



FOR KUET EXAM PREPARATION

KUET 2023 Question Paper · M.Sc. Food Science and Technology

EXAM
KUET

YEAR
2023

TYPE
Question Paper

SUBJECT
M.Sc. Food Science and Technology

Sr. No.

ENTRANCE TEST-2023**SCHOOL OF APPLIED SCIENCES AND TECHNOLOGY****FOOD SCIENCE & TECHNOLOGY**

Question Booklet Series

A

Total Questions : 60

Time Allowed : 70 Minutes

Roll No. :

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Instructions for Candidates :

1. Write your Entrance Test 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 the 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 Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. 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.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be '**Negative Marking**' for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.
9. Do not make any stray mark on the OMR sheet.
10. Calculators and mobiles shall not be permitted inside the examination hall.
11. Rough work, if any, should be done on the blank sheets provided with the question booklet.
12. OMR Answer Sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.
13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/herself.
14. 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.

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[X]**[Turn over**

1. Electron carriers for oxidative phosphorylation are present in
 - (A) Outer mitochondrial membrane
 - (B) Mitochondrial intermembrane space
 - (C) Inner mitochondrial membrane
 - (D) Mitochondrial matrix
2. The DNA sequence that enables complete replication of linear chromosome is
 - (A) Origin of replication
 - (B) Kinetochore
 - (C) Centromere
 - (D) Telomere
3. Taq DNA polymerase is used in PCR due to its
 - (A) Polymerase activity
 - (B) Proofreading activity
 - (C) High fidelity
 - (D) Thermal stability
4. Enzymes that lead to formation of double bond are known as
 - (A) Transferase
 - (B) Hydrolase
 - (C) Lyase
 - (D) Isomerase
5. Cofactors that are tightly bound to the enzymes are called
 - (A) Cosubstrates
 - (B) Coenzyme
 - (C) Apoenzyme
 - (D) Prosthetic group
6. Action of penicillin on bacterial cell wall enzyme transpeptidase is an example of
 - (A) Irreversible inhibition
 - (B) Competitive inhibition
 - (C) Non-competitive inhibition
 - (D) Uncompetitive inhibition
7. Electron donor in the light reaction of photosynthesis is
 - (A) NADH
 - (B) NADPH
 - (C) Oxygen
 - (D) Water
8. Which plant hormone is used to destroy weeds in field?
 - (A) Indole butyric acid
 - (B) Indole acetic acid
 - (C) Naphthalene acetic acid
 - (D) 2, 4-dichlorophenoxy acetic acid
9. Which of the following micro-organism cannot fix atmospheric nitrogen?
 - (A) Escherichia coli
 - (B) Rhizobium
 - (C) Azotobacter
 - (D) Cyanobacteria
10. 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

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11. The complete destruction or elimination of all viable organisms in or on a substance is known as
 - (A) Sterilization
 - (B) Antisepsis
 - (C) Disinfection
 - (D) Sanitization
12. Micro-organisms with optimum growth temperature of 37 °C are called
 - (A) Psychrophiles
 - (B) Psychrotrophs
 - (C) Mesophiles
 - (D) Thermophiles
13. Which organ synthesizes mixture of digestive enzyme?
 - (A) Stomach
 - (B) Pancreas
 - (C) Small intestine
 - (D) Large intestine
14. Bile salts are synthesized by
 - (A) Stomach
 - (B) Pancreas
 - (C) Liver
 - (D) Gall bladder
15. Molecules of carbon are held together by which of the following bonds in Graphite?
 - (A) Ionic bond
 - (B) Hydrogen bond
 - (C) Covalent bond
 - (D) Van der Waals bond
16. What is the right way to mix water and acid?
 - (A) Slowly add water into acid while stirring the solution
 - (B) Slowly add acid into the water while stirring the solution
 - (C) Add acid into water and shake the solution
 - (D) None of these
17. A difference between strong and weak acid is
 - (A) proton donation and electron acceptance
 - (B) complete and partial ionization
 - (C) negative and positive pH
 - (D) presence and absence of halogen ions
18. Which one of the following is classified as polyester polymer?
 - (A) Nylon-66
 - (B) Bakelite
 - (C) Terylene
 - (D) Melamine
19. Which one of the following is not a polymer?
 - (A) Sucrose
 - (B) Enzyme
 - (C) Starch
 - (D) Teflon
20. Which of the following reagents causes alcohol substitution?
 - (A) PBr_3
 - (B) SOCl_2
 - (C) $\text{CH}_3\text{SO}_2\text{Cl}$
 - (D) All of the above
21. Which of the following types of reactions corresponds to the transformation of an alcohol into a ketone?
 - (A) Substitution
 - (B) Elimination
 - (C) Oxidation
 - (D) Deprotonation
22. Ozone is formed by _____ dissociation of molecular oxygen into individual oxygen atoms.
 - (A) Photochemical
 - (B) Thermochemical
 - (C) Thermal
 - (D) Ionic

23. What is the unit of force?
- (A) $(\text{kg} * \text{m}^2) / \text{s}$
 (B) $(\text{kg} * \text{m}) / \text{s}^2$
 (C) $\text{kg} / (\text{m}^2 * \text{s})$
 (D) $\text{kg} / (\text{m}^2 * \text{s}^2)$
24. The degree of the equation $\frac{d^3 y}{dx^3} + \frac{d^3 y}{dx^3} = 0$ is
- (A) $\frac{3}{2}$
 (B) 5
 (C) 4
 (D) 9
25. Which of the following is the shear thinning fluid?
- (A) Pseudo plastic
 (B) Dilatant
 (C) Rheopectic
 (D) Bingham plastic
26. In which of the following conditions Bernoulli equation can't be used?
- (A) Steady flow
 (B) Incompressible fluid
 (C) Viscous flow
 (D) Laminar flow
27. Sound waves of frequency less than 20 Hz is known as
- (A) Ultrasonic
 (B) Audible
 (C) Infrasonic
 (D) Supersonic
28. The relation between shear stress τ and velocity gradient of a fluid is given by, if $n > 1$, what type of fluid will it be?
- (A) Newtonian fluid
 (B) Dilatant
 (C) Pseudo plastic
 (D) Bingham plastic
29. The appropriate rate equation for convective heat transfer between a surface and adjacent fluid is prescribed by which law?
- (A) Kirchhoff's law
 (B) Newton's first law
 (C) Wein's displacement law
 (D) Newton's law of cooling
30. As the temperature increases, the thermal conductivity of a gas
- (A) Increases
 (B) Decreases
 (C) Remains constant
 (D) Increases up to a certain temperature and then decreases
31. The enthalpy of the system is given by $H = \text{Enthalpy}$, $E = \text{Internal energy}$, $P = \text{Pressure}$, $V = \text{Volume}$
- (A) $H = E - PV^2$
 (B) $H = E - PV$
 (C) $H = E + PV$
 (D) $H = E - P^2V$
32. $\lim_{x \rightarrow 0} \frac{1 + x^{\frac{1}{3}} - e}{x}$
- (A) e
 (B) -e
 (C) -2e
 (D) $\frac{-e}{2}$

33. If $z = x + iy$, then the number of solutions of the equation $z^2 = \bar{z}$ is
- one
 - two
 - four
 - infinite
34. The real part of complex number $(1 + i)^n$ is
- $2^{\frac{n}{2}} \cos \frac{np}{4}$
 - $2^n \cos \frac{np}{2}$
 - $2^{\frac{-n}{2}} \cos np$
 - $2^{-n} \cos \frac{np}{2}$
35. The correct polar form of the complex number $(1 - i)$ is
- $\sqrt{2}e^{\frac{p_i}{4}}$
 - $e^{\frac{p_i}{4}}$
 - $\sqrt{2}e^{-\frac{p_i}{4}}$
 - $e^{-\frac{p_i}{4}}$
36. The integrating factor of $x \frac{dy}{dx} + (3x + 1)y = xe^{-2x}$ is
- xe^{3x}
 - $3xe^x$
 - xe^x
 - x^3e^{3x}
37. Let A be a matrix of order $m \times n$ and B be a matrix of order $n \times p$, $n > p$. If $\text{rank}(A) = n$ and $\text{rank}(B) = p$ then the rank (AB) is
- n
 - p
 - np
 - $n + p$
38. Which hydrocolloid shows milk reactivity?
- Gum arabic
 - Tragacanth
 - Carrageenan
 - Guar gum
39. The preservative having maximum efficacy against *Clostridium botulinum* is
- Sodium benzoate
 - Parabens
 - Nitrites
 - Sulphur-dioxide
40. Preservative having maximum efficiency against rope forming organisms in bread is:
- Sodium benzoate
 - Sulphur dioxide
 - Nitrites
 - Calcium propionate
41. The preservative having activity both in acidic as well as alkaline pH is:
- Sodium benzoate
 - Sorbic acid
 - Parabens
 - Propionic acid
42. An acidulant that is not a sequesterant is
- Acetic acid
 - Citric acid
 - Phosphoric acid
 - Tartaric acid

43. Among the following fatty acids, which group is known as essential fatty acids?
- 9,11-Octadecadienoic and 9,11,13-Octadecatrienoic
 - 9,12-Octadecadienoic and 9,12,15-Octadecatrienoic
 - 9-Octadecenoic and 9,11-Octadecadienoic
 - 9,11-Octadecadienoic and 9-Eicosenoic
44. The iodine number of a fat measures
- its amphipathic character.
 - the number of phosphate groups in the molecule.
 - its degree of unsaturation.
 - the number of hydroxyl groups present.
45. Kawashiorkor disease is caused due to the deficiency of
- Lysine
 - Essential fatty acids
 - Vitamin K
 - Protein
46. The primary bacterial spoilage of poultry meat at low temperature, with characteristic sliminess at outer surface, is caused by
- Pseudomonas spp.*
 - Aspergillus spp.*
 - Bacillus spp.*
 - Candida spp.*
47. The weight gains (in gram) per gram protein consumed is called
- Net Protein Ratio (NPR)
 - Biological Value (BV)
 - Protein Efficiency Ratio (PER)
 - Chemical Score (CS)
48. The brown colour of bread crust during baking is due to Maillard reaction between
- aldehyde groups of sugars and amino groups of proteins
 - aldehyde groups of sugars and vitamins
 - aldehyde groups of sugars and salt
 - starch and yeast
49. Reassociation of amylose and formation of crystalline structure upon cooling of cooked starch solution is termed as
- Synersis
 - Gelatinization
 - Retrogradation
 - Denaturation
50. The basal metabolic rate (BMR) is the energy needed by a resting individual. The factors with the least effect on the BMR is the
- sex of the individual
 - age of the subject
 - body composition of the individual
 - mental activity of the subject
51. Which of the following is the definition of K_m (the Michaelis constant)?
- The half maximal velocity.
 - The velocity when substrate and product are at 1 molal concentrations.
 - The concentration of substrate required to give half maximal velocity
 - The velocity at saturating concentrations of substrate

52. Fat bloom is a defect occurring in chocolate products due to improper
- refining
 - tempering
 - conching
 - packaging
53. The term HACCP stands for
- Hygiene Associated Critical Control Point
 - Hazard Analysis and Critical Commercial Point
 - Hygienic and Aesthetic Concept of Critical Products
 - Hazard Analysis and Critical Control Point
54. Gluten in wheat flour dough is made up of gliadin and
- Albumin
 - Globulin
 - Prolamin
 - Glutenin
55. The key enzyme involved in enzymatic browning of fruits or vegetables is
- Peroxidase
 - Polyphenol oxidase
 - Catalase
 - Cholesterol Oxidase
56. Which microorganism is used as indicator in water analysis?
- S. typhi*
 - E. coli*
 - K. pneumoniae*
 - P. aeruginosa*
57. Which one of the following minerals regulates the acid - base balance of the body ?
- Ca
 - Na
 - K
 - Fe
58. Enzyme involved in conversion of sugar into glucose and fructose is
- maltase
 - zymase
 - invertase
 - diastase
59. Fruit juices are deaerated before pasteurization processing, in order to
- Reduce fouling of pasteurizer
 - Decrease the rate of heat transfer
 - Reduce oxidation reaction
 - All of the above
60. Which of the following enzyme is used for tenderization of meat?
- Renin
 - Papain
 - Trypsin
 - Lipase

ROUGH WORK

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