Food Technology (XE-G)

Question Number : 122 **Correct : 1 Wrong : -0.33**

Indicate the correct group that contains a monosaccharide, a disaccharide and a trisaccharide.

(A) Glucose, sucrose, mannose
(B) Ribose, lactose, raffinose
(C) Mannose, maltose, lactose
(D) Raffinose, stachyose, glucose

Question Number : 123 **Correct : 1 Wrong : -0.33**

In which of the following products, 'must' is used as the substrate for fermentation?

(A) Beer (B) Wine (C) Idli (D) Tempeh

Question Number : 124 **Correct : 1 Wrong : -0.33**

Identify the foodborne illness which is not caused by bacteria.

(A) Botulism (B) Listeriosis (C) Vibriosis (D) Cysticercosis

Question Number : 125 **Correct : 1 Wrong : -0.33**

Nutrient composition of wheat flour changes with extent of extraction from whole wheat grain. Which of the following statements is true if the extraction rate increased from 50% to 90%?

(A) Starch increases, protein increases, fat increases, mineral increases
(B) Starch decreases, protein increases, fat increases, mineral increases
(C) Starch decreases, protein decreases, fat increases, mineral decreases
(D) Starch decreases, protein increases, fat decreases, mineral decreases

Question Number : 126 **Correct : 1 Wrong : 0**

You have two samples of milk, one (X) with 3.8% fat and another (Y) with 0.5% fat. In order to produce a milk with 3.5% fat, 100 ml of Y should be mixed with _____ ml of X.

Question Number : 127 **Correct : 1 Wrong : -0.33**

Match the items in column I with the items in column II in relation to food safety and standards.

Column I	Column II
P. HACCP	1. International food standards
Q. FSSAI	2. Quality control protocol
R. CIP	3. Food plant sanitation and hygiene protocol
S. CODEX	4. Indian food standards

(A) P-2, Q-4, R-3, S-1
(B) P-2, Q-3, R-2, S-1
(C) P-1, Q-4, R-2, S-3
(D) P-4, Q-2, R-3, S-1

Question Number : 128 **Correct : 1 Wrong : 0**

A 50% sucrose solution at 20 °C is flowing at a rate of 3.5 m^3/h through a pipe with an inside diameter of 0.0475 m and length of 12 m. The viscosity and the density of the solution are 15.43 cp and 1232 kg/m^3, respectively. The Reynolds number of the flow is ____ .

Question Number : 129 **Correct : 1 Wrong : 0**

In a pineapple juice, fibre particles having mean diameter of 160 μm and density of 1075 kg/m^3 are settling by gravity. If the density and viscosity of the juice are 1015 kg/m^3 and 0.98 cp, respectively, terminal velocity of the fibre particles is_____ mm/s .

Question Number : 130 **Correct : 1 Wrong : -0.33**

Power consumption in liquid mixing is proportional to _____.

(A) Power number × liquid density × $(\text{rotational speed})^3$ × $(\text{impeller diameter})^5$
(B) Power number × liquid density × $(\text{rotational speed})^2$ × $(\text{impeller diameter})^3$
(C) Liquid density × viscosity of the liquid × $(\text{rotational speed})^2$ × $(\text{impeller diameter})^3$
(D) Acceleration due to gravity × liquid density × $(\text{rotational speed})^3$ × $(\text{impeller diameter})^5$

Question Number : 131 **Correct : 2 Wrong : -0.66**

Match the following items of group I with the items of group II in relation to the quality of fat.

Group I	Group II
P. Saponification number	1. Unsaturation of fatty acid
Q. Iodine number	2. Volatile water soluble fatty acid
R. Reichert Meissl number	3. Hydroxy fatty acid
S. Acetyl value	4. Molecular weight of fatty acid

(A) P-1, Q-2, R-3, S-4
(B) P-1, Q-3, R-4, S-2
(C) P-4, Q-1, R-2, S-3
(D) P-2, Q-1, R-3, S-4

Question Number : 132 **Correct : 2 Wrong : -0.66**

Match the following metabolic product (Column I) that indicates the quality of food (Column II).

Column I	Column II
P. Ethanol	1. Canned vegetable
Q. Lactic acid	2. Fish
R. Trimethylamine	3. Butter
S. Volatile fatty acid	4. Apple juice

(A) P-3, Q-2, R-4, S-1
(B) P-4, Q-1, R-2, S-3
(C) P-4, Q-3, R-2, S-1
(D) P-3, Q-4, R-2, S-1

Question Number : 133 **Correct : 2 Wrong : -0.66**

Correlate the vitamins in column I with their role in promoting reaction/process in column II.

Column I	Column II
P. Riboflavin	1. Visual cycle
Q. Vitamin D	2. Acyl group transfer
R. Pantothenic acid	3. Regulation of Ca^{2+} metabolism
S. Vitamin A	4. Oxidation-reduction reaction

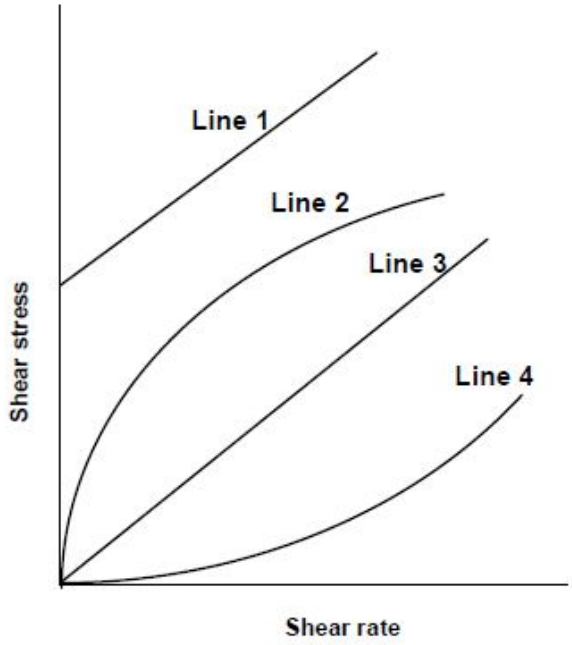
(A) P-1, Q-2, R-4, S-3
(B) P-2, Q-1, R-3, S-4
(C) P-3, Q-4, R-1, S-2
(D) P-4, Q-3, R-2, S-1

Question Number : 134 **Correct : 2 Wrong : 0**

A pure strain with generation time of 60 min is used in a fermentation process. Following inoculation (0 h), the strain takes 2 h for adaptation, 10 h to achieve maximum growth and 12 h to arrive at the point where the death rate is higher than the growth rate. If the inoculation load is 100 cells, the total population at the end of 10 h will be _____.

Question Number : 135 **Correct : 2 Wrong : -0.66**

Refer the shear stress – shear rate plot shown in the figure below. Match the lines (Column I) with appropriate rheological behavior (Column II).



Column I	Column II
P. Line 1	1. Dilatant
Q. Line 2	2. Newtonian
R. Line 3	3. Pseudoplastic
S. Line 4	4. Bingham plastic

(A) P-2, Q-3, R-4, S-1
(B) P-1, Q-3, R-4, S-2
(C) P-2, Q-4, R-3, S-1
(D) P-4, Q-3, R-2, S-1

Question Number : 136 **Correct : 2 Wrong : 0**

Water flowing at a rate of 1 kg/min is heated from 12 to 80 °C with flue gas supplied at a rate of 3 kg/min. The temperature and specific heat of the flue gas are 180 °C and 1.05 kJ/kg.K, respectively. If specific heat of water is 4.2 kJ/kg.K and the flow is parallel, then the logarithmic mean temperature difference will be _____ °C.

Question Number : 137 **Correct : 2 Wrong : 0**

The Lineweaver-Burk plot of an enzymatic reaction shows V_{max} of 160 μmol/l.min and k_m of 60 μmol/l. For a substrate concentration of 40 μmol/l, the velocity of the reaction is estimated to be ____ μmol/l.min.

Question Number : 138 **Correct : 2 Wrong : 0**

Bread is wrapped in 0.1 mm thick cellophane film having water vapour permeability of 1.82×10^{-10} m^3 water (STP)/s.m^2.atm/m at 38 °C. If the surface area of pack, vapour pressure of water inside and outside of the pack is 0.20 m^2, 10 mm Hg and 5 mm Hg, respectively, the loss of water vapour at 38 °C in g/day is _____ .

Question Number : 139 **Correct : 2 Wrong : -0.66**

Match the following methods / system (column I) with the appropriate operations (column II).

Column I	Column II
P. Parboiling	1. Sugarcane juice extraction
Q. Pearling	2. Hydrothermal treatment
R. Wet milling	3. Corn milling
S. Degerming	4. Wheat milling
T. Break rolls	5. Barley processing
U. Crushing rolls	6. Pulse milling

(A) P-4, Q-1, R-3, S-6, T-2, U-5
(B) P-4, Q-5, R-2, S-6, T-1, U-3
(C) P-3, Q-5, R-2, S-1, T-3, U-4
(D) P-2, Q-5, R-6, S-3, T-4, U-1

Question Number : 140 **Correct : 2 Wrong : 0**

A 12 mm thick fish fillet having 80% moisture content (wet basis) is to be frozen using a plate freezer. The plates are maintained at -35 °C. Assume the heat transfer coefficient; initial freezing temperature and latent heat of fusion are 2.0 W/m^2 K, -2 °C and 330 kJ/kg, respectively. If the density and thermal conductivity of frozen fish fillet are 1050 kg/m^3 and 1.48 W/m-K, respectively, the time required to freeze the fillet from the initial freezing temperature is ____h.

Question Number : 141 **Correct : 2 Wrong : 0**

A suspension containing 2×10^4 spores of organism A having a $D_{121.1°C}$ value of 1.5 min and 8×10^5 spores of organism B having a $D_{121.1°C}$ value of 0.8 min is heated at a constant temperature of 121.1 °C. The heating time needed to obtain a probability of spoilage '1 in 1000' is _____ min.

Question Number : 142 **Correct : 2 Wrong : 0**

In an evaporation process, a compressor picks up 0.05 m^3 air in each revolution and compresses 500 kg of air per minute. If the specific volume of air is 0.9 m^3/kg, then the compressor speed is _____ rpm.

Question Number : 143 **Correct : 2 Wrong : 0**

For a soybean oil extraction system, solvent : soy ratio is maintained at 0.5 : 1 (w/w). Original seed contains 18% oil (w/w). If the meal (soy solid) after final desolventization has 0.01 kg oil per kg oil free meal then, the effectiveness of the solvent (kg oil/ kg solvent) in the extraction process is _____ .

General Aptitude

Question Number : 166 **Correct : 1 Wrong : -0.33**

The event would have been successful if you _____ able to come.

(A) are (B) had been (C) have been (D) would have been

Question Number : 167 **Correct : 1 Wrong : -0.33**

There was no doubt that their work was <u>thorough</u>.

Which of the words below is closest in meaning to the underlined word above?

(A) pretty (B) complete (C) sloppy (D) haphazard

Question Number : 168 Correct : 1 Wrong : -0.33

Four cards lie on a table. Each card has a number printed on one side and a colour on the other. The faces visible on the cards are 2, 3, red, and blue.

Proposition: If a card has an even value on one side, then its opposite face is red.

The cards which MUST be turned over to verify the above proposition are

(A) 2, red (B) 2, 3, red (C) 2, blue (D) 2, red, blue

Question Number : 169 Correct : 1 Wrong : -0.33

What is the value of x when $81 \times \left(\frac{16}{25}\right)^{x+2} \div \left(\frac{3}{5}\right)^{2x+4} = 144$?

(A) 1 (B) -1 (C) -2 (D) Cannot be determined

Question Number : 170 Correct : 1 Wrong : -0.33

Two dice are thrown simultaneously. The probability that the product of the numbers appearing on the top faces of the dice is a perfect square is

(A) 1/9 (B) 2/9 (C) 1/3 (D) 4/9

Question Number : 171 Correct : 2 Wrong : -0.66

Bhaichung was observing the pattern of people entering and leaving a car service centre. There was a single window where customers were being served. He saw that people inevitably came out of the centre in the order that they went in. However, the time they spent inside seemed to vary a lot: some people came out in a matter of minutes while for others it took much longer.

From this, what can one conclude?

(A) The centre operates on a first-come-first-served basis, but with variable service times, depending on specific customer needs.
(B) Customers were served in an arbitrary order, since they took varying amounts of time for service completion in the centre.
(C) Since some people came out within a few minutes of entering the centre, the system is likely to operate on a last-come-first-served basis.
(D) Entering the centre early ensured that one would have shorter service times and most people attempted to do this.

Question Number : 172 **Correct : 2 Wrong : -0.66**

A map shows the elevations of Darjeeling, Gangtok, Kalimpong, Pelling, and Siliguri. Kalimpong is at a lower elevation than Gangtok. Pelling is at a lower elevation than Gangtok. Pelling is at a higher elevation than Siliguri. Darjeeling is at a higher elevation than Gangtok.

Which of the following statements can be inferred from the paragraph above?

i. Pelling is at a higher elevation than Kalimpong
ii. Kalimpong is at a lower elevation than Darjeeling
iii. Kalimpong is at a higher elevation than Siliguri
iv. Siliguri is at a lower elevation than Gangtok

(A) Only ii (B) Only ii and iii (C) Only ii and iv (D) Only iii and iv

Question Number : 173 **Correct : 2 Wrong : -0.66**

P, Q, R, S, T and U are seated around a circular table. R is seated two places to the right of Q. P is seated three places to the left of R. S is seated opposite U. If P and U now switch seats, which of the following must necessarily be true?

(A) P is immediately to the right of R
(B) T is immediately to the left of P
(C) T is immediately to the left of P or P is immediately to the right of Q
(D) U is immediately to the right of R or P is immediately to the left of T

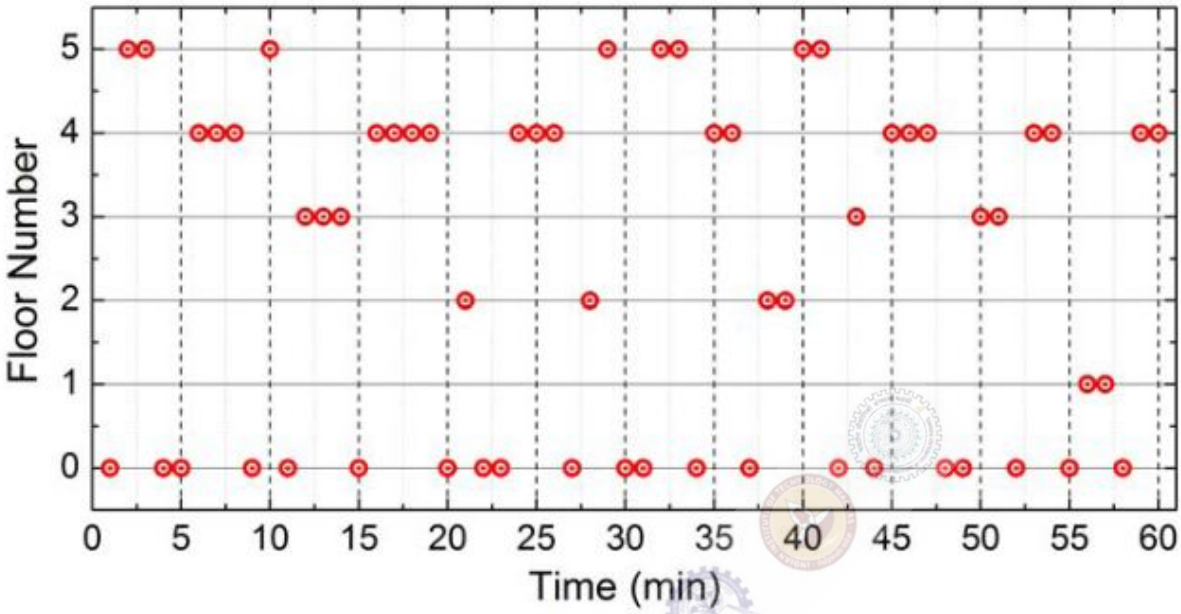
Question Number : 174 **Correct : 2 Wrong : -0.66**

Budhan covers a distance of 19 km in 2 hours by cycling one fourth of the time and walking the rest. The next day he cycles (at the same speed as before) for half the time and walks the rest (at the same speed as before) and covers 26 km in 2 hours. The speed in km/h at which Budhan walks is

(A) 1 (B) 4 (C) 5 (D) 6

Question Number : 175 **Correct : 2 Wrong : -0.66**

The points in the graph below represent the halts of a lift for durations of 1 minute, over a period of 1 hour.



Which of the following statements are correct?

i. The elevator never moves directly from any non-ground floor to another non-ground floor over the one hour period

ii. The elevator stays on the fourth floor for the longest duration over the one hour period

(A)) Only i (B) Only ii (C) Both i and ii (D) Neither i nor ii

Q. No.	Type	Section	Key	Marks
1	NAT	XE-A	2.98 to 3.02	1
2	MCQ	XE-A	D	1
3	NAT	XE-A	6.98 to 7.02	1
4	NAT	XE-A	2.98 to 3.02	1
5	MCQ	XE-A	C	1
6	NAT	XE-A	7.98 to 8.02	1
7	MCQ	XE-A	C	1
8	MCQ	XE-A	A	2
9	NAT	XE-A	0.98 to 1.02	2
10	NAT	XE-A	-0.02 to 0.02	2
11	MCQ	XE-A	C	2
12	MCQ	XE-B	B	1
13	MCQ	XE-B	B	1
14	MCQ	XE-B	C	1
15	MCQ	XE-B	A	1
16	MCQ	XE-B	D	1
17	MCQ	XE-B	D	1
18	MCQ	XE-B	A	1
19	NAT	XE-B	22.6 to 22.6	1
20	MCQ	XE-B	A	1
21	NAT	XE-B	72.5 to 75.0	2
22	NAT	XE-B	62 to 66	2
23	MCQ	XE-B	D	2
24	MCQ	XE-B	C	2
25	NAT	XE-B	0.66 to 0.67	2
26	NAT	XE-B	6005 to 6005	2
27	NAT	XE-B	0.05 to 0.06	2
28	MCQ	XE-B	D	2
29	NAT	XE-B	1.3 to 1.4	2
30	NAT	XE-B	28.9 to 31.4	2
31	NAT	XE-B	0.21 to 0.22	2
32	NAT	XE-B	7.0 to 7.2	2
33	MCQ	XE-B	B	2
34	MCQ	XE-C	B	1
35	MCQ	XE-C	D	1
36	MCQ	XE-C	C	1

37	MCQ	XE-C	B	1
38	MCQ	XE-C	A	1
39	MCQ	XE-C	C	1
40	MCQ	XE-C	D	1
41	MCQ	XE-C	B	1
42	MCQ	XE-C	D	1
43	NAT	XE-C	0.990 to 1.010	2
44	NAT	XE-C	53.0 to 53.2	2
45	MCQ	XE-C	A	2
46	MCQ	XE-C	A	2
47	NAT	XE-C	7.5 to 7.7	2
48	NAT	XE-C	37.5 to 38.5	2
49	MCQ	XE-C	B	2
50	NAT	XE-C	7.50 to 7.80	2
51	NAT	XE-C	172 to 174	2
52	MCQ	XE-C	D	2
53	NAT	XE-C	1.35 to 1.37	2
54	MCQ	XE-C	C	2
55	MCQ	XE-C	A	2
56	NAT	XE-D	69 to 73	1
57	MCQ	XE-D	B	1
58	MCQ	XE-D	C	1
59	MCQ	XE-D	C	1
60	MCQ	XE-D	A	1
61	MCQ	XE-D	B	1
62	MCQ	XE-D	A	1
63	NAT	XE-D	0.26 to 0.28	1
64	MCQ	XE-D	A	1
65	MCQ	XE-D	D	2
66	NAT	XE-D	134 to 136	2
67	NAT	XE-D	0.55 to 0.65	2
68	NAT	XE-D	1785 to 1792	2
69	NAT	XE-D	0.45 to 0.50	2
70	NAT	XE-D	32 to 35	2
71	NAT	XE-D	10 to 10	2
72	NAT	XE-D	02 to 02	2
73	MCQ	XE-D	A	2

74	NAT	XE-D	17 to 18	2
75	MCQ	XE-D	C	2
76	MCQ	XE-D	B	2
77	MCQ	XE-D	B	2
78	MCQ	XE-E	B	1
79	MCQ	XE-E	C	1
80	MCQ	XE-E	C	1
81	NAT	XE-E	0.17 to 0.18	1
82	MCQ	XE-E	B	1
83	MCQ	XE-E	D	1
84	MCQ	XE-E	A	1
85	MCQ	XE-E	B	1
86	NAT	XE-E	499 to 501	1
87	NAT	XE-E	53 to 55	2
88	MCQ	XE-E	D	2
89	NAT	XE-E	0.026 to 0.030	2
90	NAT	XE-E	73.5 to 73.8	2
91	NAT	XE-E	2.2 to 2.2	2
92	NAT	XE-E	0.140 to 0.150	2
93	MCQ	XE-E	C	2
94	MCQ	XE-E	A	2
95	MCQ	XE-E	A	2
96	NAT	XE-E	2225 to 2230	2
97	NAT	XE-E	0.76 to 0.82	2
98	NAT	XE-E	29.0 to 30.0	2
99	NAT	XE-E	60.5 to 61.5	2
100	MCQ	XE-F	D	1
101	MCQ	XE-F	B	1
102	MCQ	XE-F	A	1
103	MCQ	XE-F	C	1
104	MCQ	XE-F	A	1
105	MCQ	XE-F	D	1
106	MCQ	XE-F	C	1
107	MCQ	XE-F	D	1
108	MCQ	XE-F	A	1
109	MCQ	XE-F	B	2
110	MCQ	XE-F	C	2

111	NAT	XE-F	55.95 to 56.55	2
112	NAT	XE-F	1.14 to 1.24	2
113	MCQ	XE-F	C	2
114	NAT	XE-F	410 to 418	2
115	MCQ	XE-F	B	2
116	MCQ	XE-F	A	2
117	NAT	XE-F	98.5 to 99.5	2
118	NAT	XE-F	41.00 to 42.20	2
119	MCQ	XE-F	D	2
120	NAT	XE-F	-67.3 to -66.3	2
121	MCQ	XE-F	B	2
122	MCQ	XE-G	B	1
123	MCQ	XE-G	B	1
124	MCQ	XE-G	D	1
125	MCQ	XE-G	B	1
126	NAT	XE-G	1000 to 1000	1
127	MCQ	XE-G	A	1
128	NAT	XE-G	2078 to 2086	1
129	NAT	XE-G	0.80 to 0.90	1
130	MCQ	XE-G	A	1
131	MCQ	XE-G	C	2
132	MCQ	XE-G	B	2
133	MCQ	XE-G	D	2
134	NAT	XE-G	25550 to 25650	2
135	MCQ	XE-G	D	2
136	NAT	XE-G	53.30 to 55.25	2
137	NAT	XE-G	64.0 to 64.0	2
138	NAT	XE-G	0.14 to 0.18	2
139	MCQ	XE-G	D	2
140	NAT	XE-G	6.80 to 7.20	2
141	NAT	XE-G	10.80 to 11.20	2
142	NAT	XE-G	9000 to 9000	2
143	NAT	XE-G	0.30 to 0.40	2
144	MCQ	XE-H	B	1
145	MCQ	XE-H	C	1
146	NAT	XE-H	98.9 to 100.5	1
147	MCQ	XE-H	D	1

148	MCQ	XE-H	B	1
149	MCQ	XE-H	D	1
150	MCQ	XE-H	C	1
151	MCQ	XE-H	A	1
152	MCQ	XE-H	B	1
153	NAT	XE-H	22.05 to 22.15	2
154	NAT	XE-H	0.59 to 0.61	2
155	NAT	XE-H	286.55 to 287.55	2
156	MCQ	XE-H	C	2
157	NAT	XE-H	-4.10 to -3.90	2
158	NAT	XE-H	0.42 to 0.46	2
159	NAT	XE-H	51 to 52	2
160	MCQ	XE-H	B	2
161	MCQ	XE-H	A	2
162	NAT	XE-H	199 to 205	2
163	MCQ	XE-H	D	2
164	MCQ	XE-H	C	2
165	MCQ	XE-H	B	2
166	MCQ	GA	B	1
167	MCQ	GA	B	1
168	MCQ	GA	C	1
169	MCQ	GA	B	1
170	MCQ	GA	B	1
171	MCQ	GA	A	2
172	MCQ	GA	C	2
173	MCQ	GA	C	2
174	MCQ	GA	D	2
175	MCQ	GA	D	2