



Name: Roll No.:

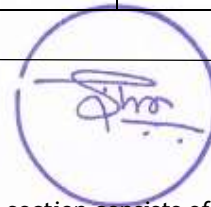
Branch: Signature of Invigilator:

Semester: IVth Date:

Subject with Code: FT209 FOOD ANALYSIS

Marks Obtained	Section A (30)	Section B (20)	Total Marks (50)

INSTRUCTION TO CANDIDATE



1. The booklet (question paper cum answer sheet) consists of two sections. First section consists of MCQs of 30 marks. Candidates may mark the correct answer in the space provided / may also write answers in the answer sheet provided. The Second section of question paper consists of subjective questions of 20 marks. The candidates may write the answers for these questions in the answer sheets provided with the question booklet.
2. The booklet will be distributed to the candidates before 05 minutes of the examination. Candidates should write their roll no. in each page of the booklet.
3. Place the Student ID card, Registration Slip and No Dues Clearance (if applicable) on your desk. All the entries on the cover page must be filled at the specified space.
4. Carrying or using of mobile phone / any electronic gadgets (except regular scientific calculator)/chits are strictly prohibited inside the examination hall as it comes under the category of unfair means.
5. No candidate should be allowed to enter the examination hall later than 10 minutes after the commencement of examination. Candidates are not allowed to go out of the examination hall/room during the first 30 minutes and last 10 minutes of the examination.
6. Write on both side of the leaf and use pens with same ink.
7. The medium of examination is English. Answer book written in language other than English is liable to be rejected.
8. All attached sheets such as graph papers, drawing sheets etc. should be properly folded to the size of the answer book and tagged with the answer book by the candidate at least 05 minutes before the end of examination.
9. The door of examination hall will be closed 10 minutes before the end of examination. Do not leave the examination hall until the invigilators instruct you to do so.
10. Always maintain the highest level of integrity. Remember you are a BITian.
11. Candidates need to submit the question paper cum answer sheets before leaving the examination hall.

BIRLA INSTITUTE OF TECHNOLOGY, MESRA : RANCHI
(END SEMESTER EXAMINATION)

CLASS : IMSC	SEMESTER : IV
BRANCH : CHEMICAL ENGG	SESSION : SP-22
TIME : 2.00 HOURS	FULL MARKS : 50

Subject with Code : FT 209 Food Analysis

INSTRUCTIONS:

1. This question paper contains 30 MCQ each of 1 mark and 20 short questions total 50 marks.
 2. Candidates require to attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph Paper etc. to be supplied to the candidates in the examination hall
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1. Systematic errors leads to lack of
 - A. Accuracy in the measurements
 - B. Significant digits in the measurements
 - C. Precision in the measurements
 - D. Gradation of the measuring instrument
2. Poor precision in the scientific measurement may occur from
 - A. The standard being too strict
 - B. Human error
 - C. Limitation of the measuring instrument
 - D. Both human error and limitation of the measuring instrument
3. A food chemist frequently carries out the complex experiment is likely to have
 - A. Accuracy, but low precision
 - B. Accuracy
 - C. Precision
 - D. Precision, but low accuracy
4. Which of the following will give a more accurate representation of the population from which a sample has been taken?
 - A. A large sample based on the convenience sampling technique

- B. A small sample based on simple random sampling
 - C. A small cluster sample
 - D. A large sample based on simple random sampling
5. Increasing the sample size has the following effect upon the sampling error?
- A. It increases the sampling error
 - B. It reduces the sampling error
 - C. It has no effect on the sampling error
 - D. All of the above
6. The difference between a statistic and the parameter is called:
- A. Non-random
 - B. Probability
 - C. Sampling error
 - D. Random
7. The equilibrium between water and its vapour in an open vessel
- A. can be achieved
 - B. depends upon pressure
 - C. cannot be achieved
 - D. depends upon temperature
8. Le Chatelier Principle is applicable to
- A. heterogeneous reaction
 - B. homogeneous reaction
 - C. irreversible reaction
 - D. system in equilibrium
9. The chemical equilibrium of a reversible reaction is not influenced by
- A. Temperature
 - B. Pressure
 - C. Catalyst
 - D. Concentration
10. Basicity of the organic acid can be determined by
- A. Conductometry
 - B. Refractometry
 - C. No-aqueous titration
 - D. Complexometry

11. For the detection of amino acid via thin layer chromatography, the best reagent is
 - A. Ninhydrine
 - B. Iodine
 - C. Copper sulfate
 - D. Potassium permanganate
12. Which of the following can not be used as carrier gas for gas chromatography?
 - A. Hydrogen
 - B. Nitrogen
 - C. Helium
 - D. Oxygen
13. Gel chromatography method separates different substance depending on their
 - A. Molecular size
 - B. Molecular weight
 - C. Density
 - D. Viscosity
14. To explain the column efficiency, two theories, i.e., plate and rate theories has been proposed. They are related to
 - A. HPLC
 - B. Gel chromatography
 - C. Gas chromatography
 - D. Paper chromatography
15. The D and L isomer forms can be distinguished by
 - A. Polarimetry
 - B. Refractometry
 - C. Potentiometry
 - D. Conductometry
16. The principle of separation in ion-exchange chromatography is
 - A. Adsorption
 - B. Partition
 - C. Reversible exchange of functional groups
 - D. Chemical reactions
17. The following electron transition is not observed in UV spectra is
 - A. $\pi-\pi^*$
 - B. $\sigma-\sigma^*$

- C. $n-\sigma^*$
 - D. $n-\pi^*$
18. How many ^1H NMR signals given by acetone
- A. one
 - B. Two
 - C. Three
 - D. six
19. A monochromator is not used in which instrument
- A. Spectrofluorimetry
 - B. UV spectrometry
 - C. FT-IR spectrometer
 - D. IR spectrometer
20. What is permeate?
- A. Fluid that has retained in semi-permeable membrane
 - B. Fluid that has passed through semi-permeable membrane
 - C. Fluid that has to be passing through semi-permeable membrane
 - D. The residue after filtration
21. The speed of migration of ions in electric field depends upon:
- A. Shape and size of molecule
 - B. Magnitude of charge and shape of molecule
 - C. Magnitude of charge shape and mass of molecule
 - D. Magnitude of charge and mass of molecule
22. What is the driving force in Microfiltration?
- A. Pressure difference
 - B. Pervaporation
 - C. Difference in fugacity
 - D. Concentration difference
23. The agglomeration of destabilized particles into large particles is called
- A. Sedimentation
 - B. Coagulation
 - C. Flocculation
 - D. Disinfection
24. What is sedimentation principle?
- A. Centrifugal acceleration

- B. Gravity
 - C. Electromagnetism
 - D. Gravity, centrifugal acceleration and electromagnetism
25. What are factors that affect high-speed centrifuges?
- A. Speed and temperature
 - B. Pressure and temperature
 - C. Concentration and speed
 - D. Pressure and speed
26. What does the solid-liquid separation operation don't involve?
- A. Gravity sedimentation
 - B. Magnetic separation
 - C. Filtration
 - D. Centrifugation
27. PCR is a DNA amplifying in vivo method.
- A. True
 - B. False
28. The type of DNA amplification where the region of DNA amplified lies on either side of a known segment
- A. RT-PCR
 - B. Anchored – PCR
 - C. Inverse – PCR
 - D. Nested – PCR
29. Thermal analysis is defined as
- A. Measurement of concentration of materials as a function of temperature
 - B. Measurement of solubility of materials as a function of temperature
 - C. Measurement of physical properties as a function of temperature
 - D. Measurement of line positions of crystals as a function of temperature
30. The scanning electron microscope is used to examine
- A. Antigens
 - B. Antibodies
 - C. Anticoagulants
 - D. Cell surfaces

Short questions:

1. Define isoelectric focusing techniques. [3]
 2. What are the differences between volumetric and gravimetric analysis? [3]
 3. Describe the Lambert-Beer's Law. [4]
 4. Mention the difference between SEM and TEM. [4]
 5. How do you measure rheological properties of solid food? [3]
 6. What is the difference between ultrafiltration and ultracentrifugation? [3]
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