Sl.No. 1981 SUBJECT CODE: 34115101/34116101

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO ALL BRANCHES

FIRST SEMESTER

CALCULUS FOR ENGINEERS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Prove that at the point $x = \frac{\pi}{2}$ of the curve $y = 4\sin x - \sin 2x, \rho = \frac{5\sqrt{5}}{4}$

2 Write the formula for the centre of curvature.

3 Write the sufficient conditions for a maximum (or) minimum.

4 Find $\frac{du}{dt}$ if $u = x^2 + y^2,\ x = at^2,\ y = 2at.$

5 Evaluate $\int x \sin x dx$

6 Evaluate $\int \frac{dx}{(x+2)^2 - 4}$

7 Evaluate $\int_0^a \int_0^{\sqrt{a^2-x^2}} dxdy$

8 Evaluate $\int_0^1 \int_1^2 x(x+y)dydx.$

9 Find the unit vector normal to the surface $x^2 - y^2 + z = 2$ at the point $(1,-1,2)$

10 State Green's theorem in plane

PART-B (5 x 16 = 80)

11 a. Find the equation to the circle of curvature of the curve $xy = c^2$ at (c,c)

OR

(P.T.O)

b. Find the radius of curvature at the point θ on $x = 3a\cos\theta - a\cos 3\theta$ and $y = 3a\sin\theta - a\sin 3\theta$

12 a. (i) If $u = \sin^{-1}\frac{x}{y} + \tan^{-1}\frac{x}{y}$, then find the value of $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$

(ii) Find $\frac{du}{dt}$ as a total derivative and verify the result by the direct substitution of $u = x^2 + y^2 + z^2$ when $x = e^{2t}, y = e^{2t}\cos 3t,$ and $z = e^{2t}\sin 3t$

OR

b. Find the maximum or minimum value of f $f(x,y) = 2 + 2x + 2y - x^2 - y^2$

13 a. (i) Evaluate $\int \sqrt{x^2 - 2x - 3}\, dx$

(ii) Show that $\int_2^3 \sqrt{(x-2)(3-x)}\ dx = \frac{\pi}{8}$

OR

b. (i) Evaluate $\int x\tan^{-1} x\, dx$

(ii) Evaluate $\int \frac{e^x(1+\sin x)}{1+\cos x}\, dx$

14 a. Evaluate $\int_0^a \int_0^{\sqrt{a^2-x^2}} \int_0^{\sqrt{a^2-x^2-y^2}} \frac{dzdydx}{\sqrt{a^2-x^2-y^2-z^2}}$

OR

b. Evaluate $\iint_R r^2 \sin\theta\, dr\, d\theta$, Where R is the region above the initial line of the curve $r = 2a\cos\theta$.

15 a. Verify Stoke's theorem for $\vec{F} = (x^2 + y^2)\vec{i} - 2xy\vec{j}$ taken around the rectangle bounded by the lines $x = \pm a,\ y = 0,\ y = b$

OR

b. Evaluate $\iint_S \vec{F}.\hat{n}\, ds$ where $\vec{F} = z\vec{i} + x\vec{j} - y^2 z\vec{k}$ and S is the part of the surface of the cylinder $x^2 + y^2 = 1$ included in the first octant between the planes $z = 0$ and $z = 2$

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Sl.No. 1981

Sl.No. 1821 SUBJECT CODE: 34115103/34116103

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
COMMON TO ALL BRANCHES
FIRST SEMESTER
PHYSICS FOR ENGINEERS

(Candidates admitted under 2015 &2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1	Give the examples for elastic bodies.
2	Define: bulk modulus of elasticity
3	Give the no. of atoms per unit cell and coordination number for FCC
4	What are Miller indices?
5	Define: Spontaneous emission
6	Write any two applications of CO_2 laser.
7	What is meant by critical angle?
8	What is multimode fiber?
9	What is destructive testing?
10	Give the demerits of Liquid Penetrant method.

PART-B (5 x 16 = 80)

11 a.	Describe an experiment to determine Young's modulus of a beam by uniform bending.
	OR	
b.	Explain about I-shaped girders with neat diagram.	
12 a.	Determine the number of atoms per unit cell, coordination number, atomic radius and packing factor for BCC structure.
	OR	
b.	What are Miller indices? Write down the procedure finding the Miller indices with examples.	
13 a.	Explain the applications of lasers in scientific, engineering and industrial fields.
	OR	
b.	Describe the applications of laser in communication, military and chemical fields.	
14 a.	Describe the characteristics, advantages, disadvantages and applications step-index multimode fibre with necessary diagrams.
	OR	
b.	Write a note on the following i)critical angle, ii) total internal reflection, iii) acceptance angle, iv) numerical aperture.	
15 a.	Write down the principle, advantages, disadvantages and applications of ultrasonic flaw detector
	OR	
b.	Describe the X-ray fluoroscopy technique of nondestructive testing.	

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Sl.No. 1982 SUBJECT CODE: 34115104/34116104

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

FIRST SEMESTER

MATHEMATICS FOR BIOENGINEERING

(Candidates admitted under 2015 &2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Differentiate : $\log(\sin x)$ with respect to $'x'$

2 Write the sufficient conditions for a function $f(x, y)$ to be a maximum or a minimum.

3 Evaluate $\int x \sin 3x \, dx$

4 Integrate $\int \frac{3x+2}{\left(3x^2+4x+7\right)^3} dx$

5 Solve : $\frac{dy}{dx} + y \tan x = \cos x$

6 Solve $\left(D^2+4D+3\right)y = 0$

7 Find the half-range sine series for $f(x) = x^2$ in $(0, \pi)$

8 Obtain the half range sine series for unity in $(0, \pi)$

9 Define steady state temperature distribution.

10 Write the boundary and initial conditions when one end of a bar of length 1 is insulated and the other end is at $0°c$ and the initial temperature distribution $f(x)$.

PART-B (5 x 16 = 80)

11 a. (i) If $x^y = e^{x-y}$, show that $\frac{dy}{dx} = \frac{\log x}{(1+\log x)^2}$

(ii) If $y = \cos^{-1} x$ prove that $\left(1-x^2\right)y_2 - xy_1 = 0$

OR

b. Find the largest value of the product of three positive integers x, y and z such that their sum is 12

(P.T.O)

12 a. Evaluate : $\int \frac{x^2+x+1}{x^2+4x-5}dx$

OR

b. Evaluate $\int \frac{x^2+1}{(x^2-1)(2x-1)}dx$

13 a. Solve : $\cos^2 x\frac{dy}{dx}+y=\tan x$

OR

b. Solve : $(D^2-7D+12)y=e^{5x}+\cos 2x$

14 a. Obtain the Fourier series to represent the function $f(x)=|x|$, $-\pi<x<\pi$

OR

b. Obtain the Fourier expansion of $x\sin x$ as a sine series in $(0,\pi)$

15 a. A rod of length l has its ends A and B kept at $0^\circ C$ and $100^\circ C$ until steady state conditions prevail. If the temperature at B is reduced suddenly to $0^\circ C$ and kept so while that of A is maintained, find the temperature $u(x,t)$ at a distance x from A and at time t

OR

b. A square plate is bounded by the lines $x=0$, $y=0$, $x=l$ and $y=l$. Its faces are insulated. The temperature along the upper horizontal edge is given by $u(x,l)=x(l-x)$, $0<x<l$ while the other three edges are kept at $0^\circ C$. Find the steady state temperature distribution in the plate

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Sl.No.E 1993 Sub.Code: 34116102/34115102

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E DEGREE EXAMINATIONS – NOV/DEC -2018
COMMON TO ALL BRANCHES
First Semester
ENGLISH FOR ENGINEERS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time: Three hours Maximum:100Marks

Answer **ALL** questions

PART – A (10 x 2 = 20 marks)

1. **Identify the parts of speech for the underlined words.**
   - **i)** We must help ourselves
   - **ii)** Oh! we are late for the movie

2. **Correct the following sentences by identifying the errors.**
   - **i)** Do the roses in your garden smell more sweetly than the roses in ours?
   - **ii)** If you lend him a book, he will lend it to some one else and never you will get it back.
3. **Define the following definitions.**
   i) Acid ii) Calculator.

4. **Fill in the blanks with suitable articles.**
   i) I live in -------- apartment
   ii) I saw ---- movie last night.

5. **Identify the silent letters for the given words.**
   i) Psychology ii) Doubt

6. **Choose the correct homonyms for the following.**
   - **i)** The burning candle created a pleasant ____ in the room. Sent, cent, scent.
   - **ii)** Would you like a piece of fruit? Perhaps a ____? Pear, pair, pare

7. **Choose the correct homophones for the following.**
   - **i)** She held the ____ in her hand. Reigns, rains, reins
   - **ii)** He was a medieval ____. Night, knight

8. **Fill in the blanks with appropriate tense form of the verbs.**
   SIMPLE PRESENT TENSE
   - **i)** Every twelve months, the Earth _____(circle) the Sun.
   - **ii)** This delicious chocolate____ (be) made by a small chocolaty in Zurich, Switzerland.

9. Change the following sentences into impersonal passive voice.

i) The N. S. S. students will clean our campus.

ii) We can alter the characteristics of steel in various ways.

10. **Complete the following sentence:**

i) If there had been no rains last month, _____.

ii) If he studied hard,_____

PART – B (5 x 16 = 80 marks)

11. a) What are the characteristics of a good listener?

OR

b) State the importance of pronunciation with its guidelines

12. a) What are the points to remember while making a call and receiving a call?

OR

b) As a manager in a company you are asked to write a report of three of your sub ordinates for promotion. Prepare a report along with your recommendations.

13. a) Describe a memorable incident in your life.

OR

b) Write a note on skimming

14. a) What are the differences between Spoken and Written English?

OR

b) Write the symbols of Vowels. Explain with examples.

15. a) **Read the passage and draw a flow chart.**

The earth contains a large number of metals which are useful to man. One of the most important of these is iron. The iron wore which we find in the earth is not pure. It contains some impurities which we must find in the earth is not pure. It contains some impurities which we must remove by smelting. The process of smelting consists of heating the ore in a blast furnace with coke limestone and reducing it to metal. Blasts of hot air enter the furnace from the bottom and provide the oxygen which is necessary for the reduction of the ore. The ore becomes molten, and its oxides combine with the limestone to form a liquid slag. This floats on top of the molten iron, and passes out of the furnace through a tap. The metal which remains is pig iron.

We can melt this down again in another furnace-a cupola-with more coke and limestone, and tap it out into a ladle or directly into moulds

OR

b) Write a letter to your friend Ramesh, expressing your sense of relief at his recovery from a serious and long illness

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Sl.No. 1741 SUBJECT CODE: 35015101/35016101

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO ALL BRANCHES

FIRST SEMESTER

ESSENTIALS OF COMPUTER SCIENCE AND ENGINEERING

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What is mean by hardware?

2 Define Booting.

3 Write notes on Bullets and numbering in MS Word.

4 Mention the uses of MS Excel.

5 List out the way how algorithms may be represented.

6 Write an algorithm to find the area of a circle.

7 In what way to analyze an algorithm.

8 Give an example for top-down analysis.

9 List out any four formatting tags in HTML.

10 How you define href, target and name Attributes?

PART-B (5 x 16 = 80)

11 a. Explain the block diagram of a Computer with neat sketch.

OR

b. Describe the services provided by Internet.

12 a. Briefly explain table menu in MS Word.

OR

b. What is a chart and explain different steps for inserting a chart in Excel.

13 a. What is flowchart? Explain the symbols used in drawing the flowchart. Also write the rules and advantages of using flowcharts.

OR

b. Write an algorithm and flowchart for generating Fibonacci series.

14 a. Discuss the features of an algorithm.

OR

b. Explain the classification of Algorithms.

15 a. To create a web page to showing an ordered & unordered list of name of your five friends.

OR

b. Explain in detail about HTML image tags.

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Sl.No. 1600 SUBJECT CODE: 38115102/38116102

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

FIRST SEMESTER

BIOCHEMISTRY-I

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 List different types of Basic SI Units.

2 Why is sigma-bond stronger than a pi-bond?

3 What are hexoses? Give an example with important biological functions.

4 Give any four importance of EFA.

5 Give the general structure of amino acids.

6 Write a note on myoglobin.

7 Draw the structure of DNA.

8 Brief histone.

9 Write the different sources of Fat soluble vitamins.

10 Give the importance of minerals.

PART-B (5 x 16 = 80)

11 a. Write in detail about a) Ionic bond b) Covalent bond c) Co-ordinate bond.

OR

b. Write a note on a) Vander Waal's forces b) Hydrogen bonding c) Hydrophobic forces.

12 a. Write short notes on
a. Starch b. Cellulose c. Glycogen

OR

b. Describe the structure and properties of triacylglycerols.

13 a. Discuss the structure of Amino acid.

OR

b. Write the properties of Protein?

14 a. Explain in detail about RNA and its types.

OR

b. Explain the features of DNA double helix structure.

15 a. Explain in detail the structure, properties, functions and deficiency disorders of Thiamine.

OR

b. Classify the different types of Minerals. Explain the nutritional importance of Minerals.

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Sl.No. 1600

Sl.No. 1852 SUBJECT CODE: 38116101

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SEVENTH SEMESTER
FUNDAMENTALS OF BIOTECHNOLOGY

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What is function of beta-carotene in Golden Rice?

2 Define Virus resistant Squash.

3 Define micropropagation.

4 Define somatic embryogenesis.

5 Define monoclonal antibodies.

6 Comment on Karyotyping.

7 Comment on protease.

8 Write short note on Antibiotic production.

9 Comment on In situ bioremediation.

10 Write down the methods to treat Textile Industry dyes.

PART-B (5 x 16 = 80)

11 a. Write in detail about gene silencing and its application on Arctic Apples.

OR

b. Enumerate about antisense gene and its application on Flavr- Savr Tomato.

12 a. Explain in brief about somatic embryogenesis.

OR

b. Describe about Biofertilizer, write suitable examples with their applications.

13 a. Enumerate in detail about Hybridoma Technique of Monoclonal antibodies.

OR

b. List out the therapeutic proteins produced by Animal bioreactor with their uses.

14 a. Explain in detail about interferon production with its applications.

OR

b. Write brief note on Somatic cell gene therapy.

15 a. Define waste water treatment. Write brief note on biological waste water treatment and its recent approaches.

OR

b. Write brief note on water and Land pollution, and their remedial measures.

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Sl.No. 1292 SUBJECT CODE: 34115202/34116202

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
COMMON TO ALL BRANCHES
SECOND SEMESTER
CHEMISTRY FOR ENGINEERS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define oxidation and reduction.

2 State the reaction when a lead storage battery is recharged?

3 Name any two Coagulants.

4 What is cathodic protection?

5 Why are plastics indispensible in everyday life?

6 What is degree of polymerization?

7 Define component with example.

8 Calculate the degree of freedom for 2 $H_2(g) + O_2(g) \rightarrow 2$ H2O(v)

9 Give the frequency region of Infrared spectrum?

10 State Retention time.

PART-B (5 x 16 = 80)

11 a. Explain the determination of EMF by Poggendorff's method.

OR

b. Discuss the electrochemical series and its applications.

12 a. (i)How is internal treatment of boiler water carried out?
(ii) Describe the principle and method involved in the determination of different types and amount of alkalinity of water.

OR

b. (i) Differentiate between chemical corrosion and electrochemical corrosion.
(ii) Illustrate the reactions involved in differential aeration corrosion with reference to the iron material.

13 a. (a). What are ceramics and how they are classified? Write the uses of ceramics.
(b). Write a note on Special cements.

OR

b. Write the preparation, properties and uses of the following
(i) PVC (ii) Teflon (iii) Bakelite

(P.T.O)

14 a. With suitable examples explain the terms phase, component and degree of freedom.

OR

b. Write a detail note on harmful effects of radioactive isotopes.

15 a. Describe Gas chromatography with neat diagram.

OR

b. How will you estimate metals by flame photometer?

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VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E. DEGREE EXAMINATION- NOV /DEC - 2018
BIOTECHNOLOGY
Second Semester
BIO-STATISTICS
(Candidates admitted under 2016 Regulations - CBCS)

Time: Three hours Maximum: 100 marks

Answer **ALL** questions

PART – A (10 x 2 = 20 Marks)

1. What is meant by data? What are the main sources of collecting data?
2. Define classification.
3. Explain the limitations of random sampling.
4. Give the formula of weighted Geometric mean.
5. State the two conditions that are to be satisfied in fitting a straight line trend.
6. Write the linear form of $y = a e^{bx}$
7. If $R_{1.23} = 0$,show that X_1 is uncorrelated with X_2 *and* X_3.
8. Compute $r_{23.1}$ *if* $r_{12} = 0.70, r_{13} = 0.61, r_{23} = 0.4$
9. What is type-I and type-II error?
10. Explain one tailed and two tailed tests.

PART-B (5 x 16 = 80 Marks)

11.a) i) Prepare a bar diagram for the following data

India's foreign debt as on 01.04.2000	
Source of borrowing	Amount of loan (In crores of Rs.)
USA	1800
Russia	1200
United Kingdom	800
Japan	600
Germany	500

(ii) Represent the profit before tax and the profit after tax for the year ended 31st march,1995,1996,1997,1998 and 1999 respectively of the public limited company mentioned below by data.

Financial highlights of the public limited company		
Year ended 31st March	Profit before tax (in lakhs of Rs)	Profit after tax (in lakhs of Rs)
1995	190	79
1996	191	71
1997	200	90
1998	109	36
1999	127	89

OR

b) Draw a pie diagram for the following data.

Type of Commodity		Food	Rent	Clothes	Education	Miscellaneous	Savings
Expenditure in Rupees	Family A	300	200	125	110	75	90
	Family B	500	350	250	225	125	150

12.a) Discuss the various methods of sampling

OR

b) Find the weighted geometric mean from the following data:

GROUP	INDEX NUMBER	WEIGHTS
Food	260	46
Fuel & Lighting	180	10
Clothing	220	8
House Rent	230	20
Education	120	12
Miscellaneous	200	4

13.a) The sales of a company for the last eight years are given below:

year	2000	2001	2002	2003	2004	2005	2006	2007
Sales Rs. ('000)	52	45	98	92	110	185	175	220

Estimate sales figure for 2008 using an equation of the form $Y = ab^X$ where X = years and Y= sales.

OR

b) Fit a straight line to the following data, using the method of moments:

x:	1	3	5	7	9
y:	1.5	2.8	4.0	4.7	6.0

14.a) An instructor of mathematics wishes to determine the relationship of grades on a final examination to grades on two quizes given during the semester. Costing X_1 *and* X_2 *and* X_3 the grades of a student on the first quiz, second quiz and final examination respectively, he made the following computations for a total of 120 students:

$\bar{X}_1 = 6.8$	$\bar{X}_2 = 0.7$	$\bar{X}_3 = 74$
$S_1 = 1.0$	$S_2 = 0.80$	$S_3 = 9.0$
$r_{12} = 0.6$	$r_{13} = 0.7$	$r_{23} = 0.65$

i) Find the least square regression equation of X_3 *on* X_1 *and* X_2

ii) Estimate the final grades of two students who scored respectively 9 and 7, 4 and 5 on the two quizes.

OR

b) (i) If $r_{12} = 0.60,\ r_{13} = 0.70,\ r_{23} = 0.65$ *and* $S_1 = 1.0$, *find* $S_{1.23}, R_{1.23}$ *and* $r_{12.3}$

ii) If $r_{12} = 0.80,\ r_{13} = -0.56,\ r_{23} = 0.40$ *then obtain* $R_{1.23}$ *and* $r_{12.3}$

15.a) In a normal distribution, 31% of the items are under 45 and 8% are over 64.Find the mean and variance of the distribution.

OR

b) A sample of 900 items has mean 3.4 and standard deviation 2.61.Can the sample be regarded as drawn from a population with mean 3.25 at 5% level of significance?.

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Sl.No. 1452 SUBJECT CODE: 35015201/35016201

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

COMMON TO ALL BRANCHES

SECOND SEMESTER

C PROGRAMMING

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are the memory requirements of primary data type?

2 Mention the various types of operator

3 Write the syntax of switch statement.

4 Write the Syntax of for statement?

5 Find the length of following strings using strlen( ) function,
char s1[ ]=”program”;
char s2[ ]=”importance”;

6 How to declare a union variable?

7 Define library function

8 What are the advantages of using a pointer?

9 Write the rules for preprocessor directives.

10 What is the use of fseek( ) function?

PART-B (5 x 16 = 80)

11 a. Explain the Arithmetic and relational operators in C with suitable program.

OR

b. Write a C program
i) To find sum of 5 numbers.
ii) To find simple interest.

12 a. Explain the types of looping statements?

OR

b. Write a C program:
a. i. To find the factorial of a given number using while statement
b. ii. To find the factorial of a given number using for statement

13 a. Write a C program to explain the concept of structure.

OR

b. Write a C program to explain the concept of structure within structure.

14 a. Discuss the pointer expressions used in the C program.

OR

b. Write a C program to implement function returning pointers.

15 a. Write a C program to altering the allocated memory.

OR

b. Write about the following function,
i. fputs( ) ii. fgets( ) iii. fread( ) iv. fwrite( )

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Sl.No. 1293 SUBJECT CODE: 38115201/38116201

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

SECOND SEMESTER

BIOCHEMISTRY - II

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define metabolism.

2 Explain the energy derived from oxidation of fatty acid.

3 Define amino acid pool. Write the sources of amino acid pool.

4 Give the importance of T3 and T4 hormones.

5 List the enzymes involved in purine synthesis.

6 Give an account on pseudo gout.

7 Write about ATP synthase.

8 Give the biological importance of ETC.

9 Write a note on Fabry's disease.

10 What is cystinurea?

PART-B (5 x 16 = 80)

11 a. Describe the process of Gluconeogenesis in detail.

OR

b. Explain the mechanism of phospholipids synthesis.

12 a. Give an account of the formation of specialized products from glycine.

OR

b. Write notes on A) Serotonin b) porphyrins.

13 a. Describe the disorders of purine metabolism.

OR

b. Write an account on degradation of pyrimidine nucleotides

14 a. Describe the components of electron transport chain.

OR

b. Elaborate the Inhibitors of Oxidative phosphorylation with examples.

15 a. Write notes on: a) Fabrys disease b) Tay-sach's disease.

OR

b. Elaborate the Parkinson's disease, classification, causes, symptoms and their treatment.

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Sl.No. 1529 SUBJECT CODE: 34115302/34116302

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
THIRD SEMESTER
ENVIRONMENTAL SCIENCE AND ENGINEERING

(Candidates admitted under 2015 &2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What is a pesticide? Mention its types.
2 Write any two functions of forest.
3 Explain the term (i) Genetic diversity (ii) Species diversity (iii) Ecosystem diversity.
4 Explain the term Ex-Situ conservation.
5 What are the control measures to be taken to prevent water pollution due to industrial effluents?
6 Write any two causes of soil pollution.
7 Discuss the significance of rain water harvesting.
8 What are the causes and effects of Global warming?
9 What do you understand the term human rights?
10 What is meant by value education?

PART-B (5 x 16 = 80)

11 a. Write about the problems and benefits that are faced in constructing a dam.

OR

b. Discuss in detail about the different forms of renewable and non-renewable energy sources.

12 a. Explain various types of Ecological pyramids.

OR

b. Discuss the hotspots of India.

13 a. Write in detail about water pollution that is caused by the heavy metals present in it.

OR

b. Describe the methods of solid waste management.

14 a. Discuss water shed management.

OR

b. Explain the importance of ethical analysis through space-temporal graph.

15 a. Write a detailed account on the AIDS disease, its transmission tests and prevention measures.

OR

b. Write an essay on human rights.

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Sl.No. 1529

Sl.No. 1469 SUBJECT CODE: 38115301/38116301

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

THIRD SEMESTER

CELL BIOLOGY

(Candidates admitted under 2015 &2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define Microtubules and lists its functions

2 Comment on G1 Phase.

3 What are the different types of Transport?

4 Write notes on Lysosomal membrane.

5 What are Nucleoreceptors? Give examples

6 Define Interchromatin matrix.

7 List the function of Glycogen.

8 Write short notes on Second messenger hypothesis.

9 What is Explant? How will you induce Callus from it?

10 Write any two types of culture media used of cell culture.

PART-B (5 x 16 = 80)

11 a. Write a detailed account on Molecular organization of the Cell membrane.

OR

b. Explain the different types of Cell organelles and their functions.

12 a. Describe Sodium Potassium pump.

OR

b. Write in detail on Endocytosis and Exocytosis process with a neat sketch.

13 a. Write notes on i) Paracrine Cell signaling ii) Endocrine Cell signaling.

OR

b. Explain the Ion-channel-linked receptors.

14 a. Write in detail about the pathways of cGMP.

OR

b. Give detailed account on G Protein and their role in Signal transduction.

15 a. Describe the Morphological analysis techniques in Cell culture.

OR

b. Enumerate in detail about animal cell culture and explain its applications.

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Sl.No. 1313 SUBJECT CODE: 38115303/38116303

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
THIRD SEMESTER
CLASSICAL AND MOLECULAR GENETICS

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write about epigenetic theory.

2 List out the characters selected by Mendel for his experiments.

3 Mention few words about Karyotye and idiotype

4 Define multistranded chromosomes.

5 What is haemophilia?

6 What do you mean by sex-limited genes?

7 Define crossing over.

8 What is incomplete linkage?

9 Define transformation.

10 Differentiate between F+ strain and HFR strain of bacteria.

PART-B (5 x 16 = 80)

11 a. Write a detailed account on rediscovery of Mendels work.

OR

b. Outline the different steps involved in prokaryotic gene expression.

12 a. Write in detail about the models of chromosomes.

OR

b. What is meant by Karyology? Mention its applications.

13 a. Explain haemophilia or bleeder's disease.

OR

b. Briefly discuss concepts of allelomorphism.

14 a. Give an account on chromosomal mapping.

OR

b. Write an essay on genetic mapping of chromosomes.

15 a. What is bacterial conjugation? Explain in detail.

OR

b. Briefly comment on conjugation.

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Sl.No.1918 SUBJECT CODE: 38115304/38116304

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
THIRD SEMESTER
BIO-ORGANIC CHEMISTRY

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are bioisosteric groups? Give two examples.

2 Why Parkinson's disease is higher in rural regions?

3 Write the structure of universal energy pool.

4 Define Antagonists.

5 Why can it be said that the enzymatic action is highly specific?

6 Give different types of enzyme action in biological system.

7 Define surfactant.

8 Write about the meta selectivity in cylclodextrins.

9 What is the role of zinc in carboxypeptidase?

10 Mention the types of oxidation states of iron present in human systems.

PART-B (5 x 16 = 80)

11 a. Discuss briefly about interactions in supramolecular levels.

OR

b. Discuss about the role of catalyst in supramolecular level.

12 a. Explain the chemical mutation and the types of mutagenesis.

OR

b. Discuss briefly about the transition state analogs with examples

13 a. Explain in detail about multi functional catalysis.

OR

b. Define immobilization and explain the different types of immobilization

14 a. Briefly explain about crown ethers and its analogues.

OR

b. Give the Bloch's proof of two 1,2 methyl migrations in the biosynthesis of Lanosterol.

15 a. Explain the importance of metal ion in carboxy peptidase.

OR

b. Explain the oxygen transport by haemoglobin in human body.

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S.No.1029 **SUBJECT CODE: 38116305/38115305**

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
THIRD SEMESTER
UNIT OPERATIONS IN PROCESS INDUSTRIES

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 How thermal conductivity of a material is defined? What are its units?

2 Calculate the Heat flow per m2 of surface area for an Insulating wall composed of 25.4 mm thick Fiber insulating board, where the inside temperature is 352.7 K and the outside temperature is 297.1 K.

3 What is Dimensional analysis? Give its applications.

4 What is dropwise condensation ?

5 Sketch out the Cross flow heat exchanger.

6 What is Fouling factor?

7 What is a Newtonian Fluid? Give examples.

8 What is the purpose of a manometer? Classify them.

9 Distinguish Settling and Sedimentation.

10 Define Critical Moisture Content.

PART-B (5 x 16 = 80)

11 a. a) Explain the concept of Critical Thickness of Insulation and derive the equation for critical thickness for a cylinder

b) Calculate the critical radius of insulation for asbestos (k = 0.172 W/mk) surrounding a pipe and exposed to room air at 300 k with h = 2.8 w/mK).Calculate the heat loss from a 475 K, 60 mm diameter pipe covered with the critical radius of Insulation and without insulation.

OR

b. An exterior wall of a house may be approximated by a 0.1m layer of common brick (k= 0.7 w/m°C) followed by a 0.04 m layer of gypsum plaster (k = 0.48 w/m°C).what thickness of loosely packed rock wool insulation (K = 0.065 w/m°C) should be added to reduce the heat loss or gain through the wall by 80 %.

(P.T.O)

12 a. A vertical tube of 65mm outside diameter and 1.5m long is exposed to steam at atmospherics pressure. The outer surface of the tube is maintained at a temperature of 60°C by circulating cold water through the tube. Calculate the following 1. The rate of heat transfer to the coolant., 2. The rate of condensation of steam.

OR

b. Water is to be boiled at atmospheric pressure in a polished copper pan by means of an Electric heater. The diameter of the pan is 0.38m and is kept at 115°C.Calculate the following 1. Power required to boil the water., 2. Rate of evaporation, 3. Critical heat flux

13 a. Calculate the amount of Steam required for concentrating the Solution of Caustic soda from 28% W of solids to 40% W of solids in a Single effect evaporator. The Feed rate is 25000 kg / hr and its temperature is 60oC. The Absolute pressure in the Evaporator is 0.2 kg / cm2 (boiling point 60oC). Saturated steam at 1.4 kg / cm2 (108.7oC) is to be used as Heating medium. The elevation in Boiling point is 25oC. If the overall Heat transfer coefficient is 670 kcal / hr m2oC. Calculate the Heating surface required. The Enthalpy data for various streams are as follows :Vapor at 0.2 kg / cm2 = 623 kcal / kg28% NaOH at 60oC = 50 kcal / kg40% NaOH at 85oC = 90 kcal /kgLatent heat of steam at 1.4 kg / cm2 = 534 kcal / kg

OR

b. Explain the construction and working of principle of Forced circulation Evaporator.

14 a. Calculate the capillary rise in a glass tube of 2mm diameter when immersed in a. water and b. mercury. Both the liquids being at 20 C and the values of the surface tensions for water and mercury at 20 C in contact with air are respectively 0.0075 kg/m and 0.052 kg/m.

OR

b. With neat sketch explain a fluidized bed boiler.

15 a. Explain in detail about the various types of Centrifuges.

OR

b. A filtration test was carried out, with particular product slurry, on a laboratory filter press under a constant pressure of 340 kPa and volumes of filtrate were collected as follows:

Filtrate volume (kg)	20	40	60	80
Time (min)	8	26	54.5	93

The area of the laboratory filter was 0.186 m2. In a plant scale filter, it is desired to filter a slurry containing the same material, but at 50% greater concentration than that used for the test, and under a pressure of 270 kPa. Estimate the quantity of filtrate that would pass through in 1 hour if the area of the filter is 9.3 m2.

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Sl.No. 1976 SUBJECT CODE: 38116401

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
FOURTH SEMESTER
MOLECULAR BIOLOGY

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Classify DNA based on its structural forms.
2 Comment on Pre initiation complex.
3 Define Intron and exon.
4 What are TATA and CAAT Box?
5 Give an account on inhibitors of Translation.
6 Write a note on HSP70 Chaperons.
7 Write short notes on regulation of Gene expression.
8 Name the inducer for lac Operon.
9 What are Transitions and Transversions?
10 What are Base analogs?

PART-B (5 x 16 = 80)

11 a. Describe the different types of RNA and its functions

OR

b. Describe Prokaryotic replication process.

12 a. Write in detail about Transcription factors.

OR

b. Describe the process of Reverse transcription.

13 a. Write a detailed account on genetic code and its features.

OR

b. Describe the molecular events in Prokaryotic Translation.

14 a. Write an account on Gene regulation in Prokaryotes.

OR

b. Explain gal operon with a neat sketch.

15 a. Mutations are capable of True reversion-comment.

OR

b. Explain the following.
i)Sense mutation
ii)Silent mutation
iii)Frame shift
iv)Point mutation

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Sl.No. 1951 SUBJECT CODE: 38115402/38116402

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

FOURTH SEMESTER

ENZYME ENGINEERING AND TECHNOLOGY

(Candidates admitted under 2015 &2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Illustrate E.C number with examples.

2 List out the factors that affect enzymatic analysis.

3 Define enzyme kinetics.

4 Comment on Allosteric enzymes

5 Define allosteric regulation.

6 Explain membrane confinement

7 Sketch a plot of fractional conversion and concentrations of substrate and product with time in a batch reactor

8 Explain Damkohler number.

9 Comment on biosensors.

10 Give any two applications of enzymes in paper industry

PART-B (5 x 16 = 80)

11 a. Explain in detail the various types of enzymatic assays.

OR

b. Explain the production of Enzymes from Microbial sources with a neat sketch.

12 a. Explain in detail about the kinetics of single substrate reactions.

OR

b. Write short notes on Multi substrate reaction mechanisms.

13 a. Explain in detail about the mixed inhibition and Substrate inhibition.

OR

b. Write in detail about Physical and chemical methods of enzyme Immobilization.

14 a. Comment on the principle behind Fluidized bed reactor. Explain in detail with a neat sketch.

OR

b. Explain briefly about effect of diffusion in immobilised enzyme in a porous material.

15 a. Write the industrial and clinical applications of enzyme

OR

b. Enumerate the applications of enzymes in pharmaceutical and paper industry

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Sl.No. 1841 SUBJECT CODE: 38115403/38116403

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

FOURTH SEMESTER

PLANT AND ANIMAL DISEASES AND THEIR CONTROL

(Candidates admitted under 2015&2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Define Entomology
2 How to control the pest by using chemicals
3 What is Smuts?
4 Mention few insect pests of agricultural importance
5 What is Systemic poison
6 How LED is used in pest control- comment
7 What is Damage threshold
8 What is Pest Repellants give examples
9 Define Relative method
10 Comment on Optimal sample size

PART-B (5 x 16 = 80)

11 a. Describe in detail about the common insect pest of agricultural crops.

OR

b. Describe the various methods of pesticide application and give a brief note on applicators.

12 a. Describe the different types of herbicides used to control weeds and explain its mechanism of action.

OR

b. Explain the life cycle and nature of damage caused by Cryphonectria parasitica.

13 a. How will you suppress the pest populations by living organisms? Explain with examples.

OR

b. Explain the role of temperature, relative humidity, ionizing radiation and in controlling the pests

14 a. Describe five practices used in sustainable horticulture and agriculture and how they serve to prevent the growth of pest populations beyond economic thresholds.

OR

b. How to prevent the communicable diseases after the disaster.

15 a. Describe the types of sampling plans?

OR

b. Describe the protocol you would use in monitoring your fields for arthropod pests and natural enemies.

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Sl.No. 1756 SUBJECT CODE: 38115404/381

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018
BOTECHNOLOGY
FOURTH SEMESTER
PRINCIPLES OF CHEMICAL ENGINEERING

(Candidates admitted under 2015& 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Give the dimensions of
(a) Specific weight
(b) Dynamic viscosity
(c) Kinematic viscosity
(d) universal gas constant

2 Find the equivalent mass of (a) PO_4 (b) Na_3PO_4.

3 Gist the role of inert chemical species in material balances.

4 In a textile mill, a double effect evaporator system concentrates weak liquor containing 4% (by mass) caustic soda to produce a lye containing25 % solids (by mass). Calculate the evaporation of water per 100 kg feed in the evaporator.

5 What is reverse osmosis process? List its applications.

6 Write a note on crystallization.

7 Enumerate about enthalpy changes.

8 Define open, closed and isolated system.

9 Write short note on ultimate analysis of coal.

10 Define % excess air.

PART-B (5 x 16 = 80)

11 a. A gas mixture has the following composition by volume: ethylene- 30.6%, benzene- 24.5%, oxygen-1.3%, methane-15.5%, ethane-25.0%, nitrogen-3.1%. Find (a) the average molar mass of the gas mixture (b) the composition by mass (c) the density of the mixture in kg/m^3 at NTP.

OR

b. The efficiency η of a fan depends upon density ρ, dynamic viscosity μ of the fluid, angular velocity w, diameter D of the rotor and discharge Q. Express η in terms of dimensionless parameters?

12 a. 200 mol/h of a feed mixture containing 42 mol% heptane and 58 mol% ethyl benzene is to be fractionated to give a distillate containing 97 mol% heptane and bottom 1.1 mol% heptane. The reflux ratio used is 2.5. Calculate the mol/h of distillate and mol/h of bottoms.

OR

(P.T.O)

2

b. One of the methods of manufacturing acetone is from catalytic dehydrogenation of isopropyl alcohol. The reaction taking place is

(CH3)2CHOH (g) (CH3)2CO (g) + H2(g)

If the conversion is 90%; calculate the product gas composition in weight percent.

13 a. The vapour pressure of ethyl ether at 0°C is 185 mm Hg. Latent heat of vaporization is 92.5cal/g. calculate vapour pressure at 20° C and 35° C.

OR

b. a) Write the mathematical expression of specific and relative humidity.
(b) The air in a room is at 26.7°C and a pressure of 101.325kPa and contains water vapour with a partial pressure p_A of 2.76 kPa. Calculate the following:
i) Humidity
ii) Saturation Humidity
iii) Percentage humidity
iv) % Relative humidity
The vapour pressure of pure water at 26.7 ° C is 3.5 kPa.

14 a. Calculate the heat added per kilomole of methane if it is heated from 303K to 523K. C_p for methane is $19.25 + 0.052T + 12x10^{-6} T^2 – 11.32x10^{-9}T^3$ where C_p is in kJ/kmol.K

OR

b. Toluene is heated from 290K to 350K at a rate of 0.25 kg/s. Calculate the heat required to be added to toluene in Kw. C_p for toluene is $1.81+0.812 T+0.151x10^{-2} T^2–0.163 x10^{-5}T^3$ where C_p is in kJ/kmol.K.

15 a. Discuss in detail about air requirements and flue gas analysis.

OR

b. The Orsat analysis of the flue gases from a boiler house chimney gives CO_2 11.4%, O_2 4.2% and N_2 84.4% (mole %). Assuming that complete combustion has taken place (a) calculate the % excess air (b) find the C: H ratio in the fuel.

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16404

Marks

Sl.No. 1732 SUBJECT CODE: 38115405/38116405

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

FOURTH SEMESTER

OCEAN SCIENCE

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 How abiotic components are supporting marine system.

2 Define marine fauna.

3 Comment on phytoplankton.

4 Define estuarine environment.

5 How microalgae convert CO_2 in to O_2?

6 Write short note on tiger shrimp culture.

7 List out few marine products.

8 List out any four nutrients present in oysters.

9 Write short note on the methods to avoid oil spill.

10 Write short note on impacts on marine organisms by nuclear explosion.

PART-B (5 x 16 = 80)

11 a. Enumerate about food chain and write the impotence of food chain in marine life.

OR

b. Write in detail about food web and its role in marine ecosystem.

12 a. Define Indicator organisms and explain about their important role in marine ecosystem.

OR

b. Write in detail about carbon and oxygen bio-geocycles.

13 a. Write detailed note on air-lift method in microalgae culture along with neat sketch.

OR

b. Write in detail about Transgenesis.

14 a. Write an elaborate account on artificial pearls and their economic value.

OR

b. Write detailed note on sponges and their applications.

15 a. Write in detail about the side effects caused by oil spill on marine life and environment.

OR

b. How bio fouling affects the marine environment and write detailed note on controlling bio fouling and its impacts.

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Sl.No. 1595 SUBJECT CODE: 38115406/38116406

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
FOURTH SEMESTER
PRINCIPLES OF BIOINFORMATICS

(Candidates admitted under 2015 &2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write a note on Kernel.
2 List out the types of protocols.
3 How are databases filed in the Databank?
4 Write the significance of PubMed.
5 List out the biological motivations of sequence analysis.
6 Comment on Dynamic programming.
7 Illustrate the need to learn about Phylogenetics.
8 What are the disadvantages of Maximum Likelihood?
9 Write the applications of Bioinformatics in Drug designing.
10 Which software is applied for modeling the chemicals?

PART-B (5 x 16 = 80)

11 a. Illustrate in detail about the functions of Kernel and Shell in UNIX.

OR

b. Explain in detail about HTTP and its applications.

12 a. Write a note on amino acid sequences and illustrate its significance in databases.

OR

b. Explain in detail about the Nucleotide Databases.

13 a. Write an essay on FASTA.

OR

b. Differentiate BLAST and FASTA.

14 a. Explain in detail about phylogenetic tree and multiple alignment with neat diagram.

OR

b. Write short notes on a).Eurogram b).Tree building methods

15 a. Explain the Applications of Bioinformatics in Clinical studies.

OR

b. Discuss about the role of Bioinformatics in molecular docking.

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Sl.No. 1595

Sl.No. 1498 SUBJECT CODE: 38115503

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
FIFTH SEMESTER
GENETIC EGNINEERING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Give the use of linkers in Recombinant DNA technology.

2 What is meant by Depurination?

3 High copy number Plasmids – explain briefly.

4 Define Multiple Cloning Sites (MCS). Give their uses.

5 Comment on Transfection.

6 Differentiate Co-integration from Binary vectors.

7 Write short notes on Chromosome jumping.

8 Comment on VNTRs

9 Give the basis of DNA Fingerprinting.

10 Mention any two safety guidelines for rDNA technology.

PART-B (5 x 16 = 80)

11 a. Write in detail about the different Non-Radioactive labeling methods.

OR

b. Explain RAPD and give its significance.

12 a. List out the derivatives of M13 vectors and explain in detail.

OR

b. Write a detailed account on Yeast artificial chromosomes (YACs).

13 a. Write an essay on construction of recombinant DNA

OR

b. Describe various methods of Gene transfer in plants.

14 a. Write a short note on the following.
a. Chromosome walking
b. Chromosome jumping

OR

b. Define Transcript mapping. Describe the various methods used for Transcript mapping.

15 a. Write a detailed account on the applications of rDNA technology in Pathogenesis and Diagnostics.

OR

P.T.O

b. Describe the safety lines for rDNA techniques.

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Sl.No. 1416 SUBJECT CODE: 38115504/38116504

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

FIFTH SEMESTER

PROTEIN ENGINEERING

(Candidates admitted under 2015 & 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write a note on Covalent bond.

2 Where does acetylation modification occur?

3 Given a small Polypeptide or Oligonucleotide. Which method would you prefer to get the sequencing done?

4 Name the forces stabilizing the Secondary structure of Protein.

5 Discuss on the role of Molecular chaperons in Protein folding.

6 Write the principle of IR.

7 Define Eukaryotic transcription factors.

8 Write a note on Photosynthetic reaction centers.

9 Give two applications of Protein Design.

10 Comment on T4 Lysozyme.

PART-B (5 x 16 = 80)

11 a. Give an account on Electrostatic and Hydrophobic forces.

OR

b. Give the detailed note on protein synthesis in Eukaryotes

12 a. How will you predict the substrate binding sites.

OR

b. Explain the chemistry of Peptide bond.

13 a. Give a detailed account on Peptide Mapping.

OR

(P.T.O)

b. Explain about Mass Spectroscopy.

14 a. What are Membrane proteins? Mention its types and its uses.

OR

b. Give an account on Trypsin.

15 a. Give an example for Engineered protein and explain it.

OR

b. Explain in detail about applivations of site specific mutagenesis.

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Sl.No.1261 SUBJECT CODE: 38115505/38116505

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
FIFTH SEMESTER
DIAGNOSTICS AND THERAPEUTICS

(Candidates admitted under 2015& 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Mention the factors that are responsible for eliminating nonresident micro organism from the skin.

2 Mention the Effects of parasitism on parasites.

3 Give an account on etiology of infectious disease?

4 Write an account on life cycle of plasmodium?

5 List the significance of Cohesin

6 List the steps involved in Genetic counseling.

7 Give an account on nucleic acid labeling?

8 Define thermocycler?

9 Explain about DNA sequence

10 Write the principle of Microarray.

PART-B (5 x 16 = 80)

11 a. Write short notes on Normal microflora of a) Skin b) The Intestinal tract

OR

b. How are clinical samples collected, transported and Processed.

12 a. Write short notes on: i) Tuberculosis ii) Typhoid

OR

b. Write a detailed note on cause, symptoms, treatment and preventive measures of Candidiasis?

13 a. Explain any four method of prenatal in detail.

OR

b. Explain the different transfection methods of gene delivery.

14 a. Write an essay on Southern blotting?

OR

b. Give detailed account on PCR and its applications?

15 a. Give an account on Good Laboratory Practice in Pharmaceuticals.

OR

b. Give a detailed notes on Biosafety aspects of Cell transplantation

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Sl.No. 1047 SUBJECT CODE: 38115507/38116507

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
FIFTH SEMESTER
ELECTIVE - CANCER BIOLOGY

(Candidates admitted under 2015& 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are the cancers in digestive system?

2 Comment on tumor suppressor gene.

3 Give an account on stages of carcinogensis theory.

4 What are endogenous carcinogens?

5 Differentiate between Oncogene and proto Oncogene.

6 List any four human cancers and mention its corresponding amplified gene.

7 Give a note on metastatic suppressors.

8 Mention the cascade activity.

9 What is therapy? Mention the different forms of therapy.

10 List four applications on gene therapy.

PART-B (5 x 16 = 80)

11 a. What happens during the modulation in cell cycle?

OR

b. What are tumor markers? How cancers are detected using it? What are its uses?

12 a. Explain x-ray radiation and its mechanism.

OR

b. Write the detailed notes on molecular cell activity of cancer.

13 a. Write note on signal targets and cancer.

OR

b. Enumerate the mechanism of protooncogene in the cancer cell.

14 a. Write short notes on a) ECM b) MMPs c) plasminogen activator family.

OR

b. Give a brief account on metastatic cascade.

15 a. Define gene therapy. Explain in detail about its mechanism and application.

OR

b. Write a detailed note on immuno therapy.

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Sl.No. 1048 SUBJECT CODE: 38116501

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
FIFTH SEMESTER
ELECTIVE - HUMAN ANATOMY AND PHYSIOLOGY

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Why mitochondria are called power houses of cell?

2 What is osmosis?

3 What is blood pressure? Give the normal value.

4 What is non-respiratory air movement? When it occurs?

5 What are the functions of cerebrospinal fluid?

6 Mention the types of muscles.

7 What are the functions of mouth?

8 What is micturition? When it occurs?

9 Define accommodation.

10 Define hormone.

PART-B (5 x 16 = 80)

11 a. Describe the mechanism of transport across the cell membrane.

OR

b. Write short note on the following
i. Levels of organization and major organ system.
ii. Thrombocytes.

12 a. Define ECG. Explain the normal waves and significance of ECG.

OR

b. Explain the regulation of respiration in detail.

13 a. Write an essay on Somatic Nervous System.

OR

b. Explain the anatomy of long bone in detail.

14 a. Describe in detail about the movement of GI tract.

OR

(P.T.O)

b. Explain the location, anatomy and functions of liver.

15 a. Explain the major events in the physiology of hearing.

OR

b. Write a short essay on secretions of the thyroid gland.

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Sl.No. 1048

Sl.No. 1522 SUBJECT CODE: 38116502

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
FIFTH SEMESTER
IMMUNOLOGY

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write a note on the contribution of Edward Jenner to the field of immunology.

2 Distinguish between Hematopoiesis and Lymphopoiesis.

3 List out the common allergens associated with Type–I hypersentivity.

4 Distinguish between the systemic and localized anaphylaxis.

5 Distinguish between isograft and allograft.

6 Write a brief account on immunotolerance to allograft.

7 Write short notes on Typhoid.

8 Give a short note on anti-idiotypic vaccines.

9 Write short note on agglutination.

10 Expand TEMED and mention its role.

PART-B (5 x 16 = 80)

11 a. Write an essay on Hematopoiesis.

OR

b. Explain how the macrophages degrade particulate antigen?

12 a. Briefly summarize macrophage activation.

OR

b. Give a detailed account on hemolytic disease of new born by Type–II hypersensitivity reactions.

13 a. Write an essay on the immunosuppressive drugs used in transplantation.

OR

b. Write short notes on the following:
a) Multiple sclerosis b) Myasthenia Gravis

14 a. Describe in detail about genetic control of immune response.

OR

b. Briefly discuss about recombinant vaccines with examples.

15 a. Explain the role of immunoelectrophoresis in immunodiagnostics.

OR

b. Give a detailed account on different types of ELISA technique.

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Sl.No. 1216 SUBJECT CODE: 38116506/381

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
FIFTH SEMESTER
THERMODYNAMICS FOR BIOTECHNOLOGY

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 State Steady flow energy equation. Write the equation for a steady flow application.

2 State the principle of increase of entropy.

3 What is ideal gas temperature scale?

4 Specify the equation for calculation of $C_p - C_v$ of solids and liquids.

5 What is co-efficient of isothermal compressibility?

6 Define Gibbs free energy.

7 What is raffinate and extract?

8 List four different consistency tests for experimental Vapour Liquid Equilibria data?

9 What is the criterion of chemical reaction equilibria?

10 What is equilibrium composition of a chemical reaction?

PART-B (5 x 16 = 80)

11 a. $0.2m^3$ of air at 4 bar and 130 C is contained in a system.A reversible adiabatic expansion takes place till the pressure falls to 1.02 bar. The gas is then heated at constant pressure till enthalpy increases by 72.5 kJ. Calculate the work done. Take Cp= 1 kJ/kg K, Cv = 0.714 kJ/kg K.

OR

b. A turbine, operating under steady flow conditions, receives 4500 kg of steam per hour. The steam enters the turbine at a velocity of 2800 m/min, an elevation of 5.5 m and a specific enthalpy of 2800 kJ/kg. It leaves the turbine at a velocity of 5600 m/min, an elevation of 1.5 m and a specify enthalpy of 2300 kJ/kg. Heat losses from the turbine to the surroundings amount to 16000 kJ/h. Determine the power output of the turbine.

12 a. Derive equations for heat transfer and work done with an ideal gas and present the same equations applying to Isobaric Process.

OR

b. Discuss the effect of temperature, pressure and volume on internal energy, enthalpy and entropy.

13 a. What are Maxwell's equations and what is their importance in establishing relationships between thermodynamic properties?

OR

b. Explain the physical significance of chemical potential.

14 a. Explain phase equilibrium in multi-component system.

OR

b. Explain any three consistency tests for Vapour- Liquid Equilibria data.

15 a. Discuss the effect of Pressure on Equilibrium Constant and on Equilibrium Composition.

OR

b. In the synthesis of ammonia, stoichiometric amounts of nitrogen and hydrogen are sent to a reactor where the following reaction occurs N2 + 3H2 2 NH3 The equilibrium constant for the reaction at 675 K may be taken equal to 2 x 10-4.i) a) Determine the percent conversion of nitrogen to ammonia at 675 K and 20 bar. ii)b) What would be the conversion at 675 K and 200 bar?

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15506

Marks

Sl.No. 1563 SUBJECT CODE: 38116508

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

FIFTH SEMESTER

ELECTIVE: DRUG TESTING & CLINICAL TRIALS

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Explain educational research.
2 Write a note on impact factor.
3 List the type of clinical trials
4 What is called as control group?
5 Define drug discovery
6 What is a non-interventional trial?
7 List the three stages in the process of carcinogenesis.
8 Briefly discuss on toxicogenomics.
9 What are some of the benefits of taking part in a clinical trial?
10 Where can people find more information about clinical trials?

PART-B (5 x 16 = 80)

11 a. Write an essay on the literature survey.

OR

b. Write short notes on a). Internet b).Reprints

12 a. Give an account on function and responsibility of IEC.

OR

b. Write in detail about different phases of clinical trial.

13 a. Explain in detail about Unethical Trials.

OR

b. Explain about the methods of allocation and Randomization.

14 a. Explain in detail about the mechanism underlying teratogenesis.

OR

b. What is the difference between mutagenicity and genotoxicity?

15 a. Write in detail about Abbreviated New Drug Application.

OR

b. Give the basis for NDA Approval.

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Sl.No. 2031 SUBJECT CODE: 38115601

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SIXTH SEMESTER
PLANT AND ANIMAL BIOTECHNOLOGY

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Explain organized organ culture.

2 What is embryo rescue?

3 Explain cybrids with a neat sketch.

4 Give short notes on Ri Plasmids.

5 Write the advantages of using herbicides

6 What are the morphological markers?

7 What are the advantages and disadvantages of serum in medium?

8 Comment on the techniques for rapid diagnosis of genetic diseases.

9 Write short thyroid hormones.

10 Write the applications of gene knockout.

PART-B (5 x 16 = 80)

11 a. Explain in detailed about Somatic embryogenesis with its application.

OR

b. Write briefly about nutritional requirements and application of embryo culture.

12 a. Explain about a) somatic hybrids b) cybrids.

OR

b. Elaborate about Microprojectile/particle Bombardment (biolistics) and Microinjection with their advantages and disadvantages.

13 a. Discuss in detail about food safety measures following in India

OR

b. Discuss in detail about markers based on PCR amplification.

14 a. Write an essay on gene cloning for mammalian cell.

OR

b. Write an essay on production of commercial products from animal cell culture.

15 a. Give a detailed account on application of transgenic animals.

OR

b. Give a brief account of transgenic mice and their applications.

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Sl.No. 1996 SUBJECT CODE: 38115602

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SIXTH SEMESTER
GENOMICS AND PROTEOMICS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are introns and exons?

2 Differentiate between euchromatin and heterochromatin.

3 Comment on the significance of mapping and its types.

4 Write a short note on chromosome walking and chromosome jumping.

5 Expand EST & SST. Write a note on it.

6 Write the various start codons and the frequency of their utilization.

7 Expand CHAPS, DTT & PMSF

8 Comment on C-terminal amino acid analysis.

9 What is in vivo cross linking of protein?

10 Write short note on cluster analysis.

PART-B (5 x 16 = 80)

11 a. Describe the organisation of gene with neat diagram.

OR

b. Discuss in detail about the organisation of the double helical DNA into a highly condensed form of the chromosome with neat explanatory diagram.

12 a. Explain in detail about restriction mapping.

OR

b. Explain the different methods of genome sequencing.

13 a. What is SAGE? Explain in detail.

OR

b. Briefly explain about the differential display methods.

14 a. Briefly describe Mass spectrometry.

OR

b. Give a detailed account on tandem MS-MS.

15 a. Explain the role of proteomics in drug discovery.

OR

b. Explain multiprotein complex by immunoprecipitation and 1D-SDS-PAGE/MALDI-TOF.

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Sl.No. 1965 SUBJECT CODE: 38115603

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SIXTH SEMESTER
GENETICALLY MODIFIED ORGANISMS AND ETHICAL ISSUES

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Specify the role of IPTG and X –Gal in selection of recombinants.

2 What are humulin?

3 Write a short notes on copy number variation.

4 Comment on Allergic Sensitization.

5 Define Food safety and other issues?

6 Add a note on sterile triploids.

7 Write a short notes on IPs relevant to Biotechnology.

8 Give a short notes on stress resistance.

9 Write a short notes on Genetically modified livestock.

10 Mention few applications of GM foods.

PART-B (5 x 16 = 80)

11 a. Describe the construction of c DNA library.

OR

b. Give a detailed description of Agrobacterium based genetic transfer in plants.

12 a. Write a brief notes toxicological studies.

OR

b. Write in detail about product analysis – microbial, biochemical and molecular.

13 a. Give a brief summary on current and future of Genetically Engineered Organisms

OR

b. Write a detail notes on Microalgae

14 a. Elaborate about the History of GATT.

OR

b. Discuss in detail about the Indian plant patent regime with International patent law.

15 a. Elaborate about the field trials and biosafety of GM foods.

OR

b. Give a detailed note on advantages and disadvantages of GM crops and GM foods.

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Sl.No. 1869 SUBJECT CODE: 38115604

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SIXTH SEMESTER
BIOPROCESS ENGINEERING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Describe downstream process.

2 Draw the basic configuration of Fermenter.

3 Draw the Batch growth curve.

4 Differentiate primary and secondary metabolite

5 Write short note on Membrane Bioreactors

6 Name two Methods of Sterilization of media

7 Write note on Scale up of Airlift Bioreactor.

8 List out the limitations of Static method of Gassing out.

9 Differentiate Anode and Cathode.

10 Explain in brief about the Enzyme and microbial electrodes.

PART-B (5 x 16 = 80)

11 a. Discuss various processes involved in a downstream process.

OR

b. Draw the basic configuration of a bioreactor and explain its ancillaries.

12 a. Explain the unstructured non-segregated models to predict Specific Growth Rate.

OR

b. Give an account on mode of operation in a Fed-batch culture.

13 a. Explain about Immobilized Enzyme Bioreactor.

OR

b. Enumerate the types of Agitators and Spargers.

14 a. Explain about Regimes in Stirred tank reactors.

OR

b. Explain about Mass transfer correlations.

15 a. Explain in detail about Microbial colorimeter.

OR

b. Describe the manual and automatic method for bioprocess monitoring.

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Sl.No. 1816 SUBJECT CODE: 38115605

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E -DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SIXTH SEMESTER
MASS TRANSFER OPERATIONS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 For binary mixture of gases prove that $D_{AB}= D_{BA.}$

2 What do you mean by Reynold's number? What is the use of Reynold's number in unit operation?

3 Define absorption factor and stripping factor.

4 Compare ideal solutions and non Ideal Solutions. Give examples.

5 What is azeotrope?

6 Write down the comparison of azeotropic and extractive distillation.

7 Name the leaching equipments used in industries.

8 Give some pretreatment methods applied to solid before leaching Process.

9 What is the break point and break through curve in the fixed bed adsorption process?

10 Differentiate Adsorption and Absorption.

PART-B (5 x 16 = 80)

11 a. Explain the concept of interphase mass transfer and derive an expression relating local and overall mass transfer co-efficient.

OR

b. Explain the various analogies involved in Transport phenomena.

12 a. A Packed tower is designed to recover 98% CO2 form a gas mixture containing 10% CO2 and 90% Air using Water. A relation y = 14x can be used for equilibrium conditions where y is Kg CO2 / Kg dry Air and x is Kg CO2 / Kg water. The Water to Gas rate is kept 30% more than the minimum value. Calculate the height of the Tower if (HTU) OG is 1 meter.

OR

b. Describe the Construction and Working of Tray Towers.

13 a. A mixture of benzene and toluene containing 40 mole percentage of benzene is to be separated to give top product of 90 mole percentage benzene and bottom product not more than 10 mole percentage benzene. If the operating reflux ratio is 3. Calculate for 100 moles of feed
(i) Quantity of top product and bottom product
(ii) K-moles of vapor leaving the column
(iii) K-mole of vapor entering from bottom

OR

b. Explain the construction and working of flash distillation with a neat sketch. Also, derive an equation for 'y' in terms of 'f'.

14 a. Elucidate about Extraction equipments with neat sketch.

OR

b. What is liquid-liquid extraction? Explain with suitable example. What are the fields of usefulness of liquid extraction

15 a. Batch tests were performed in the lab using solutions of Phenol in Water and particles of granular Activated carbon. The equilibrium data at room temperature are shown .Determine the Isotherm that fits the data.

c, Kg Phenol / m^3 solution	0.322	0.117	0.039	0.0061	0.001
q, Kg Phenol / Kg Carbon	0.150	0.122	0.094	0.059	0.045

OR

b. Explain adsorption equilibrium for gases and vapors.

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Sl.No. 1766 SUBJECT CODE: 38115701

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

SEVENTH SEMESTER

BIOPHARMACEUTICALS

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Explain in brief about sub lingual drug.
2 Expand FDA and write its significance.
3 Write down the advantages of sublingual route.
4 Comment on drug efficacy.
5 Differentiate between Filtration & Clarification.
6 Write down the principle of freeze-drying.
7 How is compressed tablets prepared?
8 Differentiate between capsule and tablets.
9 Write the merits & demerits of Heroin.
10 Write the significance of Insulin.

PART-B (5 x 16 = 80)

11 a. Discuss in detail about the classification of drugs.

OR

b. Write short notes on: a). Antiulcer drugs b). Central nervous system drugs.

12 a. Write essay on the factors influencing drug administration.

OR

b. Write short notes on: a). Tolerance b). Hypersensitivity.

13 a. Write short notes on: a). Evaporating Still b). Fractional Distillation.

OR

b. Discuss in detail about surgical autoclave with neat diagram.

14 a. Explain in detail the methods of tablet preparation.

OR

b. Write an essay on the preparation of capsules.

15 a. Write short notes on: a). Laxatives b). Oral contraceptives.

OR

b. Write an essay on the endocrine hormones origin, deficiency symptoms and cure.

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Sl.No. 1717 SUBJECT CODE: 38115702

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E-DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SEVENTH SEMETER
DOWNSTREAM PROCESSING IN BIOTECHNOLOGY

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 List the characteristic features of bioproducts.
2 What are the methods available for pretreatment of bioproducts?
3 List out the criteria for successful rate-zonal centrifugation:
4 Compare sedimentation and centrifugation.
5 What are the different methods of extraction process?
6 Write the principle involved in RO.
7 What is the importance of displacement analysis in chromatography?
8 Defiene HPLC.
9 List out the advantages and disadvantages of batch crystallization.
10 Define free moisture.

PART-B (5 x 16 = 80)

11 a. Justify the downstream processing steps in the isolation of products.

OR

b. Discuss briefly about the mechanical methods of cell distruption.

12 a. Estimate how filtration time is determined for batch filtration of a broth at constant pressure?

OR

b. Give a detailed account on different types of centrifuges with neat diagram.

13 a. Write notes on a). Different extraction processes. b). Principles of solvent extraction. c). Equipments of extraction process

OR

b. Write short notes on a). Ultra filtration. b).Microfiltraion. c). Preparation of membranes.

14 a. Explain in detail about the principle, practice and applications of membrane chromatography.

OR

b. Draw and describe a refractive index detector. How does this detector function? What are its advantages and disadvantages?

15 a. Discuss the principles involved in final product polishing and packaging of bioproducts.

OR

b. Explain the importance of any two final formulations of products ?

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Sl.No. 1540 SUBJECT CODE: 38115703

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

SEVENTH SEMESTER

FOOD PROCESS TECHNOLOGY

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Molds and its industrial importance.

2 Write about botulism.

3 What is meant by Vacreation?

4 What are food additives.

5 Indicate the factors affecting the Quality of foods.

6 Write the principles of autoclaving.

7 What is the condition for whole egg Pasteurization.

8 Write short notes on food flavors components for sweetness and saltiness.

9 Give short notes on Designing of package materials.

10 Define Traceability

PART-B (5 x 16 = 80)

11 a. Explain about microorganisms present in the milk and milk products.

OR

b. Describe any 4 food borne intoxications.

12 a. Explain different irradiation techniques in food preservation.

OR

b. Give an brief account on staphylococcus food intoxication.

13 a. Describe the activity of microbes at low temperature.

OR

b. Explain about microbiology of foods before and after drying.

14 a. Explain briefly about the Intentional food additives with example.

OR

b. How organic acids, sulphur and nitrogen compounds function as preservatives?

15 a. Detailed discussion on different varieties of Packaging materials.

OR

b. Explain about the advancements in packaging technologies.

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Sl.No. 1444 SUBJECT CODE: 38115704

VINAYAKA MISSIONS RESEARCH FOUNDATION

(Deemed to be University)

B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018

BIOTECHNOLOGY

SEVENTH SEMESTER

NANOBIOTECHNOLOGY

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What is meant by nanodot?
2 Write a note on nanotubes.
3 What is homeoepitaxy?
4 Write the principle of TEM
5 Define Protein.
6 Define: chemotaxis
7 Give two examples of Cyanophycin producing organisms.
8 Define magnetism.
9 Write about nanorobots.
10 Define DNA damage.

PART-B (5 x 16 = 80)

11 a. Discuss about inorganic nanoscale systems for biosystems.

OR

b. Explain various applications of CNT.

12 a. Enumerate in detail about Transmission Electron Microscopy

OR

b. Write working principle and functions of Atomic Force Microscope.

13 a. Discuss how proteins are used as components in nanodevices.

OR

b. Explain about chemotaxis.

14 a. Describe about the structure and importance of Cyanophycin.

OR

b. Write detailed notes on the structure of S- layer and its functions.

15 a. Describe about nanobiochips.

OR

b. Write an essay about nanomedical approach for drug delivery.

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Sl.No. 1332 SUBJECT CODE: 38115705

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SEVENTH SEMESTER
STEM CELL BIOLOGY AND TISSUE ENGINEERING

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write a short note on totipotent, multipotent and pluripotent stem cell.
2 Write a note on germ layers.
3 Define cell culture, histotypic cell culture and primary cell culture.
4 Write briefly about CD34 and CD133
5 What is Aldefluor assay?
6 Write about neural stem cell differentiation.
7 Give a note on prostheses.
8 What is Fascia and Syndecan-1**?**
9 List out the diseases treated by genetic engineering technology
10 What is multipotent neuro stem cell?

PART-B (5 x 16 = 80)

11 a. Explain in detail about Embryonic Stem Cell.

OR

b. Discuss in detail about primordial germ cells and induced pluripotent germ cells.

12 a. Write detailed notes on the following
(i) p75 Neurotrophin R (NTR) (ii) PSA-NCAM (iii) ABCG2

OR

b. Write about growth factor requirements & management in culture.

13 a. Explain the process of the differentiation of human neurospheres into neurons, astocytes and oligodentrocytes.

OR

b. Write about the applications of neural stem cell cultures.

14 a. Discuss in detail about reconstruction of connective tissue.

OR

b. Write briefly abour the following 1] hollow fibre systems 2] micro carrier based systetms

15 a. Discuss the overview of neural stem cells.

OR

b. Embryonic Stem cell – A promising tool for cell replacement therapy – Discuss

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Sl.No.1086 SUBJECT CODE: 38115706

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC - 2018
BIOTECHNOLOGY
SEVENTH SEMESTER
WASTE MANAGEMENT

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 What are the types of decomposing methods?
2 What are the three possible steps in the dispose of e-waste?
3 Define waste hierarchy
4 What is resource efficiency?
5 Mention the types of composting methods used for waste minimization.
6 What are the characteristics of pollutants?
7 What is a solid effluent?
8 Write about temporary storage.
9 What is mean by landfills?
10 Write any two important advantages of pyrolysis.

PART-B (5 x 16 = 80)

11 a. Write short notes on landfill, incineration and composting methods.

OR

b. Write short notes on generation, segregation, collection, storage, and transportation of waste in health care waste.

12 a. Explain about life cycle thinking and stages of product life cycle.

OR

b. Write short notes on (i) Pyrolysis (ii) Landfill gas (iii) Anaerobic digestion

13 a. Explain in detail about waste minimization techniques in leather industries.

OR

b. Discuss in detail about waste minimization techniques in paper industries.

14 a. Briefly explain about methods used in handling, transport,and disposal in paper industries

OR

b. Discuss in detail about waste handling and transport methods in textile industries.

15 a. Briefly describe pyrolysis and modern disposal techniques.

OR

b. Explain in detail about incineration disposal techniques.

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S.No.1010 **SUBJECT CODE: 38115707**

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E.DEGREE EXAMINATIONS- NOV/DEC 2018
ELECTIVE : CRYOPERSERVATION THEORY AND APPLICATIONS
BIOTECHNOLOGY
SEVENTH SEMESTER

(Candidates admitted under 2015 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 List out the essential equipments used during Cryopreservation.
2 Summarize the use of Glycerol.
3 List out few applications of frozen zoo.
4 List out the liquefied gases.
5 Compare plasmolysis and Pseudoplasmolysis.
6 Write short notes on Cryoprotective additives.
7 State the role of liquid nitrogen during Cryopreservation.
8 Illustrate Progesterone.
9 Comment on Liposomes.
10 List out the role of Dewar flask in cryobiology.

PART-B (5 x 16 = 80)

11 a. Write a detailed note on history of Cryopreservation.

OR

b. What are the metabolic changes takes place in cell during Freezing?

12 a. Explain in detail about the *ex situ* conservation.

OR

b. Explain the importance of long time preservation.

13 a. Discuss in detail about note on Cellular cryobiology.

OR

b. Explain the importance of cryopreservation in Animal cell culture.

14 a. Explain the influence of Embryo thawing cryopreservation

OR

b. Describe the properties of cryoprotective solution.

15 a. Discuss briefly about Intensive aquaculture.

OR

b. Discuss in detail about Fish Planktons.

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