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1101E325

Candidate's Seat No :_____

B.Sc. Sem.-5 Examination

CC 303

Geology

January 2021

Time : 2-00 Hours] **[Max. Marks : 50**

કુલ આઠ પ્રશ્નો છે. કોઇ પણ ત્રણ પ્રશ્નોના જવાબ આપો. દરેક પ્રશ્નના કુલ ચૌદ (૧૪) ગુણ છે.

૧. ટ્રિપુટ પર નોંધ લખો.

2. એમોનોઇડીયા પર વિગતવાર નોંધ લખો.

3. પ્રાચિન-પરિસ્થતિ વિજ્ઞાનની બાહ્યરુપરેખાની ચર્ચા કરો.

4. પ્રાચિન-વનસ્પતિશાસ્ત્રની બાહ્યરુપરેખાનુ વર્ણન કરો.

5. રસાયણશાસ્ત્રીય કણકૃત ખડકોનો ઉદભવ, વર્ગીકરણ અને પ્રકારોને સમજાવો.

6. કણકૃત સંરચનાનાં પૂર્વ-નિક્ષેપણ અને પ્રકિર્ણ પ્રકારોનું વર્ણન કરો.

7. કણજન્ય ભુમિગત નિક્ષેપોની ચર્ચા કરો.

8. સામુદ્રિક પર્યાવરણનું ગતિવિજ્ઞાન સમજાવો.

વિભાગ II (ફરજીયાત)

આઠ પ્રશ્નોમાંથી કોઇપણ ચાર પ્રશ્નોના જવાબ આપો. દરેક પ્રશ્નના બે (૦૨) ગુણ છે.

૯. ટૂકમાં જવાબ લખો (બહુવિધ પસંદગી પ્રશ્નો):

૧. ગેસ્ટ્રોપોડ એક દાંતનું ચોકઠુ ધરાવે છે જે ઓળખાય છે

(અ) ઓડોન્ટોફોર. (બ) સાયફોનોસ્ટોમેટસ્.

(ક) પરફોરેટ. (ડ) કોલ્યુમેલા.

૨. નોટીલઇડસ્ ધરાવે છે

(અ) બે પડ - બાહ્ય કઠિન અને આંતરીક ચૂનાયુક્ત. (બ) એક પડ - ચૂનાયુક્ત.

(ક) ત્રણ પડ - કઠિન, કેલ્સાઇટીક અને એરેગોનીટીક. (ડ) બે પડ - કઠિન અને કેલ્સાઇટીક.

૩. કરોડરજ્જુ વગરના પ્રાણીઓ હોઇ શકે

(અ) શાકાહારી. (બ) માંસાહારી.

(ક) ઉભયાહારી. (ડ) ઉપરના બધા.

૪. સ્ટોમેટોલાઇટ બને છે

(અ) લીલ થી. (બ) ફુગ થી.

(ક) જમીન પરની વનસ્પતિ થી. (ડ) સુક્ષ્મ જંતુ થી.

P. T. O.

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૫. કણજન્ય નિક્ષેપોનો પ્રકાર

(અ) એક છે – ગોળાસ્મવાળા.

(બ) બે છે – મૃણમય અને ગોળાસ્મવાળા.

(ક) ત્રણ છે – મૃણમય, રેતી વાળા અને ગોળાસ્મવાળા.

(ડ) ચાર છે – મૃણમય, સિલ્ટ વાળા, રેતી વાળા અને ગોળાસ્મવાળા.

૬. ફ્રોકના વર્ગીકરણ પ્રમાણે ચૂનાખડક નીચેના પ્રકારોમાં વિભાગી શકાય

(અ) ચાર.

(બ) દસ.

(ક) આઠ.

(ડ) બે.

૭. ફાસીસ્ના નામ આ પ્રમાણે આપી શકાય

(અ) વિસ્તારનું નામ.

(બ) ખડકમાં રહેલ વધુ અશ્મિના નામ.

(ક) ખડકનાં પ્રકારો.

(ડ) ઉપરનાં બધા.

૮. મુખ્યત્વે બે પ્રકારની નિક્ષેપીત સંરચનાઓ વાતજન્ય રચનામાં મળે છે

(અ) લોએસ્ અને વાતનિર્મિત અનિયમિત ડુંગરધાર.

(બ) રેતીનાં ઢુવા અને લોએસ.

(ક) લોએસ્ અને પાષાણટોપ.

(ડ) રેતીનાં ઢુવા અને શુષ્કપ્રદેશીય ખડકો.

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GEL 303 GEOLOGY

Time: Two Hours **Marks: 50**

Total eight question. Write answers of any three questions. Each questions has fourteen (14) marks.

1. Write a note on Bivalvia.

2. Write a detailed note on Ammonoidea.

3. Discuss outlines of palaeoecology.

4. Describe outlines of palaeobotany.

5. Explain genesis, classification and types of chemical sedimentary deposits.

6. Describe pre-depositional and miscellaneous sedimentary structures.

7. Discuss diagenesis of terrigenous sediments.

8. Explain dynamics of marine environments.

PART II (Compulsory)

Write answers of any four questions out of eight questions. Each question contains two (02) marks.

9. Answer in short (Multiple choice question):

1. Gastropods contains one dental apparatus known as

(A) Odontophore. (B) Siphonostomatus.

(C) Perforate. (D) Columella.

2. Nautiloides are having

(A) Two layers - outer chtinous and inner calcareous. (B) One layer - calcareous.

(C) Three layers - horny, calcitic and aragonitic. (D) Two layers - horny and calcitic.

3. Invertebrate animals may be

(A) Herbivore. (B) Carnivore.

(C) Omnivore. (D) All the above.

4. Stromatolites are produced by

P. T.O

(A) Algae. (B) Fungi.

(C) Land plants. (D) Bacteria.

5. Fragmental deposits are of

(A) One type - rudaceous.

(B) Two type - argillaceous and rudaceous..

(C) Three type - argillaceous, arenaceous and rudaceous.

(D) Four type - argillaceous, silt, arenaceous and rudaceous.

6. Limestones can be divided into following categories as per Folk's classification

(A) Four. (B) Ten.

(C) Eight. (D) Two.

7. Names of the facies can be given on the bases of

(A) Name of locality. (B) Name of abundant fossil content in the rock.

(C) Types of lithology. (D) All the above.

8. Depositional features of mainly two types present in aeolian system are

(A) Dunes, loess and yardang. (B) Dunes and loess.

(C) Loess, zeugen and yardang. (D) Dunes, pedestal rocks and millet seed sand.

—X—

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Candidate's Seat No :_____

B.Sc. Sem.-5 Examination

CC 303

Environmental Science

January 2021

Time : 2-00 Hours] **[Max. Marks : 50**

Instructions: (1) All Questions in **Section I** carry equal Marks.
(2) Attempt any **THREE** questions in **Section I.**
(3) Questions IX in **Section II** is **Compulsory.**
(4) Draw Figures where necessary. Show question number against each answer.
(5) Figures in right are marks.

Section-I

1. (A) Write short note on toxicity of food additives 7
   (B) Explain Solvent and vapor toxicity. 7
2. (A) Explain different toxicological terms with its examples 7
   (B) Explain Pesticides toxicity. 7
3. (A) Short note on Silicosis symptoms and treatment. 7
   (B) Short note on Asbestosis symptoms and treatment. 7
4. (A) Short note on Toxicity Testing with examples. 7
   (B) Describe GM crops and its advantages and disadvantages. 7
5. (A) Detail note on Properties of Solid waste. 7
   (B) Describe Landfill Process in detail. 7
6. (A) Short Note on Process of Solid waste management. 7
   (B) Describe Types of solid waste with examples. 7
7. (A) Discuss symptoms, prevention and treatment of Botulism disease. 7
   (B) Detail Note on Metal Toxicity. 7
8. (A) Write short note on Anthrax. 7
   (B) Write short note on infectious disease caused by *Vibrio cholerae.* 7

SECTION - II

9. Answer in short **(Any Eight)** 8

(1) Which carcinogen is responsible for intestine cancer?
(2) Effect of ethanol on human.
(3) Define: Gingivitis.
(4) Define: Asymptomatic.
(5) What kind of hypersensitivity is associated with asthma?
(6) Which type of food additives use in sweets during Diwali?
(7) Write symptoms caused by exposure to pesticides.
(8) Define: flavouring agent.
(9) Give the names for any four organo-chloride pesticides
(10) What is the side effect of Digoxin toxicity?
(11) what is herbicides?
(12) Define: Composting.
(13) Difference between solid waste and hazardous waste
(14) Write any two properties of Hazardous waste management.
(15) What is source reduction activity?
(16) Symptoms of asbestosis.
(17) Effect of methanol on human.
(18) Define: Minamata.
(19) What is Acetaminophen toxicity?
(20) What is a practice used to reduce and manage Municipal solid waste?
(21) What are the symptoms of cigarette poisoning?

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Candidate's Seat No :_____

B.Sc. Sem.-5 Examination
CC 303
Biochemistry
January 2021

Time : 2-00 Hours] **[Max. Marks : 50**

Section I: Attempt any three:		
Q1 a)	Define enzyme and explain activation energy.	(07)
b)	List the differences between enzyme catalyst & chemical catalyst.	(07)
Q2 a)	Write a note on Zymogen.	(07)
b)	Write a brief note on Ribozymes & Synzymes.	(07)
Q3 a)	Discuss the role of Membrane Bound Enzyme in signal transmission giving G-protein- Adenylate Cyclase as an example.	(08)
b)	Discuss the role of Metalloenzymes in Enzyme catalyzed reactions.	(06)
Q4 a)	What are Multienzyme Complexes? Discuss PDC in detail as an example.	(08)
b)	Define Isoenzymes. How do Isoenzymes vary from each other?	(06)
Q5	Explain in detail the 4 digit classification of enzymes giving suitable examples wherever necessary.	(14)
Q6 a)	Discuss the effect of substrate concentration on rate of enzyme catalyzed reactions.	(08)
b)	Name the coenzyme form of Thiamin, draw its structure & state its role in enzyme catalyzed reactions with an example.	(06)
Q7 a)	Discuss covalently modulated enzymes in detail. Describe how Glycogen Phosphorylase is regulated Covalently.	(14)
Q8 a)	Discuss Ordered, Random & Ping-Pong Reaction Mechanism for two substrate enzyme reactions with proper examples.	(14)
Section II: Attempt any 8:		**(08)**

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1	What is group specificity? Give one example.	
2	Name any one enzymologist & his contribution.	
3	Define Cofactor.	
4	Name any two mechanisms of enzyme catalysis.	
5	Give one importance of Multienzyme Complex.	
6	Give two examples of Metalloenzymes.	
7	How do Multienzyme Complexes vary from Multifunctional Proteins	
8	Give one Clinical importance of Isoenzymes.	
9	What is Km?	
10	Name the coenzyme form of Riboflavin.	
11	Define optimum pH.	
12	To which class does Alcohol Dehydrogenase belong?	
13	Define Allosteric enzymes with an example.	
14	Give full forms of MWC & KNF models for Allosteric enzymes.	
15	Give one difference between Allosteric & non regulatory enzymes.	
16	List all the modulators of PFK-I.	

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Candidate's Seat No :_____

B.Sc. Sem.-5 Examination
CC 303
Computer Science
January 2021

Time : 2-00 Hours] **[Max. Marks : 50**

Instructions:All Questions in SECTION 1 carry equal marks.
Attempt any THREE questions in SECTION 1
Question 9 in SECTION II is COMPULSORY

SECTION I

Q-1 **Write the following.**

(A) What is OOP?Explain all OOPs concept in detail with example **(07)**

(B) What is Java?Explain all the features of java **(07)**

Q-2 **Write the following.**

(A) Explain program structure of java. **(07)**

(B) Give the difference between Java,C++ and C **(07)**

Q-3 **Write the following.**

(A) What is operator?Explain all operator with example **(07)**

(B) Explain iteration statement with example. **(07)**

Q-4 **Write the following.**

(A) Explain selection statement with example **(07)**

(B) Explain constant and identifier in detail **(07)**

Q-5 **Write the following.**

(A) Explain this and super keyword in java **(07)**

(B) Explain memory management and garbage collection in java **(07)**

Q-6 **Write the following.**

(A) Explain class structure in java **(07)**

(B) What is method overloading?Explain it with example **(07)**

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Q-7 **Write the following.**

(A) What is package?Explain the whole concept of package in detail with example **(07)**

(B) What is interface?Explain it in detail with example **(07)**

Q-8 **Write the following.**

(A) What is thread?Explain life cycle of thread with example **(07)**

(B) Explain concept of abstract class in detail with example **(07)**

SECTION II

Q-9 **MCQ[ATTEMPT ANY EIGHT]** **(08)**

(1) Which of the following option leads to the portability and security of Java?
A)Bytecode is executed by JVM
B)The applet makes the Java code secure and portable
C)Use of exception handling
D)Dynamic binding between objects

(2) _____ is used to find and fix bugs in the Java programs.
A)JVM B)JRE C)JDK D)JDB

(3) Which of the following tool is used to generate API documentation in HTML format from doc comments in source code?
A)javap tool B)javaw command
C)Javadoc tool D)javah command

(4) Which package contains the Random class?
A)java.util package B)java.lang package
C)java.awt package D)java.io package

(5) Java Source Code is compiled into _____.
A).Obj B)Source Code C)Bytecode D).Exe

(6) How to compile java code in command prompt?
A)javac filename.java B)java filename.java
C)javac filename D)java filename

(7) Java is case sensitive?
A)True B)False

(8) Who is known as father of Java Programming Language?
A)James Gosling B)M. P Java
C)Charel Babbage D)Blais Pascal

(9) Properties are implemented using ___ in Java.
A) Methods B) Variables C) Interfaces D) All the above

E 3 2 8 - 3

(10) The source-code of An Abstract-Class or Interface is kept inside a .java file.
A) FALSE B) TRUE

(11) In Java, the keyword used to declare a class is ___.
A) Class B) Java C) class D) java

(12) How many maximum numbers of objects can be created from a single Class in Java?
A) 32 B) 64 C) 256 D) None

(13) Package in Java is a mechanism to encapsulate a _____.
A)Classes B)Sub Packages C)Interfaces D)All of the above

(14) Which of these keywords is used to define packages in Java?
A)pkg B)Pkg C)package D)Package

(15) Package names and directory structure are closely related.
A)TRUE B)FALSE

(16) Which of this access specifies can be used for a class so that its members can be accessed by a different class in the same package?
A)Public B)Protected C)No Modifier D)All of the mentioned

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Candidate's Seat No :_____

B.Sc. Sem.-5 Examination

CC 303

Statistics

January 2021

Time : 2-00 Hours] **[Max. Marks : 50**

Attempt Any Three Questions

Q. 1 (i). Explain the concept of a percentile scale and describe a practical method of its computation from raw scores. [7 marks]

(ii) What do you mean by scaling individual test items in terms of difficulty? Explain. [7 marks]

Q. 2 (i) Discuss in detail about Z-scores and standard scores. [7 marks]

(ii) Discuss in detail about T-scores and compare T-scores and standard scores. [7 marks]

Q. 3 (i). How can item analysis in the criterion referenced test be carried out? [7 marks]

(ii) Discuss in detail about item analysis and mention its two aspects. [7 marks]

Q. 4 (i) Give in detail an account of two main aspects of item analysis. [7 marks]

(ii). Explain distractor and power of distraction. [7 marks]

Q. 5 (i) Explain in detail the reliability of any test and also state its linear model. [7 marks]

(ii). What is the effect of size of groups on reliability? [7 marks]

Q. 6 (i) What is split half method? Also write its advantages and disadvantages. [7 marks]

(ii). Give two method of determining reliability in detail. [7 marks]

Q. 7 (i) Write in detail about test length and validity. State its formula with an example. [7 marks]

(ii). What are the criteria for determining validity? Write in detail about two criteria. [7 marks]

Q. 8 (i) What is meant by validity of a test? Explain the difference between the reliability and validity of a test [7 marks]

(ii). Which are the types of validity? Give detail account of two types. [7 marks]

Q. 9 Attempt any eight [8 marks]

i. What is mean and standard deviation of Stanine scores?
ii. Who has given the value corresponding to any rating?
iii. What is the formula to find percentile score of rank R?
iv. What is the full form of IOCI?
v. What is the formula to find difficulty value?
vi. What is the full form of PPDI?
vii. What is index of reliability?
viii. Which are the two important factors affecting the reliability of a test?
ix. What is the range of reliability?
x. How is validity of the test determined between the ratings and the test scores?
xi. What does the coefficient of validity determines?
xii. Give a real life instance for validity used in day-to-day life.

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B.Sc. Sem.-5 Examination

CC 303

Statistics

Time : 2-00 Hours] January 2021 [Max. Marks : 50

Instructions

1. *There are two sections in this question paper.*
2. *All questions in Section – I carry equal marks.*
3. *Attempt **ANY THREE** questions from Section – I.*
4. *Section – II is compulsory.*
5. *Figures to the right indicate full marks of the questions/sub-questions.*

Section - I

Q. 1 a Explain in detail "Simple Random Sampling". **07**

b State the properties of good questionnaire. **07**

Q. 2 a Define, population and its types, sample, sample survey and census. Give one example of hypothetical population. **07**

b In usual notations, prove for the simple random sampling under without replacement, $E(s^2) = S^2$ **07**

Q. 3 a State different allocations used in stratified sampling. Explain, in detail, Neyman allocation. **07**

b In usual notations, prove $V(\bar{y})_{opt} \leq V(\bar{y})_{Ney} \leq V(\bar{y})_{SR}$ **07**

Q. 4 a What is stratification? With reference to stratified sampling, in usual notations, prove that stratified mean is an unbiased estimate of population mean. **07**

b In usual notations, show that $v(\bar{y}_{St}) = V(\bar{y}_{St})$ **07**

Q. 5 a In usual notations, prove that if $N = nk$, derive the expression for $V(\bar{y}_{Sy})$. **07**

b If ρ_w is the coefficient of correlation between the units of the same systematic sample, then prove that **07**

$$V(\bar{y}_{sy}) = \left(\frac{N-1}{N}\right)\left(\frac{S^2}{N}\right)(1+(n-1)\rho_w)$$

Q. 6 a Describe Systematic sampling. Also, discuss the case of systematic sampling when N=nk **07**

b In usual notations, if $N = nk$, prove that $E(\bar{y}_{sy}) = \bar{Y}$. **07**

Q. 7 a Give brief idea about Two Stage Sampling. Do you suggest it as an incomplete stratification? **07**

b For Two Stage Sampling, derive the formula for unbiased estimator of $V(\bar{y})$. **07**

Q. 8 a In usual notation for two stage sampling show that **07**

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$$V(\bar{\bar{y}}) = (1-f_1)\frac{S_1^2}{n} + (1-f_2)\frac{S_2^2}{mn}$$

b How does two stage sampling differs from cluster sampling? 07

SECTION – II

Q. 9 **Answer ANY EIGHT (08) from following** 08

1 Define population and give one example of it

2 What is "Simple Random Sample"?

3 Given N=100 and the variance of stratified mean as 1.25, find the value of variance of total.

4 What is the sample size for each stratum under Proportional allocation?

5 Do you agree that Neyman and Optimal allocation are same?

6 Mrs. Trahan samples her class by selecting 5 girls and 7 boys. Name the type of sampling used.

7 A Farmer divides his apple farm into 10 regions. He then randomly selected 5 trees from each region to estimate the number of apples produced on his apple tree farm. Which sampling technique is applied?

8 What is primary unit in two stage sampling?

9 Give one example showing secondary unit, with reference to Two Stage Sampling.

10 In systematic sampling, what is intra class correlation coefficient?

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1101E330

Candidate's Seat No :_____

B.Sc. Sem.-5 Examination

CC 303

Electronics

Time : 2-00 Hours] **January 2021** **[Max. Marks : 50**

Instructions: (1) *All* questions in section-1 carry equal marks.
(2) Attempt *any THREE* questions in Section-I.
(3) *Question-9* in section-II is compulsory.

Section-I

Q-1 (A) Write a short-note on Average Responding Voltmeter. (7)
(B) Explain the working of the Transistor Voltmeter with suitable circuit diagram. (7)

Q-2 (A) Explain true-RMS voltmeter in brief. (7)
(B) Explain the basic principle of differential volt meter. (7)

Q-3 (A) Draw block diagram of ramp type DVM. Explain function of each block. (7)
(B) A 4 and ½ digit voltmeter is used for voltage measurements. (1) Find its resolution (2) How would 12.98 V be displayed on 10 V range? (3) How would 0.6973 be displayed on 1 V and 10 V ranges. (7)

Q-4 (A) Explain the basic principle of successive approximation type DVM. (7)
(B) What is the resolution of a 3 and ½ digit display on 1 V and 10 V ranges? (7)

Q-5 (A) Draw the block diagram of C.R.O. Explain function of each block briefly. (7)
(B) Write a short note on CRT circuits. (7)

Q-6 (A) Write a short-note on lumped parameter type delay line. (7)
(B) Explain construction of distributed parameter delay line in detail. (7)

Q-7 (A) With the help of suitable diagram, explain pulse terms/characteristics (1) rise time (2) fall-time (3) duty cycle (4) sag (7)
(B) Draw the block diagram of general purpose pulse generator providing negative pulses of variable frequency, duty cycle and amplitude. (7)

Q-8 (A) Briefly explain the role of astablemultivibrator in pulse and square-wave generation. (7)
(B) Explain basic concept of simplified current source operation in laboratory pulse generator. (7)

Section-II

Q-9 Attempt any EIGHT (8)
(A) What is full form of PMMC?
(B) Write any one advantage of chopper voltmeter.
(C) Why FET input amplifier stage is used in Transistor Volt Meter?
(D) _____type voltmeter is used to measure DC μV.
(E) Write one advantage of digital readout over the analog readout of a voltmeter.
(F) How the dual slope integrating type DVM is superior to single slope ramp type DVM?

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E 330-2

(G) What is the full form of SAR?

(H) Draw the figure of 3 and 1/2 digit display of DVM.

(I) _____ is the heart of the oscilloscope, which generates the electron beam, accelerates the beam to a high velocity, deflects the beam and contains phosphor screen.

(J) The calibrated horizontal and vertical mark placed on the CRT screen to facilitate the use of oscilloscope is known as _____.

(K) Which control adjusts the potential between the deflection plates and the first accelerating electrode and is used to produce a round spot?

(L) The property of some crystalline materials, such as phosphor or zinc oxide, to emit light when stimulated by radiation is called _____.

(M) Write any one common characteristic of a signal generator.

(N) _____ is the full form of PRR?

(O) Circuits used in pulse generation generally falls in two categories:_____and _____.

(P) Considering pulse characteristics, when the initial amplitude rise exceeds the correct value _____occurs.

—— X ——

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B.Sc. Sem.-V (New) Examination

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Botany

Time : 2-00 Hours] January-2021 [Max. Marks : 50

સૂચના : (૧) જમણી તરફના અંક જે તે પ્રશ્નનો ગુણ દર્શાવે છે.
(૨) ગમે તે ત્રણ પ્રશ્નોના જવાબ આપવાના છે.
(૩) વિભાગ-બી માં પ્રશ્ન નં. ૯ ફરજિયાત છે.

વિભાગ-એ

૧ (ક) વર્ણવો : સુષુપ્તતાના કારણો ૧૪
(ખ) વર્ણવો : સુષુપ્તતાને તોડતી પદ્ધતિઓ

૨ બીજાંકુરણના વિવિધ તબક્કાઓ તેમજ એની પર અસર કરતા પરિબળોનું સવિસ્તાર વર્ણન કરો. ૧૪

૩ પ્રોટીનની રચનાના આધારે એના ગુણધર્મો અને વર્ગીકરણ વર્ણવો. ૧૪

૪ લિપિડની રચના અને તેના વિવિધ ઘટકોનું વર્ણન કરી તેનું મહત્વ સમજાવો. ૧૪

૫ અર્ધીકરણ-૧ની પ્રક્રિયાનું સવિસ્તાર વર્ણન કરી તેનું મહત્વ સમજાવો. ૧૪

૬ (ક) વર્ણવો : પોલિટીન રંગસૂત્રો ૧૪
(ખ) વર્ણવો : કોષીય આંતરક્રિયાઓ

૭ (ક) વર્ણવો : પૂર્ણ તથા અપૂર્ણ સંલગ્નતા ૧૪
(ખ) વર્ણવો : સંલગ્નતાને અસર કરતા પરિબળો

૮ વ્યક્તિકરણ (Crossing over)નું સવિસ્તાર વર્ણન કરી તેને અસર કરતા પરિબળો સમજાવો. ૧૪

વિભાગ-બી

૯ ટૂંકમાં જવાબ લખો (કોઈપણ આઠ) : ૦૮

૧ સુષુપ્તતાની વ્યાખ્યા આપો.

૨ બીજ વય એટલે શું? (બીજ જીવંતતા)

૩ વાસંતીકરણ એટલે શું?

૪ અંકુરણ દરમિયાન સૌપ્રથમ અંકુરિત થતા ભાગનું નામ જણાવો.

૫ કોઈપણ બે એમિનો એસિડના નામ જણાવો.

૬ બે એમિનો એસિડને જોડતા બંધનું નામ જણાવો.

૭ વ્યાખ્યા આપો : ડાઈસેકેરાઈડ્સ.

૮ ગમે તે બે ફેટી એસિડના નામ આપો.

૯ ગમે તે બે સુક્ષ્મઅંગિકાઓના નામ આપો.

૧૦ રસધાનીનું કાર્ય જણાવો.

૧૧ ઇન્ટરફેસ એટલે શું?

૧૨ વ્યાખ્યા આપો : સમવિભાજન.

૧૩ વ્યાખ્યા આપો : બહુરૂપકતા (Plietropism)

૧૪ રીપલ્ઝન હાઈપોથિસીસ (Repulsion hypothesis) એટલે શું?

૧૫ સિકેજ ગૃપ એટલે શું?

૧૬ વ્યાખ્યા આપો : નોન-સેન્સ વિકૃતિ (Mutation).

ENGLISH VERSION

Instructions : (1) All questions in Section-I carry equal marks.
(2) Attempt any three questions in Section-I.
(3) Question 9 in Section II is compulsory.

SECTION I

Attempt any three questions from the following :

1 (a) Explain : Causes of seed dormancy. 14
(b) Explain : Methods breaking dorinancy.

2 Explain the different phases of seed germination and the factors affecting on seed germination. 14

3 Explain the properties and classification of proteins on the basis of their structure. 14

4 Explain the structure and components of Lipids and describe their importance. 14

5 Explain the process of Meiosis-I and describe its significance also. 14

6 (a) Explain : Polytene chromosome. 14
(b) Explain : Cell-cell interaction.

7 (a) Explain : Complete and incomplete linkage. 14
(b) Explain : Factors affecting linkage.

8 Explain the process and factors affecting crossing over. 14

SECTION II

9 Attempt any eight questions from the following : 08

1 Define dormancy.
2 Define seed viability.
3 Define vernalization.
4 During germination which part germinates first from the seed.
5 Name two types of amino acids
6 Which bond unites two amino acids?
7 Define disaccharides.
8 Name any two fatty acids.
9 Name two microbodies.
10 What is the function of vacoule?
11 What is interphase?
12 Define Mitosis.
13 Define Pleotropism.
14 What is Repulsion hypothesis?
15 What is linkage group?
16 Define Non-sense mutation.

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Botany

Time : 2-00 Hours] January-2021 [Max. Marks : 50

સૂચના : (૧) જમણી તરફના અંક જે તે પ્રશ્નનો ગુણ દર્શાવે છે.

(૨) ગમે તે ત્રણ પ્રશ્નોના જવાબ આપવાના છે.

વિભાગ-એ

૧ વર્ણવો : (ક) પેન્ટોઝ-ફોસ્ફેટ પાથવે (PPP) ૭

(ખ) શ્વસનને અસર કરતા પરિબળો ૭

૨ બીજાંકુરણના વિવિધ તબક્કાઓ અને તેના પર અસર કરતા પરિબળોનું વર્ણન કરો. ૭

૩ વિટામીનોની રચના તેમજ કાર્યનું વર્ણન કરો. ૭

૪ વર્ણવો : (ક) નાઇટ્રોજનનું ચયાપચય ૭

(ખ) પ્રોટીનનું રચનાના આધારે વર્ગીકરણ ૭

૫ કોષરસસ્તરના વિવિધ મોડેલનું વર્ણન કરો. ૭

૬ વર્ણવો : (ક) પૂર્વાવસ્થા-૧(Prophase-I) (અર્ધીકરણમાં) ૭

(ખ) લેમ્પબ્રશ રંગસૂત્રો ૭

૭ ડીએનએ ફિંગરપ્રિન્ટીંગનું વર્ણન કરી તેનું મહત્વ સમજાવો.

૮ વર્ણવો : (ક) થ્રી-પોઇંટ ટેસ્ટ ક્રોસ ૭

(ખ) વિકૃતિના પ્રકાર ૭

વિભાગ-બી

૯ ટૂંકમાં જવાબ લખો (કોઈપણ આઠ) : ૦૮

૧ સુષુપ્તતાની વ્યાખ્યા આપો.

૨ આર-ક્યુ (RQ) એટલે શું ?

૩ વૃધ્ધિ એટલે શું ?

૪ વૃધ્ધિના સહસંબંધો (corelations)

૫ નાઇટ્રોજન ફિક્સેશન એટલે શું?

૬ વ્યાખ્યા આપો : બીટા - ઓકસિડેશન

૭ ગમે તે બે અસ્લીય એમિનો એસિડના નામ આપો.

૮ વિટામિન Aની ઉણપના ગમે તે બે લક્ષણો જણાવો.

૯ વ્યાખ્યા આપો : ઇન્ટરફેઝ (Interphase)

૧૦ ડેઝમોસોમ્સ એટલે શું?

૧૧ સમવિભાજનનું મહત્વ જણાવો.

૧૨ કોષ-વિભેદન એટલે શું?

૧૩ વ્યાખ્યા આપો : સંલગ્નતા

૧૪ ઇન્ટ્રોન્સ એટલે શું?

૧૫ ડીએનએ ડેમેજ એટલે શું?

૧૬ વ્યાખ્યા આપો : બહુવૈકલ્પિક જનીનો.

P.T.O.

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ENGLISH VERSION

Instructions : (1) All questions in Section-I carry equal marks.
(2) Attempt any three questions in Section-I.
(3) Question 9 in Section II is compulsory.

SECTION I

Attempt any three questions from the following :

1 (a) Explain : Pentose phosphate pathway (PPP). 14
(b) Explain : Factors affecting respiration.

2 Explain different phases of germination and describe the factors affecting germination. 14

3 Explain the structure and function of Vitamins. 14

4 Explain (a) Nitrogen Metabolism (b) Classification of proteins on the basis of structure. 14

5 Explain the structure of Plasma-membrane explaining different models. 14

6 Expalin (a) Prophase-I in meiosis (b) Lampbrush chromosomes. 14

7 Explain D.N.A. finger printing and its importance. 14

8 Describe (a) Three paint test cross (b) Types of mutations. 14

SECTION II

9 Attempt any eight questions from the following : 08

1 Define dormancy.
2 What is R. Q.?
3 Define growth.
4 Define Growth-corelations.
5 What is nitrogen fixation?
6 Define β-oxidation.
7 Name two acidic amino acids.
8 State two symptoms of deficiency of Vitamin A.
9 Define Introphase.
10 What are desmosomes?
11 Give the significance of Mitosis.
12 Define cell-differentiation.
13 Define Linkage.
14 What are introns?
15 What is D.N.A. damage?
16 Define multiple alleles.

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Candidate's Seat No :_____

B.Sc. Sem.-5 Examination

CC 303

Zoology (New)

January 2021

Time : 2-00 Hours] [Max. Marks : 50

સૂચનાઓ: 1. આઠમાંથી કોઈપણ ત્રણ પ્રશ્નોના જવાબ આપો.
2. નવમો પ્રશ્ન ફરજિયાત છે.

પ્ર.1. (A) વ્યાખ્યા આપો. સ્ટીરિયોઆઈસોમર તેમજ તેનો કોઈપણ એક પ્રકાર વર્ણવો. (7)
(B) વર્ણવો. સોડિયમ એમાલ્ગમ દ્વારા મોનોસેકેરાઇડનું રીડક્શન. (7)

પ્ર.૨. (A) નોંધ લખો. પરિવર્તભ્રમણ. (7)
(B) સમજાવો. સુગર એસિડ દ્વારા મોનોસેકેરાઇડનું ઓક્સિડેશન. (7)

પ્ર.3. (A) નોંધ લખો. લેકટોઝ (7)
(B) નોંધ લખો. હિપેરીન (7)

પ્ર.4. (A) યોગ્ય ઉદાહરણ આપી મ્યુકોપોલીસેકેરાઇડ પર નોંધ લખો. (7)
(B) કાર્બોદિતોના ગમે તે ચાર જૈવિક મહત્વ પર નોંધ લખો. (7)

પ્ર.5. (A) નોંધ લખો. પેપ્ટાઈડ શૃંખલાનું નામકરણ. (7)
(B) નોંધ લખો. વિષમચક્રીય એમીનો એસીડ્સ. (7)

પ્ર.6. (A) નોંધ લખો. પ્રોટીનનું β પ્લીટેડ બંધારણ (7)
(B) કોઈપણ બે દ્વિતીયક બંધ પર નોંધ લખો. (7)

પ્ર.7. (A) ઉદાહરણો આપી સંયુગ્મી પ્રોટીન પર નોંધ લખો. (7)
(B) સમજાવો. એસિડ દ્વારા પ્રોટીનનું જળવિભાજન. (7)

પ્ર.8. (A) નોંધ લખો. સાદા પ્રોટીન (7)
(B) નોંધ લખો. પ્રોટીનના ભૌતિક ગુણધર્મો. (7)

પ્ર .9. ટૂંકમાં જવાબ આપો. (કોઈપણ આઠ) (8)

(1) $I = 2^{n}$ સૂત્ર કોણે આપેલું?
(2) શબ્દ સમજૂતી આપો. ડાએસ્ટીરિયોમર્સ
(3) β D મેનોપાયરેનોઝ નું હાવર્થ સૂત્ર લખો.
(4) વેનીલા ફ્લેવર આપતા ગ્લુકોસાઇડનું નામ આપો.
(5) બંધારણીય પોલીસેકેરાઈડ ના બે ઉદાહરણો આપો.
(6) α માલ્ટોઝ નું હાવર્થસૂત્ર લખો.

P.T.O.

(7) સુક્રોઝના બંધારણ માં આવેલા બંધનું નામ લખો.

(8) હાઇલ્યુરોનીક એસિડના ગમે તે બે ગુણધર્મો જણાવો.

(9) N ટર્મીનલ શું છે?

(10) સલ્ફર ધરાવતા કોઇપણ એક એમીનો એસિડનું નામ આપી તેનું બંધારણીય સૂત્ર પણ લખો.

(11) શબ્દ સમજૂતી આપો: નોન પ્રોટીન એમીનોએસિડ

(12) એસ્પાર્ટીક એસિડનું બંધારણીય સૂત્ર લખો.

(13) તંતુમય પ્રોટીનના બે ઉદાહરણ આપો.

(14) પ્રોટીનનો કોઇપણ એક જૈવિક ગુણધર્મ લખો.

(15) ઓક્સિજનના વાહક તરીકે વર્તતા પ્રોટીનનું નામ લખો.

(16) મેલેનીનનું જૈવિક મહત્વ જણાવો.

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B 332-3

Semester-V
Zoology paper-303 (New course)

Time: **Marks:50**

Instructions: 1. Answer any **three** out of **eight** questions.
2. 9th Question is compulsory.

Q.1. (A) Define Stereoisomer and describe any one type of it. (7)
(B) Describe Reduction of Monosaccharide by Sodium amalgam. (7)

Q.2. (A) Write note on Mutarotation. (7)
(B) Explain: Oxidation of monosaccharide by sugar acids. (7)

Q.3. (A) Write note on Lactose. (7)
(B) Write note on Heparin. (7)

Q.4. (A) Write note on mucopolysaccharides with suitable example. (7)
(B) Write note on any four biological significance of Carbohydrates. (7)

Q.5. (A) Write note on naming of Peptide chain. (7)
(B) Write note on heterocyclic amino acids. (7)

Q.6. (A) Write note on β pleated sheet structure of protein. (7)
(B) Write note on any two secondary bonds. (7)

Q.7. (A) Write note on Conjugated proteins with examples. (7)
(B) Explain: Hydrolysis of proteins by acidic agents. (7)

Q.8. (A) Write note on Simple proteins. (7)
(B) Write note on physical properties of proteins. (7)

Q.9. Answer in short. (**Any eight**) (8)

(1) Who proposed the $I = 2^n$ formula?
(2) Explain the term: Diastereomers.
(3) Write Howarth formula of β D Mannopyranose.
(4) Name the glucosides which impart Vanilla flavor
(5) Give two examples of structural polysaccharides.
(6) Write Howarth formula of α Maltose.
(7) Name the bond involved in Sucrose.
(8) Write any two properties of Hyaluronic acid.
(9) What is N terminal?
(10) Give one example of sulfur containing amino acid with its structural formula.
(11) Explain the term: Non protein amino acids.
(12) Write structural formula of Aspartic acid.
(13) Give two examples of fibrous proteins.
(14) Write any one biological property of protein.
(15) Name the protein that acts as oxygen carrier.
(16) State the biological importance of Melanin.

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B.Sc. Sem.-5 Examination

CC 303

Zoology (Old)

Time : 2-00 Hours] **January 2021** **[Max. Marks : 50**

Instructions: 1. Answer any **three** out of **eight** questions.
2. 9th Question is compulsory.

Q.1. (A) Define Stereoisomer and describe any one type of it. (7)
(B) Describe Reduction of Monosaccharide by Sodium amalgam. (7)

Q.2. (A) Write note on Mutarotation. (7)
(B) Explain: Oxidation of monosaccharide by sugar acids. (7)

Q.3. (A) Write note on Lactose. (7)
(B) Write note on Cellobiose. (7)

Q.4. (A) Write note on homopolysaccharides with suitable example. (7)
(B) Write note on any four biological significance of Carbohydrates. (7)

Q.5. (A) Write note on naming of Peptide chain. (7)
(B) Write note on heterocyclic amino acids. (7)

Q.6. (A) Write note on Secondary structure of protein. (7)
(B) Write note on any two secondary bonds. (7)

Q.7. (A) Write note on Conjugated proteins with examples. (7)
(B) Explain: Hydrolysis of proteins by acidic agents. (7)

Q.8. (A) Write note on Simple proteins. (7)
(B) Write note on physical properties of proteins. (7)

Q.9. Answer in short. (**Any eight**) (8)

(1) Who proposed the $I = 2^n$ formula?
(2) Explain the term: Diastereomers.
(3) Write any two differences between furanose and pyranose.
(4) Name the glucosides which impart Vanilla flavor
(5) Give two examples of structural polysaccharides.
(6) Write Haworth formula of α Maltose.
(7) Name the bond involved in Sucrose.
(8) Write any two properties of Chondroitin sulphate.
(9) What is N terminal?
(10) Give one example of sulfur containing amino acid with its structural formula.
(11) Write structural formula of Tyrosine.
(12) Write structural formula of Aspartic acid.
(13) Give two examples of fibrous proteins.
(14) Write any one biological importance of protein.
(15) Name the protein that acts as oxygen carrier.
(16) State the biological importance of Melanin.

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B 332-5

સેમેસ્ટર-V

પ્રાણીશાસ્ત્ર પેપર -303 (Old couse)

ગુણ: 50

સમય:

સૂચનાઓ: 1. આઠમાંથી કોઈપણ ત્રણ પ્રશ્નોના જવાબ આપો.

2. નવમો પ્રશ્ન ફરજિયાત છે.

પ્ર.1. (A) વ્યાખ્યા આપો. સ્ટીરિયોઆઈસોમર તેમજ તેનો કોઈપણ એક પ્રકાર વર્ણવો. (7)

(B) વર્ણવો. સોડિયમ એમાલ્ગમ દ્વારા મોનઓસેકેરાઇડનું રીડક્શન. (7)

પ્ર.2. (A) નોંધ લખો. પરિવર્તભ્રમણ. (7)

(B) સમજાવો. સુગર એસિડ દ્વારા મોનોસેકેરાઇડનું ઓક્સિડેશન. (7)

પ્ર.3. (A) નોંધ લખો. લેકટોઝ (7)

(B) નોંધ લખો. સેલોબીઓસ (7)

પ્ર.4. (A) યોગ્ય ઉદાહરણ આપી હોમોપોલીસેકેરાઇડ પર નોંધ લખો. (7)

(B) નોંધ લખો. કાર્બોદિતોના ગમે તે ચાર જૈવિક મહત્વ (7)

પ્ર.5. (A) નોંધ લખો. પેપ્ટાઈડ શૃંખલાનું નામકરણ. (7)

(B) નોંધ લખો. વિષમચક્રીય એમીનો એસીડ્સ. (7)

પ્ર.6. (A) નોંધ લખો. પ્રોટીનનું દ્વિતીયક બંધારણ (7)

(B) કોઈપણ બે દ્વિતીયક બંધ પર નોંધ લખો. (7)

પ્ર.7. (A) ઉદાહરણો આપી સંયુગ્મી પ્રોટીન પર નોંધ લખો. (7)

(B) સમજાવો. એસિડ દ્વારા પ્રોટીનનું જળવિભાજન. (7)

પ્ર.8. (A) નોંધ લખો. સાદા પ્રોટીન (7)

(B) નોંધ લખો. પ્રોટીનના ભૌતિક ગુણધર્મો. (7)

પ્ર .9. ટૂંકમાં જવાબ આપો. (કોઈપણ આઠ) (8)

(1) $I = 2^n$ સૂત્ર કોણે આપેલું?

(2) શબ્દ સમજૂતી આપો. ડાએસ્ટીરિયોમર્સ

(3) ફ્યુરેનોસ અને પાયરેનોસ વચ્ચે તફાવત ના બે મુદ્દાઓ લખો..

(4) વેનીલા ફ્લેવર આપતા ગ્લુકોસાઇડનું નામ આપો.

(5) બંધારણીય પોલીસેકેરાઈડ ના બે ઉદાહરણો આપો.

(6) α માલ્ટોઝ નું હાવર્થસૂત્ર લખો.

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(7) સુક્રોઝના બંધારણ માં આવેલા બંધનું નામ લખો.

(8) કોન્ડ્રોઇટીન સલ્ફેટના ગમે તે બે ગુણધર્મો જણાવ

(9) N ટર્મીનલ શું છે?

(10) સલ્ફર ધરાવતા કોઇપણ એક એમીનો એસિડનું નામ આપી તેનું બંધારણીય સૂત્ર પણ લખો.

(11) ટાયરોસીનનું બંધારણીય સૂત્ર લખો.

(12) એસ્પાર્ટીક એસિડનું બંધારણીય સૂત્ર લખો.

(13) તંતુમય પ્રોટીનના બે ઉદાહરણ આપો.

(14) પ્રોટીનનો કોઈપણ એક જૈવિક ગુણધર્મ લખો.

(15) ઓક્સિજનના વાહક તરીકે વર્તતા પ્રોટીનનું નામ લખો

(16) મેલેનીનનું જૈવિક મહત્વ જણાવો.

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1101E333

B.Sc. Sem.-5 Examination

CC 303

Biotechnology

January 2021

Candidate's Seat No : _____

Time : 2-00 Hours] **[Max. Marks : 50**

Instructions: (1) All questions in **Section I** carry equal marks.
(2) Attempt any **THREE** questions in **Section I**.
(3) Question IX in **Section II** is compulsory.
(4) Draw figures where necessary. Show question number against each answer.
(5) Figures in right are marks.

Section I

1.	(A)	Discuss the physical and chemical properties of oceanic water.	7
	(B)	Describe salient features of Mangrove ecosystem and its importance.	7
2.	(A)	Discuss the structural features and significance of seaweeds.	7
	(B)	What are estuaries? Discuss various types of estuaries.	7
3.	(A)	Enlist chemical resources of marine origin and explain it in detail.	7
	(B)	Write a note on Planktonic life of marine with its significance.	7
4.	(A)	Discuss marine fishes giving suitable example.	7
	(B)	Describe general characteristics of marine crustaceans.	7
5.	(A)	Write an explanatory note on various bioactive compounds of marine origin.	7
	(B)	Give brief discussion on commercial application of marine polysaccharides.	7
6.	(A)	Write a note on Anti-freeze proteins.	7
	(B)	Discuss GFP as a novel biomarker.	7

P.T.O.

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7. (A) Discuss fish farming mentioning its application. 7
   (B) Discuss Environmental Bioremediation using marine organisms. 7

8. (A) Explain single cell protein production from marine algae. 7
   (B) Write a detail note on Bio corrosion. 7

Section II

9. Answer in Short (any eight) 8

1. Define Biological Productivity of Ocean.
2. What do seaweeds lack that land plants have?
3. Write role of Stipe.
4. Give basic difference between Euryhaline and Stenohaline.
5. What is the salinity level of oceanic water?
6. Enlist the factors affecting salinity of ocean.
7. Why marine proteins are used in therapeutic purposes?
8. GFP alters the physiology of targeted protein (True/ False)
9. Write two commercial applications of marine peptides.
10. Enlist methods used for biofouling control.
11. Write the constituents of seawater.
12. Give two examples of marine vetebrates.
13. Name any two barriers in aquaculture.
14. Manatee and Sea otter are the examples of.....
15. What is Bioluminescence with suitable example?
16. Define Brackish water
17. What are osmoregulators?
18. Define Biosensors and its application.
19. What is the purpose of practicing Sea farming?
20. Two general characteristics of molluscs.
21. Which animal is used for pearl culture?
22. Mention significance of live resource assessment of oceans.

X

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1101E334

Candidate's Seat No : _____

B.Sc. Sem.-5 Examination
CC 303
Health & Hygiene
January 2021

Time : 2-00 Hours] **[Max. Marks : 50**

Instructions : 1) Draw figures where necessary.
2) Show question number against each answer.
3) Figures in right are marks.
4) Answer any **Three** out of initial **Eight** main questions, Question **9** is compulsory.

Section - I

1. (A) Write a detailed note on methods of isolating pure cultures. **07**
   (B) Define hematocrit & explain blood count techniques. **07**
2. (A) Write a note on microscopic examination. **07**
   (B) Why is sensitivity analysis done? explain the steps of sensitivity testing. **07**
3. (A) Explain the tube method of Widal test. **07**
   (B) Discuss ABO and RH blood grouping system. **07**
4. (A) Write a note on Northern blotting. **07**
   (B) Explain immunodiffusion technique with diagram. **07**
5. (A) What is genome? Explain genome Sequencing. **07**
   (B) Discuss DNA microarray technology. **07**
6. (A) Write a note on proteomics. **07**
   (B) Describe principle and steps of PCR. **07**
7. (A) Give a detail note on forensic analysis of Hair. **07**
   (B) Explain the post mortem changes appearing soon after death. **07**
8. (A) Discuss the analysis of Alcohol for Crime Investigation. **07**
   (B) How will you analyze body fluids collected from the crime site and victim's body? **07**

(P.T.O)

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Section – II

9. Answer in Short : (Any **Eight**) **08**

(1). A drug is a natural or _____ substance that is used to produce physiological or psychological effects.

(2). The relatively clear liquid medium which carries the other cells of blood is called _____.

(3). Defination : Agglutination.

(4). What is hematocrit?

(5). Any two application of ELISA.

(6). How many microgram antigen detected in sample by RIA ?

(7). Radial Immunodiffusion is similar to

A.double-diffusion B.gel diffusion C.Ouchterloney technique D.None

(8). What are neutrophils?

(9). RIA was developed by

A. Berson & Yalow B. chals & wastone C. vector&logan D. None

(10). Most of the volume of normal human blood is composed of _____.

(11). Which type of gel is used for large nucleic acids?

(12). Which of the following molecules can be analyzed using a northern blot?

(A) RNA (B) Carbohydrates (C) Proteins (D)None

(13). What is the name of the condition that results when a person does not have enough platelets?

(14). Amino acids are the building blocks of:

(A) DNA and RNA (B) lipids (C)proteins (D)fat

(15). Radiolabelling is generally brought about by addition of radioactive phosphorus. True/False.

(16). The procedure by which DNA gel is transferred to a membrane is termed as _____.

(17). The DNA in a man's blood is the same as the DNA in his skin cells and saliva. True/False

(18). Where is DNA found in the body?

(19). ELISA (enzyme-linked immunosorbent assay) allows for rapid screening and quantification of the presence of _____ in a sample.

(20). Who invented the process of DNA fingerprinting?

(21). The largest molecules in our bodies are:

(A)nucleic acids (B)chromosomes (C)proteins (D)RNA

(22). What blood type is the "universal donor" because it can be donated to anyone?