found in the tunica intima of blood vessels

310. Typical elastic arteries possess :
   (a) thick tunica media
   (b) clearly demarked internal, elastic, limiting membrane
   (c) tunica media with many concentric, fenestrated, elastic laminae
   (d) tunica media with smooth muscle fibers.
   (e) series of valves throughout their length.

311. Elastic arteries:
   (a) are found mainly near the heart
   (b) contract during diastole to help propel blood forward
   (c) contract during systole to help propel blood forward
   (d) allow a more constant flow of blood despite the strong pumping effect of the heart
   (e) have a structure that helps protect the vessel from unduly high blood pressure.

312. Arterioles have:
   (a) diameters smaller than 0.5 mm
   (b) a subendothelial layer
   (c) a very thin, internal, elastic, limiting membranes
   (d) about 4 or 5 layers of smooth muscle in their walls
   (e) no muscle in their walls.

313. Arteriovenous anastomoses:
   (a) involve direct connections between arteriods and venules
   (b) involve passage of blood through the capillary bed
   (c) are important in thermoregulation of the body
   (d) are commonly found in skin
   (e) function when the metabolic needs of a particular tissue or organ are increased.

314. Blood sinusoids are:
   (a) irregular in shape and diameter
   (b) lined with fenestrated endothelium
   (c) a sort of blood capillary
   (d) a sort of arteriole
   (e) present in many endocrine glands

315. Blood capillaries have:
   (a) a single layer of endothelial cells
   (b) smooth muscle in their walls
   (c) endothelial cells with a basal lamina similar to that of epithelia
   (d) a constant diameter
   (e) associated perivascular cell or pericytes

316. Pericytes (perivascular cells):
   (a) are found on all capillaries
   (b) are found on arterioles
   (c) originate from mesenchyme
   (d) are relatively undeveloped cells
   (e) can develop into smooth muscle cells

317. Portal systems are:
   (a) arterial only
   (b) venous only
   (c) formed when a blood vessel is situated between two capillary beds
   (d) found between the small intestine and the liver
   (e) found in the hypophysis

318. Veins have:
   (a) walls that the thinner than those of equivalent-sized arteries
   (b) an adventitial layer that is better developed than that of equivalent-sized arteries
   (c) a lining of fenestrated endothelium
   (d) smooth muscles in their tunica media
   (e) muscular valves

319. Valves of veins are:
   (a) conspicuous in veins that transport against the force of gravity
   (b) usually paired structures
   (c) able to prevent the backflow of blood
   (d) lined with endothelium
   (e) formed from folds of the tunica intima

320. The umbilical vein:
   (a) is a typical vein
   (b) is an elastic vein
   (c) has a thick muscular wall
   (d) has both longitudinal and circular layers of smooth muscle
   (e) in lined with endothelium

321. Umbilical arteries:
(a) are typical arteries
(b) carry deoxygenated blood
(c) lack an internal limiting elastic membrane
(d) have both longitudinal and circular smooth muscle in the tunica media
(e) have a number of thin-walled swellings or varicosities in their extra-abdominal portion

322. Lymph is:
(a) a predominantly acellular fluid
(b) activity secreted by glands
(c) usually fairly transparent
(d) whitish after a fatty meal
(e) formed in part in the liver

323. Lymph transport is:
(a) unidirectional within lymph vessel
(b) active
(c) passive
(d) helped by movements of adjacent structures
(e) helped by the active contraction of walls lymphatics

324. Lymphatic vessels as seen in light microscope preparations:
(a) are always lined with endothelium
(b) have erythrocytes within their lumina
(c) have very thin walls
(d) have muscles in their walls
(e) usually-appear empty without any signs of cells within their lumina

325. Lymphatic capillaries are:
(a) blindly ending tubes
(b) lined with endothelial cells
(c) supported by a discontinuous basal lamina
(d) present in the central nervous system
(e) able to collect water, solutes and macromolecules from the tissue spaces

326. The large lymphatic ducts (thoractic duct, right lymphatic duct)
(a) are in direct communication with veins
(b) are the sole routes for the return of lymph to the blood vascular system
(c) have more muscular walls than those of typical large veins
(d) are lined with endothelium
(e) contain collagenous and elastic fibers in their tunica intima