COMMON P. G. ENTRANCE TEST – 2024 (CPET-2024)

Test Booklet No. : 00507

Subject Code : 12 **Hall Ticket No. :**

Subject : FOOD SCIENCE AND NUTRITION

TEST BOOKLET

*Time Allowed : **60** Minutes* *Full Marks : **80***

: INSTRUCTIONS TO CANDIDATES :

1. The Test Booklet contains **16** pages including the cover page and **80** (Question Nos. 1 to 80) multiple choice questions.
2. DO NOT break open the seal of the Test Booklet until the invigilator instructs to do so.
3. The candidates must check discrepancy, if any (like up-printed or torn or missing pages or missing questions) in the Test Booklet immediately after breaking the seal of the Test Booklet. If detected, the invigilator may be requested to replace the same.
4. Candidates are required to fill up and darken the **Hall Ticket No., Test Booklet Serial No.** and OMR Answer Sheet Serial No. in attendance sheet carefully. Wrongly filled in OMR Answer Sheet is liable for rejection.
5. Each question has four choices / answers marked (A), (B), (C), (D). Candidate has to select the most appropriate choice / answer to each question and darken the oval completely against the question number provided in the OMR Answer Sheet.
6. Indicate only one choice / answer from the options provided by darkening the appropriate oval in the OMR Answer Sheet. More than one response to a question shall be treated as a wrong answer.
7. Use only **Black Ball Point Pen** for darkening the oval for answering.
8. All the questions are compulsory and they carry equal marks. The total marks scored by a candidate depends on the number of correct choices / answers darkened in the OMR Answer Sheet. There will be no negative marking for wrong answers.
9. No candidate shall be allowed to leave the Examination Hall / Room till all OMR Answer Sheets have been collected by the invigilator.
10. On completion of the entrance test, the original OMR Answer Sheet be handed over to the invigilator. Candidates are allowed to take the second copy of the OMR Answer Sheet along with the used Test Booklet for reference.
11. Candidates are not allowed to carry any personal belongings including electronic devices such as scientific calculator, cell phones, headphones, earbuds, or any other type of devices that allow communication of any kind inside the Examination Room / Hall.
12. The candidates are advised not to scribble or make any mark on the OMR Answer Sheet except marking the answers at the appropriate places and filling up the details required. Rough work, if any, may be done in the blank sheet(s) provided at the end of the Test Booklet.
13. Any malpractice / use of unfair means will lead to your disqualification from the entrance test / admission process and may also lead to appropriate legal action as deemed fit.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

SEAL

1. The enzyme used in fruit juice industry :

(A) Pectin
(B) Gelatin
(C) Fixin
(D) Bromalin

2. In putrefaction, unpleasant ammonia like smell is produced by the action of enzymes on :

(A) Carbohydrates
(B) Lipids
(C) Nitrogenous compounds
(D) None of these

3. Cereal and legumes are the examples of :

(A) Stable foods
(B) Perishable foods
(C) Semi-Perishable foods
(D) All of these

4. Malic is an organic acid present in :

(A) Mango
(B) Grapes
(C) Apple
(D) Citrus

5. Monosodium glutamate (MSG) is used as :

(A) Color
(B) Texture conditioner
(C) Flavor enhancer
(D) All of these

6. Goiter is the deficiency disease of :

(A) Magnesium
(B) Iron
(C) Iodine
(D) Zinc

7. Which of the following is not sulfur containing amino acid ?

(A) Cystein
(B) Homocysteine
(C) Methionine
(D) Arginine

8. Magnesium is the part of :

(A) Lycopene
(B) β-carotene
(C) Anthocynin
(D) Chlorophyll

9. Vitamin B-6 is also known as :

(A) Niacin
(B) Biotin
(C) Pyridoxine
(D) Folic acid

10. Raffinose is an example of _____ carbohydrates.

(A) Polysaccharides
(B) Disaccharides
(C) Trisaccharides
(D) Monosaccharides

11. The Vitamin which help the eye to adjust vision in dim light is :

(A) Vitamin A
(B) Vitamin D
(C) Vitamin E
(D) Vitamin K

12. Amino acid essential for children is :

(A) Alanine
(B) Arginine
(C) Histidine
(D) Cysteine

13. Number of naturally occurring amino acids are :

(A) 24
(B) 20
(C) 18
(D) 22

14. Fats and oils can be made to mix with water in the presence of :

(A) Gelling agent
(B) Emulsifying agent
(C) Thickening agent
(D) All of these

15. Sugars when heated intensely turn brown due to :

(A) Oxidation
(B) Maillard's reaction
(C) Caramalization
(D) All of these

16. Which of the following sugar is not a monosaccharide ?

(A) Glucose
(B) Maltose
(C) Fructose
(D) Galactose

17. Which of the following contain higher amount of water ?

(A) Meat
(B) Potato
(C) Tomato
(D) Butter

18. Precursor of Vitamin A is :

(A) Lycopene
(B) β-carotene
(C) Anthocyanin
(D) Chlorophyll

19. Which of the following is not included in our indigenous product ?

(A) Laddoo
(B) Rasgulla
(C) Rasmalai
(D) Chocolate

20. Snack foods include :

(A) Maida and atta
(B) Fermented foods
(C) Roasted and fried foods
(D) All of these

21. The Vitamin associated with blood clotting is :

(A) Vitamin B
(B) Vitamin D
(C) Vitamin E
(D) Vitamin K

22. C_4 pathway of photosynthesis is an adaptation to :

(A) High light intensity
(B) Low light intensity
(C) Drought conditions
(D) High temperature

23. Which of the following statements is INCORRECT about pollination ?

(A) Self-pollination is more common than cross-pollination in angiosperms
(B) Wind is the main agent for pollination in maize
(C) Insects are attracted to brightly colored flowers with a sweet smell
(D) Pollination is essential for fertilization to occur

24. Mitosis is crucial for :

(A) Sexual reproduction only
(B) Asexual reproduction only
(C) Both sexual and asexual reproduction
(D) Neither sexual nor asexual reproduction

25. Which of these Vitamins is essential for the germination of pollen grains ?

(A) Vitamin A
(B) Vitamin C
(C) Vitamin B complex
(D) Vitamin D

26. The seed coat in angiosperms develops from the :

(A) Integuments
(B) Ovule
(C) Endosperm
(D) Microspore

27. The phenomenon of immediate wilting observed when a plant root is cut is primarily due to the disruption of :

(A) Translocation of minerals
(B) Transpiration pulls
(C) Root pressure
(D) Photosynthesis

28. In C_3 plants, the first stable product formed during CO_2 fixation in the Calvin cycle is :

(A) Glucose
(B) Ribulose 1,5-bisphosphate (RuBP)
(C) Glyceraldehyde 3-phosphate (G3P)
(D) Phosphoenolpyruvate (PEP)

29. Kranz anatomy, a special adaptation in C_4 plants, involves :

(A) Presence of bundle sheath cells with high RuBisCO concentration
(B) Spatial separation of C4 and Calvin cycle enzymes
(C) Presence of stomata on the lower leaf surface only
(D) All of these

30. Match the following plant families with their characteristic features :

(I) Fabaceae	(i) Presence of reticulate venation and superior ovary
(II) Poaceae	(ii) Compound leaves and nitrogen-fixing nodules
(III) Asteraceae	(iii) Hollow stem and parallel venation
(IV) Solanaceae	(iv) Composite inflorescence and pappus

(A) (I) – (ii), (II) – (iii), (III) – (iv), (IV) – (i)
(B) (I) – (i), (II) – (iv), (III) – (iii), (IV) – (ii)
(C) (I) – (iii), (II) – (i), (III) – (ii), (IV) – (iv)
(D) (I) – (iv), (II) – (ii), (III) – (i), (IV) – (iii)

31. In the process of photorespiration, the enzyme responsible for the initial fixation of oxygen onto RuBP is :

(A) Rubisco (ribulose-1, 5-bisphosphate carboxylase/oxygenase

(B) Phosphoenolpyruvate carboxylase (PEPC)

(C) Glyceraldehyde 3-phosphate dehydrogenase (G3PDH)

(D) Cytochrome oxidase

32. In humans, the zona pellucida surrounding the ovum is a glycoprotein layer that functions in :

(A) Sperm motility

(B) Sperm-egg recognition

(C) Allowing polyspermy

(D) Facilitating fertilization

33. Which of the following statements about the three germ layers in animals is incorrect ?

(A) Ectoderm gives rise to the nervous system and epidermis

(B) Mesoderm gives rise to muscles and bones

(C) Endoderm gives rise to the lining of the digestive tract

(D) All three germ layers contribute to the formation of the heart

34. In the context of animal behaviour, which of the following best describes altruism ?

(A) Behaviour that benefits both the individual and its close relatives

(B) Behaviour that benefits the individual performing the behaviour at the expense of another individual

(C) Behaviour that benefits other individuals at the expense of the individual performing the beheviour

(D) Behaviour that does not provide any benefit to the individual or others in the population

35. Which of the following hormones is NOT directly involved in the regulation of blood sugar levels ?

(A) Insulin

(B) Glucagon

(C) Thyroxine

(D) Somatostatin

36. Which of the following hormones is responsible for the regulation of water reabsorption in the collecting ducts of the kidney ?

(A) Aldosterone
(B) Antidiuretic hormone (ADH)
(C) Atrial natriuretic peptide (ANP)
(D) Renin

37. In genetic engineering, restriction fragment length polymorphism (RFLP) analysis is used for :

(A) Inserting a desired gene into a host organism
(B) Identifying mutations in a DNA sequence
(C) Creating transgenic animals
(D) Mapping genes on chromosomes

38. In a population of organisms, which of the following factors would not contribute to genetic drift ?

(A) Small population size
(B) Non-random mating
(C) Natural selection
(D) Founder effect

39. Match the following :

(I) Corpus luteum	(i) Secretes progesterone to prepare the uterus for implantation
(II) Graafian follicle	(ii) Site of spermatogenesis in the testis
(III) Sertoli cells	(iii) Nourish and support developing sperm cells
(IV) Hypothalamus	(iv) Releases gonadotropin-releasing hormone (GnRH)
(V) Acrosome	(v) Mature ovarian follicle containing the secondary oocyte

(A) (I) – (i), (II) – (v), (III) – (iii), (IV) – (iv), (V) – (ii)
(B) (I) – (i), (II) – (v), (III) – (ii), (IV) – (iv), (V) – (iii)
(C) (I) – (iii), (II) – (v), (III) – (i), (IV) – (iv), (V) – (ii)
(D) (I) – (i), (II) – (iv), (III) – (iii), (IV) – (ii), (V) – (v)

40. **Assertion and Reason :**

Assertion (A) : Restriction fragment length polymorphism (RFLP) analysis can be used to diagnose genetic diseases.

Reason (R) : RFLP analysis identifies variations in DNA fragment lengths, which can be linked to specific mutations.

(A) Both A and R are true, and R is the correct explanation of A

(B) Both A and R are true, but R is not the only correct explanation of A

(C) A is true, but R is false

(D) A is false, but R is true

41. **Assertion and Reason :**

Assertion (A) : The presence of a three-chambered heart (two auricles and one ventricle) in reptiles is an adaptation for a partially poikilothermic lifestyle.

Reason (R) : Mixing of oxygenated and deoxygenated blood in the single ventricle reduces metabolic rate, a characteristic of poikilotherms.

(A) Both A and R are true, and R is the correct explanation of A

(B) Both A and R are true, but R is not the only correct explanation of A

(C) A is true, but R is false

(D) A is false, but R is true

42. Which of the following is a major challenge in the development of plant-based meat alternatives ?

(A) Replicating the texture and mouthfeel of meat

(B) Mimicking the nutritional profile of animal proteins

(C) Ensuring consumer acceptance of plant-based products

(D) All of these

43. Indicator organisms in food microbiology are used to :

(A) Directly detect the presence of foodborne pathogens

(B) Assess the overall sanitary quality of food

(C) Isolate and identify specific spoilage microorganisms

(D) Monitor the effectiveness of food preservation methods

44. The National Advisory Committee on Microbiological Criteria for Foods (NACMCF) is responsible for :

(A) Establishing science-based recommendations for safe levels of micro-organisms in foods

(B) Developing new food processing technologies

(C) Regulating the use of food additives

(D) Monitoring foodborne illness outbreaks

45. Dietary fiber is :

(A) A type of carbohydrate that is not fully digested by humans

(B) Important for gut health and promoting satiety

(C) May help reduce risk of chronic diseases like heart disease and type 2 diabetes

(D) All of these

46. The lactose intolerance condition is caused by :

(A) Deficiency of lactase enzyme, which is needed to digest lactose (milk sugar)

(B) An allergic reaction to milk proteins

(C) Autoimmune response to gut lining

(D) Excessive consumption of dairy products

47. What are probiotics ?

(A) Live microorganisms with health benefits when consumed

(B) Antibacterial compounds produced by lactic acid bacteria

(C) Enzymes used in cheese-making

(D) Artificial sweeteners derived from plants

48. Which of the following is the most heat-resistant bacterial endospore former commonly associated with food spoilage ?

(A) Escherichia coli

(B) Salmonella enterica

(C) Clostridium botulinum

(D) Staphylococcus aureus

49. Which of the following factors does NOT influence protein digestibility ?

(A) Source of protein (plant vs. animal)

(B) Degree of food processing

(C) Presence of anti-nutrients

(D) Vitamin and mineral content

50. What is the main concern regarding the use of trans fats in the food industry ?

(A) They are essential for maintaining desirable texture and shelf life in processed foods

(B) Consumption of trans fats is linked to increased risk of heart disease and stroke

(C) They are naturally occurring in high amounts in animal products

(D) They are difficult for the body to digest and absorb

51. Which of the following statements about human thermoregulation is FALSE ?

(A) Sweating helps to lose body heat through evaporation

(B) Shivering generates heat through muscle contraction

(C) Vasodilation increases blood flow to the skin, promoting heat loss

(D) The hypothalamus acts as the body's thermostat, regulating core temperature

52. Which Maillard reaction product can potentially contribute to mutagenic and carcinogenic effects ?

(A) Melanoidins (brown pigments)

(B) Strecker aldehydes (flavor compounds)

(C) Schiff bases (intermediates)

(D) Pyrazines (heterocyclic flavor compounds)

53. During high-temperature cooking of fats, undesirable volatile compounds can be formed. These compounds are primarily :

(A) Aldehydes and ketones

(B) Esters and alcohols

(C) Aliphatic hydrocarbons

(D) Aromatic hydrocarbons

54. Which of the following species can act as a Bronsted-Lowry acid ?

(A) NH_3

(B) F^-

(C) CO_3^{2-}

(D) CH_4

55. In the reaction : $Cr_2O_7^{2-} + 14H^+ + 6e^- \rightarrow 2\,Cr^{3+} + 7H_2O$, the dichromate ion ($Cr_2O_7^{2-}$) acts as a :

(A) Reducing agent
(B) Oxidizing agent
(C) Catalyst
(D) Spectator ion

56. Which of the following ionic compounds has the highest melting point ?

(A) NaCl
(B) MgO
(C) CaF_2
(D) CsI

57. A 0.1 M solution of NaCl has a higher boiling point compared to pure water because :

(A) NaCl dissociates into ions
(B) NaCl is more polar than water
(C) NaCl has a higher molar mass
(D) All of these

58. Colligative properties of a solution depend on the :

(A) Identity of the solute
(B) Concentration of solute particles
(C) Both (A) and (B)
(D) Neither (A) nor (B)

59. In the complex ion $[Fe(CN)_6]^{3-}$, the central metal ion Fe is in the :

(A) + 2 oxidation state
(B) + 3 oxidation state
(C) 0 oxidation state
(D) Cannot be determined from the information provided

60. According to the Heisenberg uncertainty principle, it is impossible to know precisely the :

(A) Position and momentum of a particle simultaneously
(B) Energy and wavelength of light simultaneously
(C) Charge and mass of an electron simultaneously
(D) All of these

61. Heterogeneous catalysts provide a surface for the reaction to occur while remaining chemically unchanged. An example is :

(A) Enzymes (biological catalysts)
(B) Palladium used in hydrogenation reactions
(C) Hydrochloric acid (strong acid)
(D) Sodium hydroxide (strong base)

62. Kwashiorkor is deficiency disease of :

(A) Carbohydrates
(B) Proteins
(C) Iron
(D) Vitamin D

63. Complex nitrogenous compound of high molecular weight are :

(A) Carbohydrates
(B) Proteins
(C) Lipids
(D) Enzymes

64. Oxidative rancidity is catalyzed by :

(A) Oxidase
(B) Lipase
(C) Inorganic element
(D) Ligase

65. The stored reserved carbohydrates in animal body is :

(A) Pectin
(B) Agar
(C) Glycogen
(D) Starch

66. Any change that renders food unfit for human consumption is called :

(A) Processing
(B) Spoilage
(C) Deterioration
(D) Preservation

67. Oxalate is present in higher concentration in :

(A) Legumes
(B) Spinach
(C) Cabbage
(D) Pea

68. Osteomalacia is the deficiency disease of :

(A) Vitamin B
(B) Vitamin D
(C) Vitamin E
(D) Vitamin K

69. Which enzyme is present in malted beverages ?

(A) Lipase
(B) Protease
(C) Amylase
(D) Phenolase

70. Stimulating effect of coffee is due to :

(A) Caffeol
(B) Caffeone
(C) Caffeine
(D) Tanin

71. Sucrose is commonly referred to as _____.

(A) Salt
(B) Sugar
(C) Carbohydrate
(D) Glucose

72. What percent of the adult body is made up of water ?

(A) Fifty-five
(B) Seventy-five
(C) Sixty-five
(D) Eighty-five

73. An adult should drink how many glasses of water per day ?

(A) 6 to 8
(B) 5 to 7
(C) 7 to 9
(D) 8 to 10

74. Action of penicillin on bacterial cell wall enzyme transpeptidase is an example of :

(A) Irreversible inhibition
(B) Competitive inhibition
(C) Non-competitive inhibition
(D) Suicidal inhibition

75. Which of the following microbe is used in the production of blue cheese ?

(A) Streptococcus thermophilus
(B) Lactobacillus bulgaricus
(C) Penicillium roqueforti
(D) Rhizopus stolonifera

76. Taq DNA polymerase is used in PCR due to which of its following activity ?

(A) Polymerase activity
(B) Proofreading activity
(C) High fidelity
(D) Thermal stability

77. Proteins which on complete hydrolysis yield only amino acids as an end product are :

(A) Conjugated Proteins
(B) Simple Proteins
(C) Derived Proteins
(D) Complex Proteins

78. Proteins which are attached on non-protein substances or prosthetic group are :

(A) Conjugated Proteins
(B) Simple Proteins
(C) Derived Proteins
(D) Complex Proteins

79. Fatty acids which contain no double bonds between carbon atoms are :

(A) Polyunsaturated
(B) Saturated
(C) Monounsaturated
(D) Triglyceride

80. Which of the following is active form of Vitamin A ?

(A) Retinol
(B) Retinal
(C) Retinoic acid
(D) All of these

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