

Ph.D. ENTRANCE TEST-2023**SUBJECT (HOME SCIENCE)
(FOOD SCIENCE AND NUTRITION)**

Total Questions: 100

Time Allowed : 110 Minutes

Roll No.

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Instructions for Candidates

1. Write your roll number in the space provided at the top of this page of question booklet and fill up the necessary information in the spaces provided on OMR Answer sheet.
2. OMR Answer sheet has an original copy and a candidate's copy glued beneath it at the top. While making entries in the original copy, candidate should ensure that the two copies are aligned properly so that the entries made in the original copy against each item are exactly copied in the candidate's copy.
3. All entries in the OMR answers sheet including answers to questions are to be recorded in the original copy only.
4. Use only blue/ black ball point pen to darken the circle of correct / most appropriate response. In no case gel/ ink pen or pencil should be used.
5. **Do not darken more than one circle of option for any question. A question with more than one darkened response shall be considered wrong.**
6. **There will be no "Negative Marking" for wrong answers.**
7. Only those candidates who would obtain positive score in entrance test examination shall be eligible for admission
8. Do not make any stray mark on the OMR sheet
9. Calculators and mobiles shall not be permitted inside the examination hall
10. Rough work, if any, should be done on the blank sheets provided with the question booklet.
11. OMR answer sheet must be handled carefully and it should not be folded or mutilated in such case it will not be evaluated.
12. Ensure that your OMR Answer sheet has been signed by the invigilator and the candidate himself/herself.
13. At the end of the examination hand over the OMR answer sheet to the invigilator who will first tear off the original OMR sheet in presence of the candidate and hand over the candidate's copy to the candidate.
14. If any of the information in the response sheet/question paper has been found missing or not mentioned as stated above the candidate is solely responsible for that lapse.

Part I (General Aptitude 2023)

1. Tariq wants to sell a watch at a profit of 20%. He bought it at 10% less and sold it at ₹ 30 less, but still he gained 20%. The cost price of watch is.....
 - A. ₹ 250
 - B. ₹ 225
 - C. ₹ 240
 - D. ₹ 220
2. If today is Sunday then three days from now will be....
 - A. Saturday
 - B. Friday
 - C. Thursday
 - D. Wednesday
3. Absar is brother of Mehdi. Iqra is sister of Gulshan. Mehdi is son of Iqra. How is Absar related to Iqra?
 - A. Son
 - B. Brother
 - C. Nephew
 - D. Father
4. Ankit can do a piece of work in 6 days and Basharat in 9 days. How many days will both take together to complete the work?
 - A. 7.5 days
 - B. 5.4 days
 - C. 3.6 days
 - D. 3 days
5. The book "To Hell and Back: Humans of COVID" is authored by?
 - A. Kavitha Iyer
 - B. Jhumpa Lahiri
 - C. Barkha Dutt
 - D. Arundhati Roy
6. If PARTICLE is coded RCTVKENG, then how is SCIENCE coded?
 - A. TBJUOMF
 - B. TDJFODF
 - C. UEKGPEG
 - D. QBSUDMF
7. Where is the headquarter of the United Nations Environment Programme (UNEP) located?
 - A. Nairobi, Kenya
 - B. Venice, Italy
 - C. Munich, Germany
 - D. Geneva, Switzerland
8. Two years ago, Jane's age was three times Sam's age. If Jane is now 18, how old is Sam?
 - A. 6 years
 - B. 8 years
 - C. 10 years
 - D. 12 years
9. If WORK is coded as 4-12-9-16, then how will WOMAN be coded?
 - A. 4-12-14-26-13
 - B. 4-26-14-13-12
 - C. 23-12-26-14-13
 - D. 123-15-13-1-14
10. Which of the following states is not included in the sixth schedule of Indian Constitution?
 - A. Meghalaya
 - B. Tripura
 - C. Mizoram
 - D. Manipur

11. Letter : Word

- A. Homework : School
- B. Club : People
- C. Product : Factory
- D. Page : Book

12. The speed of a bus is 54 km/h if we don't let it stop at any point. If the bus stops at the bus-stops, the speed of the bus is 45 km/h. What is the time that the bus stops for per hour?

- A. 7 mins
- B. 10 mins
- C. 21 mins
- D. 22 mins

13. Blood does not coagulate inside the body due to the presence of _____?

- A. Fibrin
- B. Haemoglobin
- C. Heparin
- D. Plasma

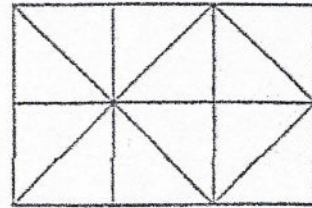
14. If a triangle has angles measuring 30 degrees, 60 degrees, and 90 degrees, what type of triangle is it?

- A. Equilateral
- B. Isosceles
- C. Scalene
- D. Right-angled

15. The of the Minister's statement cannot be verified by people who have no access to official records.

- A. veracity
- B. verbosity
- C. ambiguity
- D. validity

16. The number of squares in the given figure is.....



- A. 7
- B. 8
- C. 9
- D. 10

17. What is the percentage of profit if the cost price is 95% of the selling price?

- A. 5%
- B. 5.26%
- C. 4%
- D. 4.75%

18. If you start facing east and turn 135 degrees clockwise, which direction are you facing now?

- A. North
- B. West
- C. North-East
- D. South-East

19. Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) has been extended till which year recently?

- A. 2025
- B. 2028
- C. 2030
- D. 2032

20. Who is the present chairman of ISRO?

- A. Sh. Heeralal Samariya
- B. Sh. Harsh Chouhan
- C. Sh. Ravneet Kaur
- D. Sh. S Somanath

Ph.d Entrance test 2023
Food Science and Nutrition (Home Science)
Faculty of Applied Sciences and Technology

Paper II: Basic (Conventional) Questions

Q.21: Physiology is the study of _____ processes that take place in living organisms.

- a) Physical
- b) Chemical
- c) Both a and b
- d) None of the above

Q.22: The large multicellular cells that have a nucleus bounded by a double layered membrane and show a high degree of differentiation are called:

- a) Eukaryotic
- b) Prokaryotic
- c) Both a and b
- d) None of the above

Q.23: Alpha cells of the pancreatic islets secrete the hormones in response to:

- a) Increase in the blood sugar level
- b) Decrease in the blood sugar level
- c) Normal blood sugar level
- d) None of the above

Q.24: Granulocytes and Agranulocytes are the types of:

- a) Erythrocytes
- b) Ribosomes
- c) Leukocytes
- d) Platelets

Q.25: Which of the following Blood Groups has the antibodies "A" and "B" present in it?

- a) AB
- b) A
- c) B
- d) O

Q.26: Lyxose is a type of:

- a) Triose
- b) Tetrose
- c) Pentose
- d) Hexose

Q.27: Which of the following is not a type of fibre found in the diet?

- a) Cellulose
- b) Ptyalin
- c) Hemicellulose
- d) Gums and Mucilages

Q.28: The important function/s of Linoleic Acid is/are:

- a) Cell membrane structure
- b) Lowering serum cholesterol
- c) Prolonged blood clotting time
- d) All of the above

Q.29: The body height of a client who is nonambulatory can be measured by:

- a) Total arm length
- b) Calf circumference
- c) Total leg length
- d) All of the above

Q.30: A lab test that indicates immune capacity is the:

- a) haemoglobin
- b) hematocrit
- c) lymphocyte count
- d) serum transferrin

Q.31: A 24 hour urine test is used to assess:

- a) glucose metabolism
- b) protein metabolism
- c) fatty acid metabolism
- d) acid-base balance

Q.32: The size of a person's frame is determined by measuring the:

- a) Thigh circumference
- b) Waist
- c) Acromial breadth
- d) Elbow breadth

Q.33: The energy form/s that is/are used by the human body to sustain life processes is/are:

- a) electrical
- b) mechanical
- c) thermal
- d) all of the above

Q.34: The chemical substance/s that is/are important for the absorption of the fat-soluble vitamins is/are:

- a) fat in the food
- b) pancreatic lipase
- c) bile salts
- d) all of the above

Q.35: It has become evident that vitamin _____ behaves more like a hormone than a vitamin.

- a) A
- b) D
- c) E
- d) K

Q.36: The synthesis of active hormonal form of Vitamin D is the result of the combined action of the:

- a) Skin, thyroid and liver
- b) Skin, liver and kidney
- c) Skin, skeleton and liver
- d) Intestine, skeleton and kidney

Q.37: Lactic acid accumulates in muscle tissues when:

- a) there is too little glucose for energy
- b) fats are being metabolised for energy
- c) there is too little oxygen available to the muscle cells
- d) the muscles are overworked

Q.38: It is important that the older adult's diet include adequate carbohydrates to:

- a) provide a substrate for vitamins and minerals
- b) spare protein
- c) provide building material for muscle mass
- d) provide the essential fatty acids

Q.39: An important function of calcium for the growing child is:

- a) blood coagulation
- b) nerve function
- c) bone and tooth development
- d) all of the above

Q.40: Production of breast milk is caused by the hormone _____, whereas the hormone _____ stimulates ejection of milk.

- a) Progesteron; Estrogen
- b) Estrogen ; Prolactin
- c) Prolactin; oxytocin
- d) Oxytocin, prolactin

Q.41: Which of the following types of fat is a rich source of Linoleic acid?

- a) butterfat
- b) medium-chain triglycerides
- c) hydrogenated vegetable oil
- d) vegetable oil

Q.42: Diverticulosis most often occurs in:

- a) infants
- b) young children
- c) elderly adults
- d) all of the above

Q.43: Jaundice is associated with the term:

- a) Axotemia
- b) Icterus
- c) Pyrosis
- d) Necrosis

Q.44: A chemical compound that acts as a surface modifier which reduces the surface tension of a liquid is called as:

- a) emulsion
- b) emulsifier
- c) stabilizer
- d) surfactant

Q. 45: Sweet and salty tastes are sensed more intensely on the _____ whereas sour and bitter are more intensely sensed at _____.

- a) middle of the tongue; tip of the tongue
- b) middle of the tongue; hard palate
- c) tip of the tongue; hard palate
- d) tip of the tongue; back of the tongue

Q.46: The term GUSTATION is related to _____ of the food:

- a) taste
- b) texture
- c) appearance
- d) protein content of the food

Q.47: In case of steam blanching the temperature is:

- a) $< 100^{\circ}\text{C}$
- b) $> 100^{\circ}\text{C}$
- c) $= 100^{\circ}\text{C}$
- d) None of the above

Q.48: The dehydration process which occurs at low air pressure and includes vacuum drum, shelf, vacuum belt and freeze dryers is called:

- a) Atmospheric dehydration
- b) Sub-atmospheric dehydration
- c) Both a and b
- d) None of the above

Q.49: The Ratio of vapour pressure of a food to the vapour pressure of pure water is called as:

- a) Relative humidity
- b) Latent heat of vaporization
- c) Water activity
- d) None of the above

Q.50: Microwaves are basically electromagnetic waves that have a frequency between _____.

- a) 100 *MHz* and 100 *GHz*
- b) 200 *MHz* and 200 *GHz*
- c) 300 *MHz* and 300 *GHz*
- d) 400 *MHz* and 400 *GHz*

Paper III: Advanced (Higher value questions)

Q.51: The cytoplasm of which of the following has granules:

- a) Neutrophils
- b) Eosinophils
- c) Basophils
- d) All of the above

Q.52: Which of the following migrate to the site of infection and have a surface peptide that acts as receptors for foreign antigens?

- a) Helper T-Cells
- b) Killer T-Cells
- c) Memory T-cells
- d) Suppressor T-Cells

Q.53: Which of the following decreases the Cardiac Output?

- a) Change of posture
- b) Hypovolemia
- c) Myocardial Ischemia and Infarction
- d) All of the above

Q.54: Which of the following correctly depicts the sequence of events in a Respiratory cycle?

- a) Inspiratory Phase-Expiratory Phase-Pause
- b) Expiratory Phase- Pause- Inspiratory Phase- Pause
- c) Expiratory Phase - Inspiratory Phase- Pause
- d) Inspiratory Phase- Pause- Expiratory Phase-Pause

Q.55: Among the 4 layers, the '*Outer covering*' of the wall of the gastrointestinal tract is called as:

- a) Submucous layer
- b) Mucous layer
- c) Meissner's plexus
- d) Adventitia

Q.56: The kidney blood flow normally is approximately _____ ml per minute.

- a) 200
- b) 600
- c) 700
- d) 1200

Q.57: The midbrain, pons and medulla are together referred to as:

- a) hypothalamus
- b) brainstem
- c) corpus callosum
- d) thalamus

Q.58: The most abundant group of phospholipids in the cell membranes are called:

- a) Phosphatidic acid
- b) Cephalins
- c) Lecithin
- d) Cardiolipin

Q.59: Which of the following Amino acids contains a hydroxyl (-OH) group?

- a) Glycine
- b) Threonine
- c) Alanine
- d) Tryptophan

Q.60: Nucleic acids are the polymers of nucleotides held by _____ phosphate bridges.

- a) 1' and 5,
- b) 2' and 5'
- c) 2' and 4'
- d) 3' and 5'

Q.61: Which of the following is an aldotetrose?

- a) D-Threose
- b) D-Lyxose
- c) D-Ribose
- d) D-Gulose

Q.62: The active form of Vitamin D is called:

- a) cholecalciferol
- b) ergocalciferol
- c) 1,25 dihydroxycholecalciferol
- d) 7-dehydrocholesterol

Q.63: Tyrosine is the precursor for the synthesis of catecholamine/s, namely:

- a) dopamine
- b) melanin
- c) tryptophan
- d) all of the above

Q.64: Hypouricemia is the condition in which the level of uric acid in the blood is _____.

- a) < 2 mg/dl
- b) < 5mg/dl
- c) <7mg/dl
- d) None of the above

Q.65: Which of the following signs of an iron deficiency appear at the end of a long sequence of events.

- a) Covert signs
- b) Overt signs
- c) Biochemical signs
- d) None

Q.66: The lab test used to determine the state of nitrogen balance is the:

- a) Serum albumin
- b) Hemoglobin
- c) Urinary urea nitrogen
- d) Serum transferrin

Q.67: The anthropometric measure that gives an estimate of subcutaneous fat measures the:

- a) weight
- b) mid upper arm circumference
- c) mid upper arm muscle circumference
- d) triceps skinfold thickness

Q.68: A dietary analysis that requires the nurse or dietician to keep accurate records of what the patient consumes in a 24 hour period while at the same time a 24- hour urine test is done, evaluates:

- a) Glucose tolerance
- b) Basal metabolism
- c) Protein metabolism
- d) Kidney function

Q.69: The Principal nutritional deficit in case of kwashiorkor occurs because of:

- a) Protein
- b) Calories
- c) Glucose
- d) Both a and b

Q.70: The World Health Organization (WHO) was created in the year _____.

- a) 1928
- b) 1938
- c) 1948
- d) 1958

Q.71: The release of the gastric secretions is stimulated by:

- a) Nerve stimuli
- b) Hormonal stimuli
- c) The presence of food in the stomach
- d) All of the above

Q.72: Which of the following is not a means of absorption in the small intestine?

- a) Energy-dependent active transport
- b) Pinocytosis
- c) Electrochemical transport
- d) None of the above

Q.73: The active transport of some nutrients such as glucose into the cell requires:

- a) The vacuole formation mechanism
- b) A lipid permeable carrier
- c) A sodium-potassium pump
- d) Phagocytosis

Q.74: Which of the following is hypoglycemic in nature?

- a) Glucagon
- b) steroids
- c) epinephrine
- d) insulin

Q.75: An amino acid residue that is capable of being converted into glucose or fat is called:

- a) glycogenic
- b) ketogenic
- c) ergogenic
- d) zymogenic

Q.76: The newer term for the effect of food intake rate is:

- a) Thermic effect of food
- b) Resting metabolic rate
- c) Specific dynamic action of food
- d) None of the above

Q.77: The fat cell theory suggests that people are obese because:

- a) they have too many white fat cells
- b) their fat cells are different than thin people's fat cells
- c) fat cells remain and store varying amounts of fat
- d) their fat cells rob the body of all the nutrients

Q.78: An acceptable weight gain during pregnancy for the normal-weight woman is:

- a) 5-10 pounds
- b) 15-20 pounds
- c) 25-30 pounds
- d) 35-40 pounds

Q.79: During pregnancy, insulin requirements for a diabetic woman:

- a) increase
- b) decrease
- c) decrease gradually
- d) remain the same

Q.80: Cow's milk is not recommended for infants during the early months because:

- a) it is not nutritionally adequate
- b) it does not contain enough protein
- c) it contains too much fat and is not easily digested
- d) it is too concentrated and may cause gastrointestinal bleeding

Q.81: The condition characterized by a distorted body image and self-starvation is called:

- a) bulimia
- b) binge and purge
- c) anorexia
- d) anorexia nervosa

Q.82: For the body to maintain a high level of steady exercise:

- a) there must be ample fat stores
- b) there must be sufficient oxygen available to the cells
- c) the body must revert to aerobic phase of metabolism
- d) energy expenditure must decrease

Q.83: The nutrient needed to maintain the immune system, sustain the mucosal tissues and secretions, and produce antibodies is:

- a) fatty acids
- b) proteins
- c) vitamin A and zinc
- d) all of the above

Q.84: A therapeutic diet is one that has been altered in:

- a) nutrient content, energy value, texture
- b) energy value and texture
- c) nutrient content, temperature, spice content
- d) energy value, temperature, cooking method

Q.85: Symptoms such as weakness, nausea, anorexia, vomiting and apprehension indicate a deficiency of:

- a) thiamin
- b) vitamin C
- c) potassium
- d) protein

Q.86: The antigen-antibody complexes formed during immune complex diseases lead to lesions that affect the function of _____ in the kidney.

- a) tubules
- b) glomerulus
- c) secretion
- d) reabsorption

Q. 87: The bone diseases of osteodystrophy develops because of the kidney's inability to:

- a) excrete calcium
- b) activate vitamin D
- c) absorb vitamin D
- d) reabsorb protein

Q.88: Clinical symptoms of hepatic encephalopathy include:

- a) asterixis
- b) confusion and impaired motor function
- c) fetor hepaticus
- d) all of the above

Q.89: The water content of the given food can be determined by which of the following:

- a) Gravimetric method
- b) Volumetric method
- c) Near infrared spectroscopy
- d) All of the above

Q.90: Which of the following microorganisms are classified as GRAS (Generally Regarded As Safe)?

- a) *Bacillus subtilis*
- b) *Bacillus cereus*
- c) *Clostridium perfringens*
- d) *Vibrio mimicus*

Q.91: The freezing point of a solvent _____ when a solute dissolves in it.

- a) Increases
- b) Depresses
- c) Remains unchanged
- d) Maximizes

Q.92: Coffee flowers are mostly _____ in colour.

- a) Pink
- b) Brown
- c) White
- d) Red

Q.93: The instruments like Mixogram and Farinograph are used to determine the quality and quantity of _____ which flour can yield.

- a) Protein
- b) Dough
- c) Gluten
- d) Flavour

Q.94: Milk is well buffered by _____ and _____.

- a) Calcium and protein
- b) Proteins and phosphates
- c) Casein and albumin
- d) Calcium and phosphates

Q.95: The small holes of an egg shell are covered with a gelatinous material called as:

- a) Cuticle
- b) Calcite
- c) Matrix
- d) Chalaza

Q.96: The additives used to preserve meats and give them a desirable colour and flavour and also discourage the growth of microorganisms in them, are called as:

- a) Chelating agents
- b) Antioxidants
- c) Humecants
- d) Curing agents

Q.97: Yeasts grow well in _____ in the presence of sugar and _____.

- a) Acidic medium; proteins
- b) Slightly acidic medium; water
- c) Alkaline medium; proteins
- d) Slightly alkaline medium; water

Q.98: Light destroys:

- a) Vitamin B₂
- b) Vitamin A
- c) Vitamin C
- d) All of the above

Q.99: Most bacteria, yeasts and molds show a growth optimum between _____.

- a) 16°-38° C
- b) 36°-58° C
- c) 56°-78° C
- d) 76°-98° C

Q.100: Which of the following is the most commonly used cryogenic liquid?

- a) Liquid carbon dioxide
 - b) Liquid oxygen
 - c) Liquid nitrogen
 - d) Frozen water
- 