TEST - 2015

BT	COURSE	DAY : SUNDAY
	BIOTECHNOLOGY	TIME : 10.00 A.M. TO 1.00 P.M.

MAXIMUM MARKS	TOTAL DURATION	MAXIMUM TIME FOR ANSWERING
180	200 MINUTES	180 MINUTES

MENTION YOUR DIPLOMA CET NUMBER					QUESTION BOOKLET DETAILS	
					VERSION CODE	SERIAL NUMBER
					A – 3	210031

DOs :

1. Check whether the Diploma CET No. has been entered and shaded in the respective circles on the OMR answer sheet.
2. This Question Booklet is issued to you by the invigilator after the **2nd Bell i.e., after 09.50 a.m.**
3. The Serial Number of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
4. The Version Code of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
5. compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DON'Ts:

1. **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**
2. **The 3rd Bell rings at 10.00 a.m., till then;**
   - Do not remove the paper seal of this question booklet.
   - Do not look inside this question booklet.
   - Do not start answering on the OMR answer sheet.

SEAL

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. This question booklet contains 180 (items) questions and each question will have one statement and four answers. (Four different options / responses.)
2. After the **3rd Bell is rung at 10.00 a.m.** remove the paper seal of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced by acomplete test booklet. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 180 minutes:
   - Read each question (item) carefully
   - Choose one correct answer from out of the four available responses (options / choices) given under each question / item. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose only one response for each item.
   - **Completed darken / shade the relevant circle with a BLUE OR BLACK INK BALL POINT PEN against the question number on the OMR answer sheet.**

Correct Method of shading the circle on the OMR answer sheet is as shown below:
①●③④

4. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same
5. After the **last Bells is rung at 1.00 p.m.** stop marking on the OMR answer sheet and affix your left hand thumb **impression** on the OMR answer sheet as per the instructions.
6. Hand over the **OMR ANSWER SHEET** to the room invigilator as it is.
7. After separating the top sheet, the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
8. Preserve the replica of the OMR answer sheet for a minimum period of **ONE year.**

PART - A
APPLIED SCIENCE

1. Absorption co-efficient of sound wave is given by _____. Where E_m is energy absorbed by th given medium E_{ow} is the energy absorbed by open window.

1. $a = \frac{E_m}{E_{ow}}$ 2. $a = \frac{E_{ow}}{E_m}$ 3. $a = E_m \times E_{ow}$ 4. $a = E_m + E_{ow}$

2. The rich quality of a musical note depends on
   1. Fundamental frequency 2. Loudness
   3. Larger number of over tones 4. Pitch

3. Waxing and waning are the characteristics of
   1. Periodic motion 2. Oscillations 3. Beats 4. Frequency

4. Velocity of sound in air varies
   1. Inversely as the square root of the density of the medium
   2. Directly as the square root of the density of the medium
   3. Directly as the density of medium
   4. Inversely as the density of medium

5. The vibrations of a body of decreasing amplitude are called
   1. Undamped free vibrations 2. Damped free vibrations
   3. Resonant vibrations 4. Forced vibrations

6. Another name for field emission is
   1. Cold cathode emission 2. Thermionic emission
   3. Photoelectric emission 4. Secondary emission

7. In case of photoelectric emission, the rate of emission of electron is
   1. Independent of frequency of radiation
   2. Dependent on frequency of radiation
   3. Dependent on wavelength of incident radiation
   4. Independent of intensity of radiation

Space For Rough Work

8. Emission of radiation from radioactive element is

1. Slow 2. Fast 3. Spontaneous 4. Very slow

9. In the spectrum of scattered light the lines corresponding to wavelength greater than that of incident light are called

1. Stokes lines 2. Antistokes lines
3. Fluorescent lines 4. Incident lines

10. Resolving power of telescope is given by

1. $\frac{d}{1.22\lambda}$ 2. $\frac{1.22\lambda}{d}$ 3. $\frac{1.22d}{\lambda}$ 4. $\frac{\lambda}{1.22d}$

11. To observe diffraction pattern the obstacle should be

1. Very big 2. Dark
3. Absent 4. Comparable with the wavelength of light

12. When double refraction occurs, extraordinary ray and ordinary rays will have vibrations in the planes _____ to one another

1. Parallel 2. Independent 3. Perpendicular 4. At 45^{o}

13. Maxwell's electromagnetic theory could explain

1. Photo electric effect 2. Interference of light
3. Compton effect 4. Black body radiation

14. The contrast between bright and dark bands of an interference pattern is

1. Low 2. High 3. No change 4. Gradually decreases

15. A non-electrolyte solution is

1. Sugar solution 2. Salt solution
3. Water 4. Copper sulphate solution

Space For Rough Work

16. In alkalies the concentration of OH^- ions is

1. More than 10^{-7}g ions / litre
2. Less than 10^{-7}g ions / litre
3. Equal to 10^{-7}g ions / litre
4. More than 10^{7}g ions / litre

17. An example of derived unit is

1. Meter
2. Second
3. Netwon
4. Candela

18. The prefix used for 10^{-15} is

1. Femto
2. Pico
3. Peta
4. Nano

19. An example of dimensionless constant is

1. Strain
2. Efficiency
3. Force
4. Pi

20. A main scale is divided into half mm and having a Vernier containing 10 divisions has a least count of _____cm.

1. 0.05
2. 0.005
3. 0.02
4. 0.025

21. According to Newton's second law of motion F = Kma. The value of K is

1. 0.1
2. 0
3. 10
4. 1

22. The velocity of a freely falling body is maximum

1. At the beginning
2. Just before it touches ground
3. Exactly half way
4. After it touches ground

23. Wet clothes are dried in washing machine by the property of

1. Inertia of rest
2. Inertia of direction
3. Inertia of motion
4. Inertia of time

24. A force of 1.2×10^{-2} N acts for 3 seconds on a body of mass 0.04kg at rest. The velocity gained by the body is

1. 0.9 m/s
2. 9 m/s
3. 0.09 m/s
4. 9.2 m/s

25. An example of vector quantity is

1. Volume
2. Energy
3. Density
4. Force

Space For Rough Work

26. Handle of the door is fixed away from the end where it is fixed with hinges to

1. Increase the moment of force
2. Decrease the moment of force
3. Keep the door firm
4. Lock it easily

27. Resultant of two equal forces perpendicular to each other acts at an angle _____ to first force

1. 90°
2. 180°
3. 30°
4. 45°

28. The resultant of two forces acting on a body cannot be

1. Greater than first force
2. Zero
3. Lesser than first force
4. Lesser than the difference between two forces

29. Towing of a boat by two forces is an illustration of

1. Lami's theorem
2. Law of triangle of forces
3. Law of parallelogram of forces
4. Law of polygon of forces

30. Shock absorber is an example for

1. Compressive stress
2. Tensile stress
3. Shear stress
4. Shear strain

31. Factor of safety of a structure is

1. Within 2
2. Equal to zero
3. Vary between 5 and 10
4. More than 10

32. In case of liquids as the temperature increases, the viscosity of liquid decreases due to

1. Increase in the rate of diffusion of gases
2. Decrease in the rate of diffusion of gases
3. Increase in the potential energy of molecules
4. Increase in the kinetic energy of molecules

Space For Rough Work

33. One Pascal is equal to

1. 10 dynes/cm^2
2. 1 dyne / cm^2
3. 100 dynes / cm^2
4. 0.1 dyne / cm^2

34. To calm down turbulent sea, sailors use oil to

1. Decrease surface tension
2. Increase surface tension
3. Decrease viscosity
4. Increase cohesive force

35. The thrust on the bottom of the container having a base area of 20 m^2 filled with water to a height of 3 m is _____ (given g =10m/s^2)

1. 6×10^5 N
2. 6×10^4 N
3. 6×10^3 N
4. 6×10^2 N

36. Amount of heat required to raise the temperature of 1 kg of water through 1^oC is

1. One calorie
2. One joule
3. One kilo-calorie
4. One kilojoule

37. Absolute scale of temperature has its zero at

1. 0^oC
2. -100^oC
3. 273^oC
4. -273^oC

38. In case of an ideal gas, the value of pressure or volume co-efficient is

1. $\frac{1}{273}$
2. $-\frac{1}{273}$
3. 273
4. –273

39. The distance travelled by the disturbance per unit time in a given direction is

1. Wave amplitude
2. Wave velocity
3. Wave frequency
4. Wavelength

40. The speed of the transverse wave along the stretched string is given by

1. $V=\sqrt{\frac{T}{m}}$
2. $V=\sqrt{\frac{m}{T}}$
3. $V=\sqrt{\frac{1}{T}}$
4. $V=\frac{\sqrt{m}}{T}$

Space For Rough Work

PART - B

APPLIED MATHEMATICS

41. The value of $\lim_{x \to -2} \frac{x+2}{x^5+32}$ is

1. $\frac{1}{80}$ 2. 80 3. $\frac{-1}{80}$ 4. −80

42. The value of $\lim_{x \to 0} \frac{2x - \tan 3x}{\sin 2x + 3x^2}$ is

1. $\frac{-1}{5}$ 2. 0 3. $\frac{1}{2}$ 4. $-\frac{1}{2}$

43. If $y = e^x \log x$, then $\frac{dy}{dx}$ at $x = 1$ is

1. e^x 2. e 3. 1 4. 0

44. If $y = \tan^{-1} \sqrt{\frac{1+\cos x}{1-\cos x}}$, then $\frac{dy}{dx}$ is

1. 2 2. −2 3. $\frac{-1}{2}$ 4. $\frac{1}{2}$

45. If $\sqrt{x^3} + \sqrt{y^3} = \sqrt{a^3}$, then $\frac{dy}{dx}$ is

1. $\sqrt{\frac{x}{y}}$ 2. $-\sqrt{\frac{x}{y}}$ 3. $\sqrt{\frac{y}{x}}$ 4. $-\sqrt{\frac{y}{x}}$

Space For Rough Work

46. The second derivative of $y = log(sec\ x - tan\ x)$ is

1. $-sec\ x\ tan\ x$ 2. $sec\ x\ tan\ x$ 3. $-sec\ x$ 4. $sec\ x$

47. Water flows into the cylindrical tank of radius 7mt at the rate of 294 cubic mt/sec, then the rate of height of water rising in the tank is

1. $\frac{\pi}{6} mt/sec$ 2. $\frac{6}{\pi} mt/sec$

3. $14406\ mt/sec$ 4. $\frac{21}{\pi} mt/sec$

48. The maximum value of the function $y = x + \frac{1}{x}$ is

1. 0 2. 2 3. 1 4. -2

49. The value of $\int tan^2 x\ dx$ is

1. $tan\ x - x + c$ 2. $x - tan\ x + c$ 3. $(sec^2 x)^2 + c$ 4. $-cot\ x - x + c$

50. The value of $\int \frac{cos\ x}{1 + sin\ x}\ dx$ is

1. $log(sec^2 x + sec\ x\ tan\ x) + c$ 2. $log(sin\ x) + c$

3. $log(1 + sin\ x) + c$ 4. $\frac{(1 + sin\ x)^2}{2} + c$

51. $\int sin^2 x\ sin\ 2x\ dx$ is

1. $\frac{sin^2 x}{2} + c$ 2. $\frac{sin^4 x}{2} + c$ 3. $sin^2 x + c$ 4. $\frac{-sin^4 x}{2} + c$

Space For Rough Work

52. $\int_{-1}^{1}(2x+1)(5-x)\,dx$ is

1. 10
2. $\frac{26}{3}$
3. $\frac{-26}{3}$
4. $\frac{11}{3}$

53. $\int_{0}^{\pi/4} tan^2 x\ sec^2 x\ dx$ is

1. $\frac{1}{3}$
2. $\frac{4}{3}$
3. $\frac{1}{2}$
4. $\frac{-1}{3}$

54. The RMS value of $y^2 = x^2 - 2x$ over the interval [1, 3] is

1. $\sqrt{\frac{5}{3}}$
2. $\sqrt{\frac{2}{3}}$
3. $\frac{1}{3}$
4. $\frac{1}{\sqrt{3}}$

55. The differential equation of $y^3 = 5ax$ by eliminating arbitrary constant a is

1. $\frac{dy}{dx} - \frac{y}{3x} = 0$
2. $\frac{dy}{dx} + \frac{y}{3x} = 0$
3. $\frac{dy}{dx} - \frac{3y}{x} = 0$
4. $\frac{dy}{dx} - \frac{5y}{3x} = 0$

56. The integrating factor of the differential equation $x\frac{dy}{dx} - (1-x)y = x^3$ is

1. $\frac{e^x}{x}$
2. xe^x
3. $e^{\frac{x^2-2x}{2}}$
4. $e^{\frac{2x-x^2}{2}}$

Space For Rough Work

57. If $\begin{vmatrix} 2x+1 & -5x \\ 1 & 3 \end{vmatrix} = 0$, then x is

1. $\frac{3}{11}$ 2. $\frac{-3}{11}$ 3. $\frac{11}{3}$ 4. $-\frac{11}{3}$

58. For the simultaneous linear equations $2x+y+z=1$, $x+y+2z=0$ and $3x+2y-z=2$, the value of Δx is

1. 3 2. -11 3. -7 4. -3

59. If $A=\begin{bmatrix} 2 & 3 \\ 5 & 4 \end{bmatrix}$, $B=\begin{bmatrix} -1 & 7 \\ -4 & 1 \end{bmatrix}$ then $(A+B)^T$ is

1. $\begin{bmatrix} 1 & 1 \\ 10 & 5 \end{bmatrix}$ 2. $\begin{bmatrix} 1 & 10 \\ 1 & 5 \end{bmatrix}$ 3. $\begin{bmatrix} -1 & 10 \\ -1 & 5 \end{bmatrix}$ 4. $\begin{bmatrix} -1 & -1 \\ 10 & 5 \end{bmatrix}$

60. If $A=\begin{bmatrix} 1 & -3 \\ -5 & 7 \end{bmatrix}$, then adj A is

1. $\begin{bmatrix} 1 & -5 \\ -3 & 7 \end{bmatrix}$ 2. $\begin{bmatrix} 7 & -5 \\ -3 & 1 \end{bmatrix}$ 3. $\begin{bmatrix} -1 & -5 \\ -3 & -7 \end{bmatrix}$ 4. $\begin{bmatrix} 7 & 3 \\ 5 & 1 \end{bmatrix}$

61. The cofactor of O in $A=\begin{bmatrix} 3 & -2 & 5 \\ 1 & 6 & 0 \\ 2 & 7 & -4 \end{bmatrix}$ is

1. -25 2. 25 3. -17 4. 0

Space For Rough Work

62. If $\left(\sqrt{3}+1\right)^3 = 10+6\sqrt{3}$, then the value of $\left(\sqrt{3}+1\right)^3 - \left(\sqrt{3}-1\right)^3$ is

1. $12\sqrt{3}$ 2. 0 3. 20 4. $20+\sqrt{3}$

63. The middle term in the expansion of $\left(x^3+\frac{1}{x^2}\right)^6$

1. $10\,x^3$ 2. $20\,x^3$ 3. $\frac{20}{x^3}$ 4. 20

64. If $\vec{a} = i+3j-2k$ and $\vec{b} = 2i-j+3k$, then $\vec{a}\,.\,\vec{b}$ is

1. -5 2. 11 3. 7 4. -7

65. The work done by the force $2i-j+6k$ when it displaces the particle from (5, 3, -2) to (7, -4, 8) is

1. 72 2. 48 3. -71 4. 71

66. The sine of the angle between the vectors $\vec{a} = i+j+k$ and $\vec{b} = 2i-3j-4k$ is

1. $\sqrt{\frac{62}{87}}$ 2. $\sqrt{\frac{87}{62}}$ 3. $\frac{-5}{\sqrt{87}}$ 4. $\sqrt{\frac{10}{63}}$

67. If $\cos\theta = \frac{5}{13}$ and θ is acute angle, then the value of $3\cos\theta - 2\sin\theta$ is

1. $\frac{9}{13}$ 2. 3 3. $\frac{-9}{13}$ 4. -3

Space For Rough Work

68. If $x \sin 30^\circ - Sec\ 30^\circ \tan 30^\circ = \tan^2 60^\circ$, then the value of x is

1. $\frac{22}{3}$ 2. $\frac{-22}{3}$ 3. $\frac{11}{6}$ 4. $\frac{3}{22}$

69. The value of $\sin 225^\circ + \cos(-135^\circ)$ is

1. $\sqrt{2}$ 2. $-\sqrt{2}$ 3. $\frac{1}{\sqrt{2}}$ 4. $\frac{-1}{\sqrt{2}}$

70. The simplified value of $\frac{\sin(180^\circ - A)\cot(90^\circ - A)\cos(360^\circ - A)}{\tan(180^\circ + A)\tan(90^\circ + A)\sin(-A)}$ is

1. $\sin A$ 2. $-\sin A$ 3. 1 4. $\operatorname{cosec} A$

71. The simplified value of $\frac{\sin 2A}{1+\cos 2A}$ is

1. $2\tan A$ 2. $\sin A$ 3. $\cot A$ 4. $\tan A$

72. If $\tan A = \frac{3}{4}$ and $\tan B = \frac{1}{7}$, then the value of (A+B) is

1. $\frac{\pi}{6}$ 2. $\frac{25}{23}$ 3. $\frac{\pi}{4}$ 4. $\frac{23}{25}$

73. The value of $\cos 20^\circ + \cos 100^\circ + \cos 140^\circ$ is

1. 0 2. $\cos 50^\circ$ 3. $\frac{1}{2}$ 4. $\sin 50^\circ$

Space For Rough Work

74. The value of $cos^{-1}\left[\tan 135^\circ\right]$ is

1. 0° 2. 180° 3. 45° 4. 90°

75. The centroid of the triangle formed by the vertices $(-10, 6)$, $(2, -2)$ and $(2, 5)$ is

1. $(-2, 3)$ 2. $(2, 3)$ 3. $\left(-3, \frac{9}{2}\right)$ 4. $(-6, 9)$

76. A point $(-4, 3)$ divides the line AB externally in the ratio of 1 : 2. Given A$(-1, -3)$ then the point B is

1. $(6, -3)$ 2. $(-10, 15)$ 3. $(2, 9)$ 4. $(2, -9)$

77. The area of triangle formed by the point, $(3, -1)$, $(2, 0)$ and (K, 4) is 10 Sq. Units, then the value of K is

1. 12 2. 7 3. -22 4. 22

78. The slope of the line joining the points $(-2, 3)$ and $(4, -6)$ is

1. $\frac{3}{2}$ 2. $\frac{-3}{2}$ 3. $\frac{2}{3}$ 4. $\frac{-2}{3}$

79. The equation of straight line passing through $(4, -1)$ and having equal intercepts is

1. $x+y-1=0$ 2. $x+y-5=0$ 3. $x+y-3=0$ 4. $x+y+3=0$

80. The equation of the line passing through $(5, -2)$ and parallel to the line $3x+2y+7=0$ is

1. $3x+2y-11=0$ 2. $3x-2y+11=0$
3. $3x-2y-19=0$ 4. $2x-3y-16=0$

Space For Rough Work

PART - C

BIOTECHNOLOGY

81. Which of the following carries amino acids during translation

1) m - RNA 2) r - RNA 3) t - RNA 4) n - RNA

82. Which of the following dimer formation is most common

1) Thyamine dimer 2) Cytoidine dimer

3) Uracil dimer 4) Guanine dimer

83. The phase never gained in sublimation is

1) Solid 2) Gas 3) Liquid 4) None

84. Primary steps in protein purification includes

1) Homogenization 2) Solubilization

3) Differential centrifugation 4) All the above

85. What is Ethidium bromide

1) Buffer 2) DNA solution 3) Dye 4) Restriction enzyme

86. What does the phrase run to red mean

1) DNA are moving towards the anode

2) DNA are moving towards the cathode

3) Run the gel until the first piece of DNA reaches red line

4) Need to use red dye

87. DNA possesses

1) No charge 2) Negative charge

3) Pasitive charge 4) Supern charge

Space For Rough Work

88. If the ocular of a microscope is 10x and the objective is set at 100x, then what is the total magnification of the microscope

1) 110 times 2) 90 times 3) 100 times 4) 1000 times

89. The iodine used in gramstaining serves as a

1) Chelator 2) Catalyst 3) Mordant 4) Co-factor

90. Which is the common ingredient of bacterial and fungal cell wall

1) Muramic acid 2) Acetyl glucosamine
3) Mannose 4) Cellulose

91. When a bacteriophage is integrated into a cellular genome, it is called as

1) Virulent virus 2) Prophage
3) Lytic virus 4) Microphage

92. Sanitization

1) Destroys all microbes and spores
2) Inhibit the growth of microbes
3) Destroys some pathogenic microbes
4) Reduces the number of microbes to a level at which they do not show their pathogenic effect

93. What is the target for clavulanic acid

1) β - lactamase 2) L - racemose
3) Penicillin acylase 4) Transpeptidase enzyme

94. Transduction was discovered by

1) Griffith 2) Zinder & Lederberg
3) Lederberg Hayes & Woodman 4) Iwanowsky

Space For Rough Work

95. All of the following are negative interaction except

1) Amensalism
2) Competition
3) Predation
4) Commensalism

96. Which of the following bacterium is called as superbug that would clean up oil spills

1) Bacillus subtitis
2) Pseudomonas pestida
3) Pseudomonas denitrificans
4) Bacillus denitrificans

97. Azolla is used as biofertilizer as it has

1) Rhizobium
2) Cyanobacterium
3) Mycorrhiza
4) Large quantities of humus

98. Oxidation pond is designed to promote growth of

1) Algae
2) Fungi
3) Plants
4) Bacteria

99. Which of the following is a secondary pollutant ?

1) CO_2 2) CO 3) O_3 4) SO_2

100. Incomplete burning of petrol and diesel in vehicles creates a poisonous gas

1) CO 2) CO_2 3) Methane 4) O_3

101. All the bacteria fix nitrogen except

1) Rhizobium
2) E. coli
3) Cyanobacteria
4) Azacobacter

102. The second most abundant Ig is

1) Ig M 2) Ig G 3) Ig E 4) Ig A

103. Any agent that may stimulate the immune system and enhance the response without having any specific antigenic effect by itself

1) Adjuvants
2) Antigens
3) Allergens
4) Carriers

Space For Rough Work

104. Any substances that promotes phagocytosis of antigens by binding to them are called as

1) Opsonins
2) Phagocytes
3) Interleukins
4) Macrophages

105. Origin and maturation of B cells takes place at

1) Spleen
2) Thymus
3) Bone marrow
4) Lymphnodes

106. The process of weakening a pathogen is called

1) Vaccination
2) Attenuation
3) Immunization
4) Virulence reduction

107. Vaccinations are an example of

1) Naturally acquired active immunity
2) Artificially acquired active immunity
3) Naturally acquired passive immunity
4) Artificially acquired passive immunity

108. In anaerobic environment, the sugar in dough is converted into

1) Glucose
2) Alcohol
3) Water
4) Carbonmonoxide

109. Yield coefficient represents

1) Total biomass or product produced
2) Conversion efficiency of a substrate into product
3) Conversion rate of substrate into biomass
4) Production time of biomass or product

Space For Rough Work

110. The lowest yield of ATP is in

1) Fermentation
2) Aerobic respiration
3) Both 1 & 2
4) None

111. Insulin and glucagon are antagonistic hormones because they increase and decrease

1) Calcium
2) Glucose
3) Potassium
4) Cell metabolism

112. Specific rate constant of first order reaction depends on the

1) Time
2) Temperature
3) Concentration of reactant
4) Concentration of product

113. Fermentor temperature during production of alcohol from molasses is around :

1) $5^{o}C$ 2) $30^{o}C$ 3) $150^{o}C$ 4) $300^{o}C$

114. Yeast is used in the manufacture of

1) Penicillin
2) Wine
3) Antibiotic
4) Cheese

115. Milk is a good source of all of the following except

1) Essential amino acids
2) Vitamin C
3) Galactose
4) Calcium & Phosphorus

116. Aflatoxin is produced by

1) Aspergillus spp.
2) Salmonella spp.
3) Fusarium spp.
4) Streptococcal spp.

117. Which of the following is not an intrinsic factor in food spoilage

1) pH
2) Moisture content
3) Temperature
4) Available nutrients

Space For Rough Work

118. Which of the following is an example for probiotics

1) Yoghurt 2) SCP

3) Kefir 4) All

119. Vitamin essential for blood clotting

1) Vitamin K 2) Vitamin D

3) Vitamin E 4) Vitamin B_{12}

120. Substances used to preserve food by lowering the pH are

1) Vinegar and citric acid 2) Smoke and irradiation

3) Baking powder and soda 4) Salt and sugar

121. Spirulina is a

1) Edible fungus 2) Biofertilizer

3) Biopesticide 4) Single cell protein

122. Which is correct about parental route of drug administration

1) Cannot be used with unconcious patients

2) Produces quick response

3) Results in less accurate dosage as compared to oral administration

4) Cannot be used in emergency condition

123. Drug which is not under the leaves class

1) Senna 2) Digitalis 3) Eucalyptus 4) Turmeric

124. The roots of following drugs are effective, except

1) Rauwolfia 2) Ipecacuanha 3) Turmeric 4) Aconite

125. Drug not belong to volatile oil class

1) Peppermint 2) Clove 3) Castor oil 4) Garlic

Space For Rough Work

126. Alkaloids are _____ type of substances

1) Acid
2) Neutral
3) Chemical
4) Basic nitrogenous

127. Local anesthetics are

1) Weak base
2) Salts
3) Weak acids
4) None

128. Pharmacodynamics involves the study of following

1) Biological & therapeutic effects of drugs
2) Absorption and distribution of drugs
3) Mechanism of drug action
4) Drug interaction

129. Biological barriers include all the following except

1) Placenta
2) Capillary walls
3) Cell membranes
4) Renal tubules

130. Entropy change for an irreversible isolated system is

1) ∞
2) < 0
3) 0
4) > 0

131. Molarity is defined as a number of gram moles of solute per _____ of solvent

1) Litre
2) Gram
3) Kg
4) cc

132. In a chemical process of two reactants A (200kg) and B (200kg) is used as reactant. If conversion is 50% and A & B reacts in equal proportion then calculate the weight of the product formed.

1) 150kg
2) 250kg
3) 200kg
4) 400kg

133. In a drying process moisture is reduced from 60% to 30%. Initial weight of the material is 200kg. Calculate the final weight of the product.

1) 100kg
2) 130.4kg
3) 120kg
4) 114.3kg

Space For Rough Work

134. In material balance of a process, recycle product is always considered as

1) Input to process
2) Both (1) and (3)
3) Output to process
4) None

135. Which of the following plant cell will show totiopotency

1) Meristem
2) Xylem vessel
3) Sieve tube
4) Cork cells

136. In gel fitration chromatography separation of proteins are based on their

1) Size and net charge
2) Size and shape
3) Size and specific affinity
4) Shape and net charge

137. Raw material used for the production of alcohol is

1) Molasses
2) Starch
3) Sulphite waste liquor
4) All of these

138. Harmone pair required for a callus to differentiate are

1) Auxin & cytokinin
2) Auxin & ethylene
3) Auxin & abscisic acid
4) Cytokinins & gibberlins

139. Paper chromatography is used

1) To separate amino acids
2) To separate nucleotides
3) To separate low molecular weight solutes
4) All the above

140. Synthetic seed is produced by encapsulating somatic embryo with

1) Sodium Chloride
2) Sodium alyinate
3) Sodium acetate
4) Sodium nitrate

141. The production of secondary metabolites require the use of

1) Protoplast
2) Meristem
3) Cell suspension
4) Auxillary buds

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142. Different components of a mixture have different Rf values due to

1) Polar solvent used
2) Combination of solvents used
3) Their different distribution coefficients in the solvent
4) Distributive law

143. Enzyme increases the rate of reaction

1) By Increasing activation energy
2) By reducing activation energy
3) Does not affect
4) All the above

144. Protein, separation techniques are often based on following properties except

1) Solubility of proteins
2) Viscosity of proteins
3) Charge of proteins
4) Specific binding affinity of proteins

145. Which would be best to separate a enzyme that binds strongly to its substrate

1) Gel filteration
2) Cation exchange
3) Affinity chromatography
4) Anion exchange

146. Which of the statements regarding enzymes is false

1) Enzymes are specific
2) Enzymes are recycled
3) Enzymes are proteins
4) Enzymes provide activation energy for reaction

147. Enzymes, vitamins and hormones can be classified into a single categorized of biological chemicals because all of them

1) Aid on regulating metabolism
2) Are synthesized in organic
3) Are proteins
4) Enhance oxidation

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148. Which of the following is the most suitable gas to use as a carrier gas chromatography

1) Helium 2) Oxygen 3) Methane 4) CO_2

149. Enzymes are

1) Thermophile 2) Thermolabile

3) Thermostat 4) All of these

150. Cofactor is a part of holoenzyme. It is

1) Loosely attached organic part

2) Loosely attached Inorganic part

3) Accessory non-protein substance attached firmly

4) None of these

151. Clastal ω is a tool for

1) Multiple sequence alignment

2) Protein sequence structure predicting

3) Data retriving tool

4) Nucleic acid sequence analysis tool

152. SWISS PROT is related to

1) Portable data 2) Sequence data bank

3) Swiss bank data 4) Sequence sequence data

153. All the following are protein databases except

1) PIR 2) PSD

3) SWISS PROT 4) EMBL

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154. The metal ion among 3d series has maximum paramagnetic character

1) Mg^{+2} 2) Mn^{+2} 3) Cu 4) Zn

155. LCAO Stands

1) Linear configuration of atomic orbitals
2) Linear combination of atomic orbitals
3) Latice combination of atomic orbitals
4) Latice configuration of atomic orbitals

156. The strength of acids / base depends on

1) Concentration of H^+ 2) Concentration of OH
3) Both (1) and (2) 4) It does not depend on H^+ or OH^-

157. The addition of solute to the liquid decreases vapour pressure and the boiling point

1) Increases 2) No effect on Boiling point
3) Decreases 4) Remains same

158. The group of elements are known as transition metals

1) S – block 2) P – block 3) D – block 4) F – block

159. To possess optical activity, a compound must be

1) Asymmetric 2) Symmetric 3) Carbohydrate 4) Both 2) and 3)

160. Which of the following is an epimeric pair

1) D – Glucose and D – Glucosamine 2) D – Glucose and D – Mannose
3) D – Lactose and D – Sucrose 4) L – Mannose and L – Fructose

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161. Which of the following would be considered a part of metabolism

1) Biosynthetic pathway that build DNA
2) Catabolic pathway that breakdown complex carbohydrates
3) The capture of light energy for use in making glucose
4) All the above

162. Tricarboxylic acid cycle to be continuous requires the regeneration of

1) Pyruvic acid
2) Oxaloacetic acid
3) α - oxaloglutaric acid
4) Malic acid

163. What is the function of ATP

1) Message carrier
2) Store and transport energy
3) Make proteins
4) Breakdown sugar

164. All amino acids are optically active except

1) Glycine
2) Serine
3) Threonine
4) Tryptophan

165. The centromeres contain a protein complex called

1) Secondary constriction
2) Telomere
3) Kinetochore
4) Satellite

166. The most abundant RNA in a cell is

1) m - RNA 2) n - RNA 3) r - RNA 4) t - RNA

167. A point mutation that changes a codon specifying an amino acid into a stop codon is called as

1) Nonsense mutation
2) Deletion mutation
3) Frameshift mutation
4) Missense mutation

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168. The organcell which present in both prokaryotes and eukaryotes is / are

1) Mitochondria 2) Chloroplast 3) Ribosomes 4) Mesosomes

169. Phagocytosis refers to

1) Cell eating 2) Cell vomiting

3) Cell drinking 4) None

170. Pressure variation in fluid at rest is obtained by hydrostatic law which states that

1) Pressure in a vertically downward direction is less than specific weight of fluid

2) Pressure in a vertically downward direction is equal to specific weight of fluid

3) Not related with specific weight of fluid

4) Alters viscosity of fluid

171. Darcy - Weisbakh formula is given by

1) $\mathrm{hf} = \frac{f'}{\rho g} \times \frac{\rho}{\mathrm{A}} \times L \times \mathrm{V}^2$ 2) $\mathrm{hf} = \frac{\rho g}{f'} \times \frac{\rho}{\mathrm{A}} \times \mathrm{V}^2$

3) $\mathrm{hf} = \frac{4 f d \mathrm{V}^2}{d \times 2g}$ 4) $\mathrm{hf} = \frac{d \times 2g}{4 f \alpha \mathrm{V}^2}$

172. The ratio between dynamic viscosity and density of fluid is

1) Kinematic viscosity 2) Dynamatic viscosity

3) Relative viscosity 4) Both (1) and (3)

173. The convection heat transfer coefficient is

1) hcAdT 2) $\mathrm{hcA}\frac{\mathrm{dT}}{\mathrm{dx}}$ 3) $\mathrm{hcL}\frac{\mathrm{dT}}{\mathrm{dA}}$ 4) $\mathrm{hc}\rho\frac{\mathrm{dT}}{\mathrm{dx}}$

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174. For a distillation column operating at maximum reflux, the

1) Reflux ratio will be maximum
2) Concentration of vapour leaving will be same
3) Number of plates required will be maximum
4) None of these

175. Unwinding of DNA is done by

1) Helicase
2) Hexonuclease
3) Topoisomerase
4) Ligase

176. Semi conservative replication of DNA was first demonstrated in

1) Escherichia coli
2) Dorsophila Melanogaster
3) Salmonella typhimuriam
4) Streptococcus pneumonae

177. Which of the following statement are true regarding rDNA technology

1) It is used to obtain large number of copies of specific DNA fragments
2) It is used to obtain large quantities of protein produced by the concerned gene
3) It is used to integrate gene of interest into chromosomes where it expresses itself
4) All the above

178. Restriction enzymes are also called as

1) Molecular scalpels
2) Biological scissors
3) Molecular knives
4) All of these

179. Inducing DNA into cells by exposing to high voltage electripulse is

1) Electrofusion
2) Electrofission
3) Electrolysis
4) Electroporation

180. DNA glucosylase is an enzyme involved in base excision repair. The function is

1) Removal of phosphodiester bond
2) Addition of correct nucleotide
3) Removal of incorrect base
4) Addition of correct base

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SEAL