Test Booklet No. 01
This booklet consists of 150 questions and pages.

RGUPET/2025/1004/105

RGUPET 2025
Common Entrance Test, 2025
DOCTOR OF PHILOSOPHY IN FOOD TECHNOLOGY

Full Marks: 150 **Time: 3 Hours**

Roll No. | | | | | | | | |

Day and Date of Examination: _____

Signature of Invigilator(s) _____

Signature of Candidate _____

General Instructions:

PLEASE READ ALL THE INSTRUCTIONS CAREFULLY BEFORE MAKING ANY ENTRY.

1. DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. Candidate must write his/her Roll Number on the space provided.
3. This Test Booklet contains 150 Multiple Choice Questions (MCQs) from the concerned subject. Each question carries 1 mark.
4. Please check the Test Booklet to verify that the total pages and total number of questions contained in the test booklet are the same as those printed on the top of the first page. Also check whether the questions are in sequential order or not.
5. Candidates are not permitted to enter into the examination hall after the commencement of the entrance test or leave the examination hall before completion of Examination.
6. Making any identification mark in the OMR Answer Sheet or writing Roll Number anywhere other than the specified places will lead to disqualification of the candidate.
7. Candidates shall maintain silence inside and outside the examination hall. If candidates are found violating the instructions mentioned herein or announced in the examination hall, they will be summarily disqualified from the entrance test.
8. In case of any dispute, the decision of the Entrance Test Committee shall be final and binding.
9. The OMR Answer Sheet consists of two copies, the Original copy and the Student's copy.

1	The "Mission Sudarshan Chakra", recently launched by the Prime Minister of India, primarily relates to				development of a multilayered air and missile defence system
	a) a national renewable energy mission	b) a national digital currency mission	c) development of a multilayered air and missile defence system	d) a national mission to modernise Indian Railways	(c)
2	"Pushpak"- a national mission being implemented by the Indian Institute of Technology, Bombay is related to the development of				Drone technology
	a) Helicopters	b) Dairy technology	c) Drone technology	d) Artificial intelligence	c)
3	North East India's first underwater tunnel project, announced in 2024, is proposed to connect				Numaligarh and Gohpur
	a) Dibrugarh and Dhemaji	b) Jorhat and Majuli	c) Numaligarh and Gohpur	d) Guwahati and North Guwahati	c)
4	Which of the following statements are correct? A. Canada hosted the 51st G7 summit in 2025. B. Four players were honoured with the Khel Ratna Award 2025. C. Sweden was ranked first in Global Innovation Index 2024. D. Operation Sindoor was Launched by India to attack terrorist bases in Pakistan on 7th May 2025.				(a)
	a) A, B and D	b) A,B and C	c) Only A	d) All of the above	A, B and D
5	Which of the followings are correct? A. Lip Butan has been appointed as the new CEO of Intel in March 2025 B. Shri C P Radhakrishnan has been appointed as the Vice President of India C. India's rank in the Human Development Index 2025 released by UNDP is 99 D. India has become the 2nd largest road network in the World.				(d)
	a) A and B only	b) A, B and C only	c) A, C and D only	d) A, B, D only	A, B, D only
6	Which of the following sentences is false? A. Palk Strait joins India and Sri Lanka B. The Radcliffe Line is between India and Bangladesh C. The MacMohan Line separates India and China D. The Durand Line is between Iran and Afghanistan.				
	a) A, B	b) B, C	c) C, D	d) B, D	(d)
7	Assertion (A): Eclipses do not occur on all full moon and new moon days. Reason (R): The moon revolves round the earth in an elliptical orbit.				A and R are true but R doesnot explain A

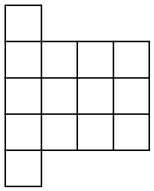
<table>
<tr><td></td><td>a) A and R are true and R correctly explains A.</td><td>b) A and R are true but R does not explain A.</td><td>c) A is true R is false</td><td>d) R is true but A is false</td><td>(b)</td></tr>
<tr><td>8</td><td colspan="4">Right to equality is a-</td><td>Fundamental right</td></tr>
<tr><td></td><td>a) fundamental right</td><td>b) social right</td><td>c) cultural right</td><td>d) legal right</td><td>(a)</td></tr>
<tr><td>9</td><td colspan="4">The author of the book “Midnight’s Children” is-</td><td>Salman Rushdie</td></tr>
<tr><td></td><td>a) Shakespeare</td><td>b) Leo Tolostoy</td><td>c) Salman Rushdie</td><td>d) R K Narayan</td><td>(c)</td></tr>
<tr><td>10</td><td colspan="4">Match the organizations with their headquarters:

<table><tr><td>A. UNESCO</td><td>1. New York</td></tr><tr><td>B. WHO</td><td>2. Paris</td></tr><tr><td>C. UNICEF</td><td>3. Geneva</td></tr><tr><td>D. IMF</td><td>4. Washington D.C.</td></tr></table></td><td></td></tr>
<tr><td></td><td>a) A–3, B–2, C–4, D–1</td><td>b) A–2, B–3, C–1, D–4</td><td>c) A–2, B–4, C–3, D–1</td><td>d) A–1, B–3, C–2, D–4</td><td>(b)</td></tr>
<tr><td>11</td><td colspan="4">He said, “Happy new year!”
The correct indirect speech of the above is-</td><td>He wished me a happy new year.</td></tr>
<tr><td></td><td>a) He said the new year was happy.</td><td>b) He wished me a happy new year.</td><td>c) He said to me that happy new year.</td><td>d) I was wished a happy new year.</td><td>(b)</td></tr>
<tr><td>12</td><td colspan="4">Identify the correct sentence(s) from the following.
A. One of my friends is a doctor.
B. I don’t know nothing about her.
C. It is a two-hour journey.
D. We will be definitely there at the yesterday’s programme.</td><td></td></tr>
<tr><td></td><td>a) A, B</td><td>b) B, C</td><td>c) A, C</td><td>d) C, D</td><td>(c)</td></tr>
<tr><td>13</td><td colspan="4">“She drank the _____ milk that was there in the flask.” The appropriate quantifier to fill in the blank is-</td><td>little</td></tr>
<tr><td></td><td>a) all</td><td>b) little</td><td>c) sour</td><td>d) few</td><td>(b)</td></tr>
<tr><td>14</td><td colspan="4">“a/ great /and/ reality/their/ theory/in/there/ disparity/is”
The correct reordered meaningful sentence with the above jumbled words/phrases is-

P. There is a great theory and their reality in disparity.
Q. There is a great disparity in their theory and reality.
R. Their great disparity is in a theory and reality there.
S. Their great theory is a reality and in disparity there.</td><td>There is a great disparity in their theory and reality.</td></tr>
<tr><td></td><td>a) P</td><td>b) Q</td><td>c) R</td><td>d) S</td><td>(b)</td></tr>
</table>

<table>
<tr><td>15</td><td colspan="4">The correct match of synonyms and antonyms is:

<table><tr><td>A. Futile</td><td>i. Help</td></tr><tr><td>B. Generic</td><td>ii. Effective</td></tr><tr><td>C. Hinder</td><td>iii. Individual</td></tr><tr><td>D. Inception</td><td>iv. Termination</td></tr></table></td><td>A-ii, B-iii, C-i, D-iv</td></tr>
<tr><td></td><td>a) A-i, B-ii, C-iii, D-iv</td><td>b) A-iii, B-ii, C-iv, D-iii</td><td>c) A-iv, B-iii, C-i, D-ii</td><td>d) A-ii, B-iii, C-i, D-iv</td><td>(d)</td></tr>
<tr><td>16</td><td colspan="4">The total number of squares in the following figure is:

  </td><td>22</td></tr>
<tr><td></td><td>a) 24</td><td>b) 20</td><td>c) 22</td><td>d) 18</td><td>(c)</td></tr>
<tr><td>17</td><td colspan="4">Fill in the blank in the following pattern.
ELFY GLHX ILJW -------- MLNU</td><td>KLLV</td></tr>
<tr><td></td><td>a) KLLV</td><td>b) KLMX</td><td>c) JLLV</td><td>d) JLMX</td><td>a)</td></tr>
<tr><td>18</td><td colspan="4">Raghav introduces Vineet as the only son of the only brother of his father’s wife. How Raghav and Vineet are related?</td><td>cousin</td></tr>
<tr><td></td><td>a) brother</td><td>b) cousin</td><td>c) uncle</td><td>d) son-in-law</td><td>(b)</td></tr>
<tr><td>19</td><td colspan="4">Which two numbers should be interchanged to make the given equation mathematically correct?
$3 \times 6 + 72 \div 8 - 24 = 12$</td><td>6, 8</td></tr>
<tr><td></td><td>a) 6, 8</td><td>b) 6, 24</td><td>c) 3, 8</td><td>d) None</td><td>(a)</td></tr>
<tr><td>20</td><td colspan="4">If BANKER is coded as CAOKFR, then how would LAWYER be coded?</td><td>MAXYFR</td></tr>
<tr><td></td><td>a) LBWZES</td><td>b) LBWYFR</td><td>c) MAXYFR</td><td>d) MAXZES</td><td>c)</td></tr>
<tr><td>21</td><td colspan="4">Same error occurs at the same size in every measurement, and such errors can only be eliminated either by thinking through the sources of problems and removing them. This type of error is termed as:</td><td></td></tr>
<tr><td></td><td>a) Random errors</td><td>b) Systematic errors</td><td>c) Cascading errors</td><td>d) Perpetual errors</td><td>b</td></tr>
<tr><td>22</td><td colspan="4">Hypothesis-driven research begins with a hypothesis. A hypothesis is a statement about the world that can be true or false, and whose truth is being tested.</td><td></td></tr>
<tr><td></td><td>a) A valid hypothesis is based on ‘that exists’</td><td>b) A hypothesis is a positive conclusion</td><td>c) A hypothesis can never be tested</td><td>d) A valid hypothesis must be falsifiable</td><td>d</td></tr>
</table>

<table>
<tr><td>23</td><td colspan="4">Which of the following statements that could be considered as valid scientific hypotheses?

A. Eating two ounces of olive oil a day decreases the odds of contracting heart disease.
B. What is the best fertilizer to use to get large and tasty tomatoes?
C. Macs are better than PCs.
D. Briar's Aspirin cures headaches faster than RCS Aspirin.</td><td>Answer</td></tr>
<tr><td></td><td>a) A, B</td><td>b) A, B, C</td><td>c) A, D</td><td>d) B, C</td><td>c</td></tr>
<tr><td>24</td><td colspan="4">Relate the 'function or relationship' (A) and 'comment' (B) and select the appropriate answer

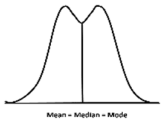
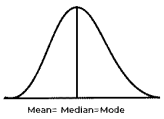
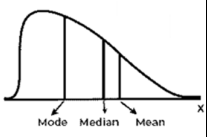
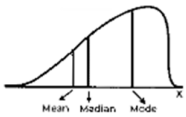
A: Find how the speed of sound in air at fixed pressure depends upon air temperature.

B: The control variable is temperature, and the response variable is sound speed.</td><td>Answer</td></tr>
<tr><td></td><td>a) Functional relationship is correct and the comment is true for the relationship</td><td>b) Functional relationship is incorrect but the comment is true for the relationship</td><td>c) Functional relationship is correct but the comment is false for the relationship</td><td>d) Neither the functional relationship is correct nor the comment is true</td><td>a</td></tr>
<tr><td>25</td><td colspan="4">Relate 'sampling design' and its 'method'<table><tr><td>Sampling Design</td><td>Method</td></tr><tr><td>A. Deliberate</td><td>i. Sample collected as information received and survey progresses</td></tr><tr><td>B. Simple random</td><td>ii. sample drawn from a heterogeneous group</td></tr><tr><td>C. Stratified</td><td>iii purposive selection of particular units</td></tr><tr><td>D. Sequential</td><td>iv. very item in the population has an equal chance of inclusion</td></tr></table></td><td>Answer</td></tr>
<tr><td></td><td>a) A-iii, B-iv, C-ii, D-i</td><td>b) A-ii, B-iv, C-iii, D-i</td><td>c) A-i, B-iii, C-ii, D-iv</td><td>d) A-iii, B-ii, C-iv, D-i</td><td>a</td></tr>
<tr><td>26</td><td colspan="4">Number of observations in a normal distribution is 1000. How many observations will be there between $\mu+1\sigma$ and $\mu-1\sigma$</td><td>Answer</td></tr>
<tr><td></td><td>a) 500</td><td>b) 680</td><td>c) 720</td><td>d) 950</td><td>b</td></tr>
<tr><td>27</td><td colspan="4">Which of the following are reasons for citing a paper?

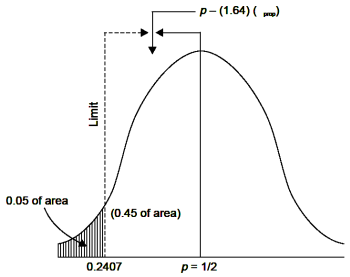
A. use its ideas, definitions, terms in a Research
B. provides upcoming facts regarding undergoing Research Question.
C. to adopt part/full methodology it adopted for a certain task.
D. to refer to data also used in Current Research.</td><td>Answer</td></tr>
<tr><td></td><td>a) A, B, C</td><td>b) B, C, D</td><td>c) A, C, D</td><td>d) A, B, D</td><td>c</td></tr>
<tr><td>28</td><td colspan="4">Scholars who wish to meet publication expectations mostly resort to a variety of techniques to increase their output and crank up their citation ranking, which are not considered ethical. Identify these techniques:

A. Gift authorship
B. Extensive experiments
C. Salami Slicing
D. Extensive referencing</td><td>Answer</td></tr>
<tr><td></td><td>a)A, B, C</td><td>b) A, B, D</td><td>c) B, C, D</td><td>d) A, C, D</td><td>d</td></tr>
</table>

<table>
<tr><td>29</td><td>Match the references (APA 7 style):

<table><tr><td>A. Journal Article</td><td>i. Edwards, A. A., Steacy, L. M., Siegelman, N., Rigobon, V. M., Kearns, D. M., Rueckl, J. G., & Compton, D. L. (2022). Unpacking the unique relationship between set for variability and word reading development: Examining word- and child-level predictors of performance. Journal of Educational Psychology, 114(6), 1242–1256. https://doi.org/10.1037/edu0000696</td></tr><tr><td>B. Authored Book</td><td>ii. Levenson, H., Jinich, S., Vaz, A., & Rousmaniere, T. (2025). Deliberate practice in emotionally focused couple therapy. American Psychological Association. https://doi.org/10.1037/0000436-000</td></tr><tr><td>C. Webpage</td><td>iii. Zeleke, W. A., Hughes, T. L., & Drozda, N. (2020). Home–school collaboration to promote mind–body health. In C. Maykel & M. A. Bray (Eds.), Promoting mind–body health in schools: Interventions for mental health professionals (pp. 11–26). American Psychological Association. https://doi.org/10.1037/0000157-002</td></tr><tr><td>D. Edited Book Chapter</td><td>iv. Taras, Z. (2024, May 30). Situational irony can be funny, tragic or even terrifying. howstuffworks. https://entertainment.howstuffworks.com/arts/literature/situational-irony.htm</td></tr></table></td><td>Answer</td></tr>
<tr><td></td><td>a) A-i, B-ii, C-iv, D-iii</td><td>b) A-ii, B-iii, C-iv, D-i</td><td>c) A-iii, B-ii, C-i, D-iv</td><td>d) A-i, B-ii, C-iii, D-iv</td><td>a</td></tr>
<tr><td>30</td><td colspan="4">Which one of the following refers to positive skewness?</td><td></td></tr>
<tr><td></td><td>a)  </td><td>b)  </td><td>c)  </td><td>d)  </td><td>c</td></tr>
<tr><td>31</td><td colspan="4">How much is the degree of freedom for the following data table?

<table><tr><th>S. No.</th><th>X_i</th><th>Hypothesised mean $m_{H_0} = 578$ kg.</th><th>$D_i = (X_i - \mu_{H_0})$</th><th>D_i^2</th></tr><tr><td>5</td><td>572</td><td>578</td><td>–6</td><td>36</td></tr><tr><td>6</td><td>578</td><td>578</td><td>0</td><td>0</td></tr><tr><td>7</td><td>570</td><td>578</td><td>–8</td><td>64</td></tr><tr><td>8</td><td>572</td><td>578</td><td>–6</td><td>36</td></tr><tr><td>9</td><td>596</td><td>578</td><td>18</td><td>324</td></tr><tr><td>10</td><td>544</td><td>578</td><td>–34</td><td>1156</td></tr><tr><td>$n = 10$</td><td></td><td></td><td>$\sum D_i = -60$</td><td>$\sum D_i^2 = 1816$</td></tr></table></td><td>Answer</td></tr>
<tr><td></td><td>a) 8</td><td>b) 9</td><td>c) 10</td><td>d) 18</td><td>b</td></tr>
</table>

32	Find out the Null hypothesis for the given table $S.\ No.$ | X_i | $Hypothesised\ mean\ m_{H_0} = 578\ kg.$ | $D_i = (X_i - \mu_{H_0})$ | D_i^2 5 | 572 | 578 | −6 | 36 6 | 578 | 578 | 0 | 0 7 | 570 | 578 | −8 | 64 8 | 572 | 578 | −6 | 36 9 | 596 | 578 | 18 | 324 10 | 544 | 578 | −34 | 1156 $n = 10$ | | | $\sum D_i = -60$ | $\sum D_i^2 = 1816$				Answer
	a) $\mu_{H0} = 578$kg.	b) $\mu_{H0} \neq 578$kg.	c) $\mu_{H0} = -578$kg.	d) $\mu_{H0} = \pm 578$kg.	a
33	What will be sum of the deviations of observations from the regression line?				Answer
	a) -∞	b) 0	c) +∞	d) undefined	b
34	Derive from the following diagram  Assertion: In this normal distribution 5 percent of the sample are rejected. Justification: It shows a two tailed hypothesis test model at 90 percent confidence level				Answer
	a) Assertion is true and justification explains the Assertion	b) Assertion is false but justification explains the Assertion	c) Assertion is true and justification is true but does not explain the Assertion	d) Assertion is true and justification for the Assertion is incorrect	d
35	Match into pairs for the Statistical method with appropriate details mentioned: Statistical method | Details A. Correlation | i. Order 2, 3, 4, ……. B. Polynomial regression | ii. More than two population on same characteristics C. ANOVA | iii. Test of homogeneity D. Chi square | iv. Requires only two variables				Answer
	a) A-i, B-ii, C-iii, D-iv	b) A-iv, B-i, C-ii, D-iii	c) A-iv, B-ii, C-i, D-iii	d) A-iii, B-i, C-ii, D-iv	b
36	Match the following and give the correct answer: A. Nature of Interaction holding atom — i Kinetics B. Rate of Chemical Reaction — ii Bond C. Increase the rate of reaction — iii Lipid D. hydrocarbon chain insoluble in water — iv catalyst				Answer
	a) A(i), B(ii), C(iii), D(iv)	b) A(ii), B(i), C(iv), D(iii)	c) A(iii), B(ii), C(i), D(iv)	d) A(ii), B(iii), C(i), D(iv)	(b)
37	In a simple harmonic motion, the velocity of a particle is maximum at:				Answer
	a) Mean position	b) Extreme position	c) Halfway between mean and extreme	d) At all positions	(a)

38	In a double-slit experiment, if the distance between slits is doubled, what happens to the fringe spacing on the screen?				Answer
	a) Fringe spacing halves	a) Fringe spacing doubles	c)Fringe spacing remains the same	d)Fringe spacing quadruples	(a)
39	A block slides down a frictionless inclined plane. Which of the following statements is true?				Answer
	a) Mechanical energy is not conserved	b) Potential energy decreases, kinetic energy increases	c) Kinetic energy decreases	d)Acceleration is zero	(b)
40	Which of the following is true for a photon in a vacuum?				Answer
	a) It has mass but no energy	b) It has energy but no rest mass	c) It has rest mass and energy	d) It can be accelerated by a force	(b)
41	Which of the following is diamagnetic?				Answer
	a) CO_2	b) O_2	c) NO	d) O_2^-	(a)
42	Match the following ligands with their denticity: A. NH_3 — i. Quadridentate B. EDTA — ii. Monodentate C. Oxalate — iii. Hexadentate D. Porphyrin — iv. Bidentate				Answer
	a) A-ii, B-iii, C-iv, D-i	b) A-ii, B-iii, C-i, D-iv	c) A-iv, B-iii, C-ii, D-i.	d) A-ii, B-i, C-iv, D-iii	(a)
43	In which of the following compounds is the metal-metal bonding present**?**				Answer
	a) NaCl	b) ZnO	c) Al_2O_3	d) Cr_2Cl_6	(d)
44	A solution contains 0.1 mol of a non-volatile solute in 1 L of water at 298 K. Calculate the osmotic pressure:				Answer
	a) 2.44 atm	b) 1.33 atm	c) 0.22 atm	d) 0.11 atm	(a)
45	According to Henry's law, the solubility of a gas in a liquid is:				Answer
	a) Independent of pressure.	b) Directly proportional to pressure.	c) Inversely proportional to pressure.	d) Exponential with pressure.	(b)
46	If $f(x) = \begin{cases} \{\lvert x-2\rvert\}/(x-2)\}, & x \neq 0 \\ 0, & otherwise \end{cases}$				Answer
	a) -1	b) 1	c) 0	d) does not exist	d

47	If $y = x^5 - 5x^4 + 5x^3 - 1$, then the value of $\frac{d^6y}{dx^6}$ is				Answer
	a) $120x - 120$	b) 120	c) 0	d) cannot be evaluated.	c
48	Which of the following is/are not true for a function f defined on closed interval $[a, b]$ to satisfy Rolle's theorem? A. f is continuous on closed interval$[a, b]$. B. f is differentiable on the open interval (a, b) C. $f(a) = f(b)$ D. $f(k) = 0$ for at least one $k \in [a, b]$.				Answer
	a) A and B	b) only D	c) B and C	d) Only C	b
49	A group which satisfies commutatively property is known a				
	a) Abelian group	b) Quotient group	c) Coset group	d) Normal group	a
50	Let M^T denotes transpose matrix of M and I is identity matrix. Match the following: A. M is idempotent — i. $M = M^T$ B. M is symmetric — ii. $M = -M^T$ C. M is skew-symmetric — iii. $M^2 = I$ D. M is involution — iv. $M^2 = M$				Answer
	a) A-iv, B-i, C-iii, D-ii	b) A-i, B-iv, C-ii, D-iii	c) A-iv, B-i, C-ii, D-iii	d) A-iv, B-ii, C-i, D-iii	c

51	In modified atmosphere packaging, the potassium permanganate is being used as				Answer option (b)
	a) Moisture absorber	b) Ethylene absorber	c) Ethylene producer	d) Carbon dioxide absorber	Ethylene absorber
52	World Food Safety Day is celebrated on …….				Answer option (a)
	a) June 7	b) June 17	c) October 6	d) October 16	June 7
53	The paper having gram square meter (GSM) more than 250 grams is generally called as				Answer option (d)
	a) Kraft paper	b) Butter paper	c) Glassine paper	d) paper board	paper board
54	Matching the following pairs: A Roller mill — i impact force B Hammer mill — ii shear and impact force C Attrition mill — iii compression force D Pin mill — iv pressure and frictional force				Answer option (d)
	a) A-iv, B-i, C-ii, D-iii	b) A-ii, B-iv, C-i, D-iii	c) A-iii, B-iv, C-ii, D-i	d) A-iii, B-i, C-iv, D-ii	A-iii, B-i, C-iv, D-ii

55	Match the following pairs: Name of the Product — The most common adulterant A Coffee — i Sudan dyes B Hot paprika — ii Lead chromate C Turmeric — iii safflower D Keshar — iv Tamarind seed powder				Answer option (a)
	a) A-iv, B-i, C-ii, D-iii	b) A-iii, B-i, C-iv, D-ii	c) A-iv, B-iii, C-ii, D-i	d) A-i, B-iv, C-ii, D-iii	A-iv, B-i, C-ii, D-iii
56	How many principles does HACCP have?				Answer option (c)
	a) 3	b) 5	c) 7	d) 9	7
57	Which of the following statements are correct? A) ISO 22000 associated with food safety management system. B) ISO 9000 associated with guidance for performance improvement. C) ISO 14000 deals with environment management. D) OHSAS 18001 associate with operational health and safety Assessment Series.				Answer option (c)
	a) A & B	b) B & C	c) A & C	d) B & D	A & C
58	The statistical method, PCA, used in sensory analysis stand for				Answer option (a)
	a) Principle Component Analysis	b) Principle Component Average	c) Principle Cumulative Analysis	d) Principle Cumulative Average	Principle Component Analysis
59	Which of the following statements are correct? A) Lye peeling is done using acid solution. B) Dry cleaning method uses principle of difference in density is called aspiration. C) Use of filter aid is of increasing filtering efficiency. D) Propeller mixer is used for emulsification.				Answer option (d)
	a) B & D	b) A & C	c) A & D	d) B & C	B & C
60	Asafoetida is adulterated with EXCEPT:				Answer option (b)
	a) Clay	b) Starch	c) Chalk powder	d) Maize cob	Starch
61	Match the following pairs: A) polyethylene — i Good barrier to water but not for gases B) Polyvinyl chloride — ii Good heat sealability C) Polypropylene — iii Good tensile strength D) Polyester — iv Good mechanical properties				Answer option (b)
	a) A-iii, B-iv, C-i, D-ii	b) A-ii, B-iv, C-i, D-iii	c) A-ii, B-i, C-iv, D-iii	d) A-iv, B-i, C-ii, D-iii	A-ii, B-iv, C-i, D-iii
62	In case of oil in water emulsion oil acts as				Answer option (d)

	a) Stabilizer	b) Emulsifier	c) Dispersing medium	d) Dispersed phase	Dispersed phase
63	Determine the critical control point is …… principle of HACCP.				Answer option (b)
	a) First	b) Second	c) Third	d) Fourth	Second
64	Which of the following statements is/are correct? A) PVC is good oxygen barrier compared to PET B) PP is good oxygen barrier compared to PET C) PET is good oxygen barrier compared to PVC, PP and PS				Answer option (c)
	a) Only B	b) A & B	c) only C	d) A, B & C	only C
65	Which of the following packaging material is used as antimicrobial packaging material?				Answer option (a)
	a) PET coated with benzoic acid	b) PP coated with sodium phosphate	c) LDPE coated with benzoic anhydride	d) LDPE coated with sodium phosphate	PET coated with benzoic acid
66	For the laminar flow, the Reynold's Number should be less than ……				Answer option (a)
	a) 2100	b) 3100	c) 4100	d) 5100	2100
67	100 kg of mango juice is to be dried from 60 % to 20 % moisture (by wet basis). The mass of moisture removed in kg is ……				Answer option (d)
	a) 20	b) 30	c) 40	d) 50	50
68	Match the following pairs: A Fourier's law – i related to mass transfer B Fick's law – ii related to terminal velocity C Stoke's law – iii related to vapor pressure D Raoult's law – iv related to heat transfer				Answer option (c)
	a) A-ii, B-i, C-iv, D-iii	b) A-iii, B-ii, C-i, D-iv	c) A-iv, B-i, C-ii, D-iii	d) A-iii, B-i, C-ii, D-iv	A-iv, B-i, C-ii, D-iii
69	During drying, the moisture content (MC) at which the constant rate period ends and the falling rate period starts is known as ……				Answer option (b)
	a) Initial MC	b) Critical MC	c) Specific MC	d) Equilibrium MC	Critical MC

70	Match the following pairs: A Nusselt Number — i Ratio of internal conduction resistance to external convection resistance B Reynold's Number — ii Ratio of convective to conductive heat transfer C Prandtl Number — iii Ratio of inertial to viscous force D Biot Number — iv Ratio of momentum diffusivity and thermal diffusivity				Answer option (a)
	a) A-ii, B-iii, C-iv, D-i	b) A-iii, B-ii, C-i, D-iv	c) A-iv, B-iii, C-ii, D-i	d) A-i, B-iii, C-ii, D-iv	A-ii, B-iii, C-iv, D-i
71	Driving force for heat transfer is				Answer option (d)
	a) pressure difference	b) energy difference	c) heat difference	d) temperature difference	temperature difference
72	Which attribute influences **consumer preference** the most initially?				Answer
	a) Colour	b) Texture	c) Flavour	d) Nutritional value	a) Colour
73	The main purpose of food processing is to:				Answer
	a) Increase price	b) Enhance shelf life and safety	c) Change colour	d) Reduce nutrition	b) Enhance shelf life and safety
74	The process of removing moisture at room temperature under vacuum is:				Answer
	a) Spray drying	b) Thermal drying	c) Oven drying	d) Vacuum drying	d) vacuum drying
75	Microwave processing mainly uses:				Answer
	a) Visible light	b) Electromagnetic radiation	c) Infrared rays	d) UV rays	b) Electromagnetic radiation
76	Which of these techniques preserves food by reducing temperature?				Answer
	a) Refrigeration	b) Fermentation	c) Microwave	d) Fortification	a) Refrigeration
77	CFTRI stands for:				Answer
	a) Central Food and Technology Research Institute	b) Central Fertilizer and Technology Research Institute	c) Central Food Technological Research Institute	d) Central Food Thermal Research Institute	c) Central Food Technological Research Institute
78	Hurdle technology is based on:				Answer
	a) One strong preservation method	b) Multiple preservation techniques combined	c) Vacuum packaging	d) Ultra-high voltage	b) Multiple preservation techniques combined
79	Which food preservation method does **not** use heat?				Answer
	a) Canning	b)Pasteurization	c) **Irradiation**	d) ohmic heating	c)Irradiation
80	Bacteriofugation is used to:				Answer

	a) Freeze food	b) Add microbes	c) Remove bacteria from liquids	d) Enhance flavour	c) Remove bacteria from liquids
81	Which of the following is used **in supercritical fluid extraction**?				Answer
	a) Carbon dioxide	b) Ethanol	c) Oxygen	d)Nitrogen	a) Carbon dioxide
82	Which of the following is an **alternate thermal technology**?				Answer
	a) Ohmic heating	b) Freeze drying	c) High Pressure Processing	d)Microfiltration	a) Ohmic heating
83	High water activity in food:				Answer
	a) Prevents spoilage	b) Promotes microbial growth	c) Enhances freezing	d) Improves texture	b) Promotes microbial growth
84	Which is a biological method of food preservation?				Answer
	a) Canning	b) Pasteurization	c) **Use of bacteriocins**	d) Microwave processing	c) **Use of bacteriocins**
85	The process of improving nutritional value by adding nutrients is:				Answer
	a)Irradiation	b)Fortification	c)Fermentation	d)Preservation	b)Fortification
86	The food attribute responsible for taste is:				Answer
	a) Texture	b)Colour	c) Water Activity	d) Flavour	d) Flavour
87	Which of the following technologies uses sound waves with heat?				Answer
	a) Dielectric heating	b) Microwave	c) Thermosonication	d) Fermentation	c) Thermosonication
88	The principle behind **supercritical fluid extraction** is based on:				Answer
	a) Thermal degradation	b) **Solubility of compounds in fluids above their critical point**	c) Osmotic imbalance	d) Phase transition	b) **Solubility of compounds in fluids above their critical point**
89	Which of the following technologies enables **energy-efficient heating** through internal energy conversion in conductive foods?				Answer
	a) **Ohmic heating**	b) Induction heating	c) Dielectric heating	d) Microwave heating	a) **Ohmic heating**
90	The shelf-life extension of minimally processed foods is best achieved by:				Answer
	a) Irradiation	b) Refrigeration with preservatives	c) refrigeration, modified atmosphere, and sanitation together	d) None of the above	c) refrigeration, modified atmosphere, and sanitation together
91	Which reactive species is **primarily responsible** for microbial inactivation in cold plasma?				Answer

	a) Reactive oxygen and nitrogen species	b) UV rays	c) Ionic compounds	d) Heat from the discharge	a) Reactive oxygen and nitrogen species

92	During bread making, gluten provides:				
	a) Sweetness and flavor	b) Structure and elasticity to retain gas	c) Shortening effect for tenderness	d) Enzymatic browning during baking	(b)
93	Are these statements about the oil refining true? **Statement 1**: Degumming removes colouring agents from vegetable oil. **Statement 2**: Neutralization removes free fatty acids from crude oils using caustic soda or lime.				Answer option (a, b, c or d)
	a) Statement 1 True, and statement 2 False	b) Both statements 1 and 2 are True	c) Both statements 1 and 2 are False	d) Statement 1 False, and statement 2 True	(d)
94	Are these statements about the rice milling true? **Statement 1**: Sifting is a process to remove impurities from milled rice. **Statement 2**: Pre-cleaning is removing of impurities from paddy.				Answer option (a, b, c or d)
	a) Statement 1 True, and statement 2 False	b) Both statements 1 and 2 are True	c) Both statements 1 and 2 are False	d) Statement 1 False, and statement 2 True	(b)
95	Curcumin, present in turmeric, is classified as a nutraceutical because of its:				Answer option (a, b, c or d)
	a) Flavoring property	b) Antioxidant and anti-inflammatory role	c) Protein supplementation	d) Gelation property	(b)
96	**Match List I with List II** **List I** / **List II** A – Pop corn – 1 – At maturity a typical dent-like depression appears at the crown B – Sweet corn – 2 – Has very hard kernel C – Dent corn – 3 – Endosperm expands on heating with the formation of a fluffy white mass D – Flint corn – 4 – Dextrin is present in unripe corn				Answer option (a, b, c or d)
	a)A-2, B-1, C-4, D-3	b) A-3, B-4, C-1, D-2	c) A-4, B-2, C-3, D-1	d) A-1, B-2, C-3, D-4	(b)
97	**Match List I with List II** **List I** / **List II** A – Brown rice – 1 – Rice heated in sand B – Saki – 2 – Rancidity C – Parched rice – 3 – Rice with bran D – Rice bran oil – 4 – Japanese drink prepared from rice				Answer option (a, b, c or d)
	a)A-2, B-1, C-4, D-3	b) A-3, B-4, C-1, D-2	c) A-4, B-2, C-3, D-1	d) A-3, B-4, C-2, D-1	(b)

98	Spoilage in food because of microbial activity can be prevented/delayed by:				Answer option (a, b, c or d)
	a) Physical removal of micro-organisms	b) Prohibiting the entry of micro-organisms in food	c) Hindering the activity of micro-organisms	d) All of above	(d)
99	Which of the following is untrue about Solvent extraction of Oil?				Answer option (a, b, c or d)
	a) The most common solvent used is Hexane	b) This is suitable for materials containing low percentage of oil	c) This process is difficult/complex for small scale operators	d) None of the mentioned	(d)
100	**Statement 1:** D value is the time required to reduce a microbial population by 90% **Statement 2**: D-values are important in food processing for calculating F-values.				Answer option (a, b, c or d)
	a) Statement 1 True, and statement 2 False	b) Both statements 1 and 2 are True	c) Both statements 1 and 2 are False	d) Statement 1 False, and statement 2 True	(b)
101	_____is the food preservation method in which nutritional quality is less harmed.				Answer option (a, b, c or d)
	a) Canning	b) Dehydration	c) Freezing	d) Sun drying	(c)
102	_____is the example of biological preservative.				Answer option (a, b, c or d)
	a) Niacin	b) Nisin	c) Sodium benzoate	d) Ascorbic acid	(b)
103	**Statement 1:** Food irradiation uses ionizing radiation, like x-rays, gamma rays, or electron beams to kill microorganisms. **Statement 2:** Food Irradiation is a cold sterilization technique.				Answer option (a, b, c or d)
	a) Statement 1 True, and statement 2 False	b) Both statements 1 and 2 are False	c) Both statements 1 and 2 are True	d) Statement 1 False, and statement 2 True	(c)
104	Pickle is the example of_____.				Answer option (a, b, c or d)
	a) Acetic acid fermentation	b) Lactic acid fermentation	c) Alcoholic fermentation	d) None of above	(b)
105	**Match List I with List II** **List I** / **List II** A Goitre — 1 Rickets B Vitamin D — 2 Iodine C Thiamin — 3 Anaemia D Iron — 4 Beri-beri				Answer option (a, b, c or d)
	a)A-2, B-1, C-4, D-3	b) A-1, B-2, C-3, D-4	c) A-4, B-2, C-3, D-1	d) A-3, B-4, C-2, D-1	a)
106	**Statement 1**: Adulteration takes place more in loosely sold items than those sold packed. **Statement 2**: Powder and paste forms are more adulterated than solid lumps.				Answer option (a, b, c or d)
	a) Statement 1 True, and statement 2 False	b) Both statements 1 and 2 are True	c) Both statements 1 and 2 are False	d) Statement 1 False, and statement 2 True	(b)
107	In lye peeling, _____% hot NaOH solution is used for 30 seconds to few minutes or longer depending upon the raw material.				Answer option (a, b, c or d)
	a)1-2%	b) >10%	c) 6-8%	d) 3-5%	(a)
108	_____treatment is also termed as Flash Pasteurization.				Answer option (a, b, c or d)

	a) LTLT	b) HTST	c) UHT	d) Pasteurization	(c)
109	In canning of vegetables, brine concentration is tested with_____.				Answer option (a, b, c or d)
	a) Balling hydrometer	b) Refractometer	c) Salometer	d) Baume hydrometer	(c)
110	Pasteurization is the heat treatment designed primarily to kill_____.				Answer option (a, b, c or d)
	a) Vegetative forms of microorganisms	b) All form of microorganisms	c) Spore	d) None of above	(a)
111	Which of the following is the first step in the process of new food product development?				Answer option (a, b, c or d)
	a) Test marketing	b) Idea evaluation	c) Commercialization	d) Idea generation	(d)
112	Pellagra results from a deficiency of:				Answer option (a, b, c or d)
	a) Niacin	b) Riboflavin	c) Thiamine	d) Vitamin B6	(a)

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113	Goat meat is called as:				Answer
	a) Mutton	b) Chevon	c) Pork	d) Cara beef	(b)
114	Marbling is the				Answer
	a) Intramuscular fat	b) Extramuscular fat	c) Lard	d) None	(a)
115	Consider the following statements: Impregnation of the egg shell with colorless and odorless mineral oil: a) Keeps out moisture b) Slow desiccation and air penetration c) Retain Carbo dioxide d) Retards physical and chemical changes Which of the above statements is/are correct?				Answer
	a) Only (a)	b) Only (b)	c) Only (c)	d) (a) and (d) both	(c)
116	The resolution of *rigor mortis* occurs due to disintegration of				Answer
	a) I band	b) A band	c) Z line	d) M line	(c)
117	1. Match the following Milk components with their respective percentage in milk composition: **Milk components** / **Percentage** i) Water – a) 3.5% ii) Fat – b) 87% iii) Protein – c) 4.8% iv) Lactose – d) 3.2% v) Ash – e) 0.7				Answer
	a) i – a, ii – b, iii – c, iv – d, v – e	b) i – b, ii – a, iii – d, iv – c, v – e	c) i – d, ii – e, iii – c, iv – a, v – b	d) i – e, ii – d, iii – c, iv – b, v – a	(b)
118	Decrease in the specific gravity of milk with time can be explained by				Answer
	a) Reynold's Phenomena	b) Recknagel Phenomena	c) Roult's Phenomena	d) Redberg's Law	(b)

119	Which of the following statement is/are correct with respect to Candling during egg processing will reveal: a) A crack in the shell and the size of the air cell. b) Position and mobility of yolk and possible presence of blood spots. c) The firmness of albumin. d) All the statements are correct.				Answer
	a) b and c only	b) a and b only	c) a and c only	d) All the statements are correct.	(d)
120	**Which analytical technique is used to determine the particle size distribution of recombined milk powder?**				Answer
	a) HPLC	b) Laser diffraction	c) Kjeldahl method	d) Refractometry	(b)
121	Match the following meat pigments with their typical color/appearance: A Myoglobin — i Brownish (oxidized) B Oxymyoglobin — ii Bright cherry red C Metmyoglobin — iii Purplish-red (freshly cut meat) D Carboxymyoglobin — iv Stable bright red				Answer
	a) A-iii, B-iv, C-ii, D-i	b) A-i, B-ii, C-iii, D-iv	c) A-iii, B-ii, C- i, D-iv	d) A-iv, B-i, C-ii, D-iii	(c)
122	**Which milk protein is primarily responsible for the formation of cheese curds during rennet coagulation?**				Answer
	a) α-Lactalbumin	b) β-Lactoglobulin	c) Immunoglobulins	d) κ-Casein	(d)
123	*Rigor mortis* in meat occurs due to:				Answer
	a) Protein coagulation	b) Glycogen breakdown	c) Fat oxidation	d) Microbial growth	(b)
124	Which preservative is commonly used in processed meats?				Answer
	a) Citric acid	b) Benzoic Acid	c) Sodium nitrite	d) KMS	(c)
125	2. **What is the primary challenge in the pasteurization of liquid whole egg compared to egg white?**				Answer
	a) Higher microbial load in yolk	b) Denaturation of yolk lipoproteins at lower temperatures	c) Rapid Maillard reaction in whole egg	3. d) Lactose crystallization	(b)
126	Veal meat obtained from				Answer
	a) Sheep	b) Calf	c) Deer	d) Donkey	(b)
127	Fat content in pork sausages should not be more than				Answer
	a) 10%	b) 20%	c) 30%	d) 40%	(d)
128	4. **What is the primary function of stabilizers in flavored milk?**				Answer
	a) To enhance sweetness	b) To prevent fat separation and sedimentation	c) To increase protein content	d) To reduce lactose	(b)
129	Main muscle pigment is……				Answer
	a) Hemoglobin	b) Hemolymph	c) Myoglobin	d) Porphyrin	(c)
130	In Ice-cream the air cells are stabilized by				Answer
	a) the air cells became	b) the air cells became	c) the air cells became	d) the air cells became	(a)

	stabilized by fat globules	stabilized by protein molecules	stabilized by lactose crystals	stabilized by plasma	
131	The shell of the egg is made from:				Answer
	a) Sodium chloride	b) Calcium carbide	c) Calcium carbonate	d) All	(c)
132	Which of the following components display anti-microbial activity in milk?				Answer
	a) Beta-lactoglobulin	b) Lactoferrin	c) Glycomacropeptide	d) MFG protein	(b)
133	Enzymes responsible for the increase in tenderness of meat during ageing				Answer
	a) Amylases	b) Lipases	c) Proteolytic Enzymes	d) None of theses	(c)

134	Which of the following best define "zymology"				Answer option (a,b,c or d)
	a) The study of animal behaviour	b) Science of fermentation and its processes	c) Study of enzymes and hormones	d) Study of cell structure and function	b
135	"Essential oils" refers to :				
	a) Oils that are essential nutrients required in the diet	b) Oils extracted from animal fats	c) Oils extracted from seeds.	d) Volatile organic compounds extracted form plants	d
136	Which of the following best describes "Hurdle Technology"				
	a) The use of temperature to kill microbes	b) Use of preservatives to restrict microbes	c) Combining multiple preservation strategies to restrict microbes	d) Use of microbes to restrict other microbes	c
137	Which of the following describes "Food intoxication" the best				
	a) Illness caused by toxins produced by pathogenic microbes present in food before consumption	b) Illness caused by consuming food contaminated with parasites that multiply in the digestive tract	c) Illness resulting from consumption of genetically modified foods	d) Illness caused due to an allergic reaction to specific proteins found in certain foods	a
138	What is an oleoresin?				

	a) oil extracted only from seeds for cooking purposes	b) a gaseous extract derived from plant leaves through distillation	c) a semi-solid extract composed of resin and essential or fatty oils obtained from plants	d) a synthetic resin commonly used in industrial adhesives	c
139	Match the following alcoholic products to their initial raw materials A Tequila — I Fermenting Blue agave plant tuber B Gin — II Fermenting grains or potatoes with juniper berries and botanicals C Vodka — III Fermented Grains and potatoes D Rum — IV Fermented molasses				
	a) A-I, B-II, C-III, D-IV	b) A-II, B-I, C-III, D-IV	c) A-I, B-III, C-II, D-IV	d) A-IV, B-II, C-III, D-I	a
140	Match the following microbes or microbial groups to their role in flavor A LAB — I Produces ethanol, CO_2, and esters B Yeast — II Produces lactic acid and diacetyl flavor C Molds — III down proteins and carbohydrates into flavor precursors D Pseudomonas — IV Synthesize aldehydes and other compounds contributing to off flavors				
	a) A-I, B-II, C-III, D-IV	b) A-II, B-I, C-III, D-IV	c) A-I, B-III, C-II, D-IV	d) A-IV, B-II, C-III, D-I	b
141	Match the type of fermenters with their description A Continuous Stir tank fermenter — I Fermenter with a draft tube for air circulation, using airlift principle B Air lift fermenter — II Fermenter with mechanical agitator and sparger for mixing and aeration C Packed bed fermenter — III Fermenter packed with immobilized biocatalyst where medium flows through D Bubble column fermenter — IV Cylindrical vessel with gas sparger creating bubbles for gas-liquid mixing				
	a) A-II, B-I, C-III, D-IV	b) A-I, B-II, C-III, D-IV	c) A-II, B-I, C-IV, D-III	d)A-III, B-I, C-IV, D-II	a
142	**Assertion (A):** Hurdle technology improves food safety by combining different preservation methods that individually may be insufficient to control spoilage. **Reason (R):** Each preservation method in hurdle technology targets different microbial growth mechanisms, making pathogens to susceptible to inactivation				
	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 correct explanation of A	c) A is true, but R is false	d) A is false, but R is true	a
143	**Assertion (A):** Flavor emulsions improve the stability and distribution of oil-soluble flavors in water-based food products. **Reason (R):** Wetting agents s create a stable mixture of immiscible oil and water phases, preventing flavor separation during processing and storage.				
	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 correct explanation of A	c) A is true, but R is false	d) A is false, but R is true	c
144	**Assertion (A):** Food contaminants can be classified into chemical, physical, microbial, and allergenic types, each posing health risks. **Reason (R):** Antinutritional factors can cause malabsorption of nutrients posing health risk.				

	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 correct explanation of A	c) A is true, but R is false	d) A is false, but R is true	b
145	A manufacturer intends to produce ethanol via fermentation using yeast. During a batch fermentation, the following issues were observed: -Nutrient depletion occurred early, limiting microbial growth. -After a point the ethanol inhibited yeast activity, reducing yield. -Oxygen was completely excluded from the system. What will be the best strategy to optimize the fermentation yield?				
	a) Replace yeast with lactic acid bacteria for better ethanol tolerance	b) Increase initial substrate concentration drastically and maintain strict anaerobic conditions throughout	c) Switch to continuous anaerobic fermentation with no oxygen and no nutrient addition once started	d) Use fed-batch fermentation to add nutrients gradually and control ethanol concentration by intermittent removal of product	d
146	Heating of certain oils at times are susceptible for the development of off-flavor, which of the following fatty acid is the reason for such off-flavors?				
	a) Linoleic	b) Linolenic	c) Oleic	d) Stearic	b
147	Which of the following will you use as a cryoprotectant during cryopreservation of microbes?				
	a) Skim milk	b) Glycerol	c) Trehalose	d) All the above	d
148	Which of the following statement is NOT true for a continuous culture fermentation?				
	a) An extended exponential growth phase	b) Efficient and faster nutrients utilization	c) Maintenance of microbial growth rate	d)Lower risk of contamination than batch fermentation	d
149	Hurdle technology is considered superior because it				
	a) Reduces the need for a single extreme preservation method	b) Maintain fresh-like characteristics	c) Restricts microbial growth effectively	d) All of the above	d
150	Which of the following microorganism is commonly associated with food-borne gastroenteritis due to undercooked poultry?				
	a) *Clostridium botulinum*	b) *Vibrio cholerae*	c) *Bacillus cereus*	d) *Salmonella enterica*	d