

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION (CSCE) 2008
EXAMINATION CATEGORY: TECHNICAL

PAPER II: SUBJECT SPECIALIZATION PAPER FOR MEDICAL SCIENCES

Date : 19th December 2008
Total marks : 100
Examination time : 1.5hrs
Reading time : 10 minutes

1. Read the question carefully before proceeding to answer.
2. All the answer must be written on the answer sheet provided.
3. Part 1 is Multiple Choice Questions (70 marks): Circle the correct answer.
4. Part 2 is short answer questions (30 marks): Answer the question in brief and to the point. Answer in the space provided. In cases you need extra paper, ask the examiner.
5. Before submitting the paper mention the number of answer sheets attached to ensure that the papers are not lost or tampered with.
6. Number of answered sheets attached

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION (CSCE)-2008
EXAMINATION CATEGORY: TECHNICAL
PAPER II: GENERAL SUBJECT KNOWLEDGE MEDICAL GROUP

PART A (70 Marks)

I. Multiple choice question : circle the correct answer.(1X70=70marks)

- 1) An α (alpha) particle is identical with:
 - a) *Proton*
 - b) *neutron*
 - c) *Helium nucleus*
 - d) *electron*

- 2) Of the following radiations, the one most easily stopped by air is:
 - a) *alpha rays*
 - b) *beta-rays*
 - c) *x-rays*
 - d) *gama-rays*

- 3) When two atoms combine to form a molecule energy is:
 - a) *released*
 - b) *absorbed*
 - c) *Neither increased nor absorbed*
 - d) *may either be absorbed or released*

- 4) Valency expresses:
 - a) *Total electron in an atom*
 - b) *atomicity of an element*
 - c) *oxidation number of an element*
 - d) *combining capacity of an element*

- 5) The high density of water as compared to Ice is due to:
 - a) *Hydrogen bonding interaction*
 - b) *dipole-dipole interaction*
 - c) *dipole induced dipole interaction*
 - d) *induced dipole-induced dipole interaction*

- 6) Which of the following is a good conductor of electricity and heat?
 - a) *Anthracine*
 - b) *Diamond*
 - c) *Charcoal*
 - d) *Graphite*

- 7) On heating one end of piece of a metal, the other end becomes hot because of :

- a) *Resistance of a metal* b) *mobility of atoms in the metal*
c) *energized electrons moving to other end* d) *minor perturbation in the energy of atom*
- 8) A glass is a :
- a) *Micro-crytalline solid* b) *super cooled liquid*
c) *gel* d) *polymeric mixture*
- 9) In a heterogeneous system all parts have:
- a) *Same physical properties* b) *same chemical properties*
c) *Both physical and chemical properties different* d) *only chemical properties different*
- 10) The ratio of the mass of gas dissolved in a liquid to the pressure applied, is constant at constant:
- a) *Volume of gas* b) *temperature*
c) *Density* d) *none of the above*
- 11) For the quick and sharp separation of the components of a mixture, the chromatography used is:
- a) *Thin layer (TLC)* b) *Paper*
c) *Column* d) *gas liquid (GLC)*
- 12) The solubility of gas increases with increase of :
- a) *Volume of gas* b) *Temperature*
c) *pressure* d) *concentration*
- 13) The basis of paper chromatography is:
- a) *absorption* b) *hydration*
c) *partition* d) *none of the above*
- 14) The half life of any first order reaction is:
- a) *Directly proportional to initial concentration* b) *half life of rate constant*
c) *Same for all reactions* d) *independent of initial concentration*
- 15) A catalyst is used to:

- a) *Alter the velocity of reaction* b) *to balance the reaction*
c) *to vaporize the compound* d) *to kill the enzymes*

16) Enzymes are:

- a) *Chemical to activate washing powder* b) *vegetable catalyst*
c) *catalyst found in organism* d) *Synthetic catalyst*

17) The theory of relativity is propounded by:

- a) *Albert Einstein* b) *Sir Isaac Newton*
c) *Aristotle* d) *Michael Faraday*

18) The enzyme ptyaline used for the digestion of food is present in:

- a) *saliva* b) *blood*
c) *intestine* d) *adrenaline gland*

19) A pH of a solution is 5.9. If the hydrogen ion concentration is decreased by 100 time the solution will be:

- a) *More acidic* b) *neutral*
c) *basic* d) *of the same acidity*

20) Precipitation takes place when the product of concentration of ions:

- a) *Equals the solubility product* b) *exceeds the solubility product*
c) *is less than the solubility product* d) *is negligible*

21) The pH of solution is expressed as :

- a) $\text{Log}_e[H^+]$ b) $\text{Log}_{10}[H^+]$
c) $-\text{Log}_e[H^+]$ d) $-\text{Log}_{10}[H^+]$

22) Blue litmus turns red in a solution of pH :

- a) *Below 7* b) *7*
c) *Above 7* d) *at all pH*

23) An apparatus used for the measurement of quantity of electricity is known as :

- a) *Calorimeter* b) *Cathetometer*
c) *Coulometer* d) *colorimeter*
- 24) Which of the following has the highest calorific value:
- a) *Carbohydrate* b) *Fats*
c) *Vitamins* d) *proteins*
- 25) Which one of the following is not a characteristic of root:
- a) *Presence of chlorophyll* b) *presence of root cap*
c) *presence of unicellular hair* d) *absence of buds*
- 26) Parallel venations is a characteristic of:
- a) *Shoe flower* b) *Oak trees*
c) *Grasses* d) *legumes*
- 27) Leaves catches insects in :
- a) *Mulberry* b) *calotropis*
c) *Nepenthes and dionea* d) *Sunflower*
- 28) If a cell swells, after being placed in a solution, the solution is :
- a) *neutral* b) *Hypotonic*
c) *Hypertonic* d) *Isotonic*
- 29) Osmosis means:
- a) *Flow of solute from low concentration to higer concentration*
b) *Flow of solute from high concentration to low concentration*
c) *Flow of solvent from low concentration to high concentration*
d) *Flow of solvent from high concentration to low concentration*
- 30) Spraying of leaves with silicon emulsion causes:
- a) *Increase transpiration* b) *decrease transpiration*
c) *increase photosynthesis* d) *Decrease respiration*
- 31) Precipitation takes place when the product of concentration of ions:

- a) *Equals the solubility product* b) *exceeds the solubility product*
c) *is less than the solubility product* d) *is negligible*
- 32) Which group of plants can grow in nitrogen deficient soils?
- a) *Insectivorous plant* b) *Bryophytes*
c) *Lichens* d) *Gymnosperm*
- 33) The “drought spots” of apples is caused by the deficiency of-
- a) *Boron* b) *Copper*
c) *Zinc* d) *Molybdenum*
- 34) Photosynthesis means:
- a) *Union of colours* b) *manufacture of food in presence of light*
c) *synthesis of photons* d) *light dispersal*
- 35) ATP stands for :
- a) *Adenisine triphosphate* b) *adenine triphosphate*
c) *adenosine diphosphate* d) *adenosine tetrphosphate*
- 36) A false fruit develops from:
- a) *ovary* b) *Inflorescence*
c) *parts other than ovary* d) *ovary and other parts*
- 37) Natural vegetative propagation occurs by :
- a) *Roots* b) *Stem*
c) *Leaves* d) *all of these*
- 38) Which of the following characteristic is a wind pollinated flower likely to have:
- a) *Large open flowers* b) *No scent or nectars*
c) *Feathery stigmas* d) *heavy spiky pollens*

39) The following is not an example of the growth movements in plants:

- a) *Bending towards light*
- b) *twisting of stem around a stick*
- c) *Opening of stomata in light*
- d) *displacement of growth point in course of time*

40) What causes a green plant to bend towards light as it grows?

- a) *Green plants need light for photosynthesis*
- b) *green plants are phototropic*
- c) *light stimulates plant cells to grow faster on the lighted side*
- d) *Auxins accumulate on shaded side to grow faster*

41) In a car battery the liquid contains:

- a) *Hydrochloric acid*
- b) *Suphuric acid*
- c) *Nitric acid*
- d) *None of the above*

42) In an ordinary electric heater, if the length of the coil is reduced to half, a given quantity of water will boil in :

- a) *More time*
- b) *less time*
- c) *same time*
- d) *none of the above*

43) The unit of electrical power is :

- a) *Volts*
- b) *watt*
- c) *Kilo watt per hour*
- d) *ampere*

44) The inner surface of the large intestine is lined with:

- a) *muscular tissue*
- b) *Glandular epithelium*
- c) *mucosa*
- d) *cuticle*

45) Sebum oil is secreted by :

- b) *Sweat gland*
- b) *mucous gland*
- c) *sebaceous gland*
- d) *cardiac gland*

46) Name the substance involved in allergic and inflammatory reactions:

- a) *Histamines*
- b) *Histone*
- c) *collagen*
- d) *protamines*

47) A tissue that connects bone with muscles is known as:

- a) *Tendon*
- b) *Adipose tissue*
- c) *Connective tissue*
- d) *ligament*

48) The crown of tooth is covered with :

- a) *Chitin*
- b) *dentine*
- c) *Cartilage*
- d) *enamel*

49) Blood cells are formed in the bone marrow. The process is known as :

- a) *Haemopoiesis*
- b) *Haemolysis*
- c) *Lymphopoiesis*
- d) *Erythroblastosis*

50) The muscles which do not get fatigued are:

- a) *Striped muscle*
- b) *Unstriped muscle*
- c) *Cardiac muscle*
- d) *None*

51) A nerve is a bundle of:

- a) *Ganglia*
- b) *Dendrites*
- c) *Synapsis*
- d) *Axons*

52) Which one of following is body building materials:

- a) *protein*
- b) *Sugar*
- c) *Mineral salts*
- d) *Fats*

53) Islets of langerhans produces:

- a) *Insulin*
- b) *Renin*
- c) *Ptyalin*
- d) *HCL*

54) Aminoacids that cannot be synthesized in body are called:

- a) *Non essential*
- b) *Active*
- c) *Essential*
- d) *Inactive*

55) The largest quantity of air that can be expired after maximal inspiratory effort is :

- a) *Residual volume* b) *Tidal volume*
- c) *Vital capacity of lungs* d) *Lung volumes*

56) In which form CO₂ is carried in blood:

- a) *Sodium bicarbonate* b) *sodium carbonate*
- c) *Potassium carbonate* d) *Magnesium bicarbonate*

57) The erythrocyte of mammals are non nucleated except in

- a) *Rabbit* b) *Monkey*
- c) *Camel* d) *Man*

58) The lymphocytes protect from:

- a) *Pathogens* b) *Lymph*
- c) *Laucocytes* d) *Toxins*

59) The law of gravitation was propounded by

- a) *Aristotole* b) *Sir Isaac Newton*
- c) *J.C Bose* d) *Robert Cook*

60) Loop of Henle is concerned with

- a) *Excretary system* b) *Reproductive system*
- c) *Nervous system* d) *Muscular system*

61) Excretion in the form of uric acid and urates in birds is helpful in -

- a) *Conserving body heat* b) *Eliminating excess water*
- c) *Conserving body water* d) *Eliminating body water*

62) In reabsorption of water in the kidney is under the control of a hormone

- a) *STH* b) *ACTH*
- c) *LH* d) *ADH*

63) Excretion of bile pigments in urine indicates-

- a) *Anaemia* b) *Diabetes*
- c) *Rickets* d) *Jaundice*

64) The total number of bones in human skull is

- a) 28 b) 30
- c) 32 d) 34

65) How many teeth grow only once in life of a man?

- a) 8 b) 12
- c) 20 d) 32

66) The smallest bone in man's skeleton is-

- a) *Nasal* b) *Stapes*
- c) *Patella* d) *Palatine*

67) Which cranial nerve carries excitation from the ear?

- a) *Trigeminal* b) *olfactory*
- c) *Auditory* d) *Optic*

68) Part of brain involved in hearing is

- a) *Hypothalamus* b) *Medulla*
- c) *Cerebrum* d) *Cerebellum*

69) Retina of mammalian eye is composed of

- a) *Rods only* b) *Cones only*
- c) *Rods and cones* d) *Rods, cones and neuroganglia cells*

70) The site from which the nerve impulse for hearing originates-

- a) *Ear ossicles* b) *Cochlea*
- c) *Auditory Nerve* d) *Tympanum*

PART B (30 Marks)

Short answer questions: Write the answer in the space provided. (3X10=30marks)

1. Identify the functions of the lymphatic system?

2. Give full form of HIV/AIDS and what type of virus is HIV? Name three common opportunistic infections that AIDS patients may suffer from?

3. In which cellular compartments does glycolysis and Krebs cycle occur? Why a sequence of chemical reaction in Krebs cycle is called a “cycle”?

4. Name three fat soluble vitamins and three water soluble vitamins?

5. Imagine you are a water molecule that has just entered the proximal convoluted tubule of the nephron and will eventually be part of urine. What parts of the nephron will you travel through (In order) before you reach to renal pelvis?

6. What are some common constituents of renal calculi?

7. What is hyperkalemia, hypocalcemia, hyponatremia?

8. If you hold your breath for 30 seconds what will happen to your blood pH and why?

9. Which tissue masses form the erectile tissue in the penis and why do they become rigid?

10. What is geostationary satellite?

GOOD LUCK