

**Assignments/Class
Tests
2020-2021**

Netaji Nagar Day College

Department of Electronics

Class Test of 1st Semester, 2021.

Time: 40 minutes

Full Marks: 20

Answer any two:

10×2 = 20

1.

- a) What is extrinsic semiconductor?
- b) What do you mean by conductivity and mobility of a semiconductor?
- c) What is called transition region in a p – n junction diode?
- d) What is the effect of temp on V – I characteristics of a p – n diode?
- e) Draw the energy band diagram of an n – type extrinsic semiconductor.

2.

- a) Explain the difference between metal, semiconductor and insulator using energy band diagram.
- b) Write down the Shockley's equation for a p –n junction diode. Draw the energy band diagrams of a p-type and n-type semiconductor.

[4+(2+2+2) = 10]

3.

- a) What do you mean by rectification? Draw the circuit diagram of a full wave rectifier and explain the operation the circuit.
- b) What is the PIV of a rectifier circuit?

[(2+2+4)+2 = 10]

Assignments

Class Test_PHSA

The image shows a screenshot of a Google Forms assignment titled "Question on Carnot Cycle". The form is displayed in a web browser window. The browser's address bar shows the URL: docs.google.com/forms/d/e/1FAIpQL5sqmGC85ca4zAeWtj1nFzRq6y1k2XV14Th6E1-pC9stpCqge/viewform. The form content includes:

- Title:** Question on Carnot Cycle
- Text:** Test 2 SEM 3 PHSA
- Sender:** smitra.ist@gmail.com [Switch accounts](#)
- Requirement:** *Required
- Field 1:** Email *
Your email address
- Field 2:** Describe Carnot cycles
Your answer
- Text:** If heat absorbed by the engine (Q1) = 10,000 Joule, what is the work done by the Carnot engine?

The Windows taskbar at the bottom shows the search bar with "Type here to search", several application icons, and system tray information including "Local Disk (C:)", "22°C", and the date "10-12-2021".

Assignments - Mathematics

f is continuous if it is cont. on \mathbb{R} and $f(x) = 0 \forall x \in \mathbb{R} \setminus \mathbb{Q}$.
 Show that $f(x) = 0 \forall x \in \mathbb{R}$.
 \Rightarrow Let 0 be an irrational point. we have to prove
 $f(0) = 0$
 let us consider a sequence $\{x_n\}$ of irrational numbers
 cont. to 0 , i.e. $\lim_{n \rightarrow \infty} x_n = 0$.
 Now, $f(x_n) = 0 \forall n \in \mathbb{N}$.
 $\therefore \lim_{n \rightarrow \infty} f(x_n) = 0$. Again, it is given that f is
 cont. on \mathbb{R} . $\therefore f$ is cont. at 0 . So by the sequential criterion
 of cont. we have that, f is cont. at a point cont. if the
 every seq. $\{x_n\} \rightarrow 0$, the seq. $\{f(x_n)\} \rightarrow f(0)$.
 $\therefore f(0) = \lim_{n \rightarrow \infty} f(x_n) = 0$
 $\Rightarrow f(0) = 0$
 Since 0 is an arbitrary irrational no. $\therefore f(x) = 0 \forall x \in \mathbb{R} \setminus \mathbb{Q}$
 $\Rightarrow f(x) = 0 \forall x \in \mathbb{R}$

2) If $f(x)$ is cont. on $[a, b]$ and if $f(x) = c$, a const.
 at irrational points in $[a, b]$. Show that $f(x) = c \forall x \in [a, b]$.
 \Rightarrow Let a be an irrational point. we have to prove $f(a) = c$.
 Let us consider a sequence $\{x_n\}$ of rational numbers in $[a, b]$
 at $\lim_{n \rightarrow \infty} x_n = a$
~~By sequential criterion, $f(x_n) \rightarrow f(a)$~~
 $\lim_{n \rightarrow \infty} f(x_n) = c \forall n \in \mathbb{N}$
 $\therefore \lim_{n \rightarrow \infty} f(x_n) = c$
 Again since f is cont. on $[a, b]$
 $\Rightarrow f$ is cont. at a
 By sequential criterion, $\lim_{n \rightarrow \infty} f(x_n) = f(a)$
 $\therefore f(a) = c$

Assignments - Mathematics

2) Show that the func. $f(x) = [x] + [-x]$ is discont. at $x=0$

$$f(x) = n - 1 + n, \quad n-1 < x < n, \quad n \in \mathbb{Z}$$

$$= -1, \quad n-1 < x < n, \quad n \in \mathbb{Z}$$

$$= 0, \quad x = n, \quad n \in \mathbb{Z}$$

$$\lim_{x \rightarrow 0^+} f(x) = -1 \neq 0 = f(0)$$

$\Rightarrow f$ is discont at $x=0$.

Q. Show the A function is defined by

$$f(x) = \begin{cases} \cos x, & x \geq 0 \\ -\cos x, & x < 0 \end{cases}$$

Is the function $f(x)$ is cont. at $x=0$?

$$\lim_{x \rightarrow 0^+} f(x) = \lim_{x \rightarrow 0^+} \cos x = 1$$

$$\& \lim_{x \rightarrow 0^-} f(x) = \lim_{x \rightarrow 0^-} -\cos x = -1$$

$$\text{since } \lim_{x \rightarrow 0^+} f(x) \neq \lim_{x \rightarrow 0^-} f(x)$$

$\therefore f$ has jump discontinuity at $x=0$.

Assignments - Mathematics

Q1) Prove that every constant function is continuous.

Q) Let ~~$f: \mathbb{R} \rightarrow \mathbb{R}$~~ or f be a function on \mathbb{R} s.t.

$$f(x) = c \quad \forall x \in \mathbb{R}, c \in \mathbb{R}$$

Let $a \in \mathbb{R}$

$$\text{We want to show } |f(x) - f(a)| = |c - c| = 0 < \epsilon \quad \forall x \in N(a, \delta)$$

~~Proof~~ $\therefore |f(x) - f(a)| < \epsilon \quad \forall x \in N(a, \delta)$

$\therefore f$ is cont. at a

Since f is an arbitrary const.

\therefore Every constant fun. is cont.

Q2) If $f: [a, b] \rightarrow \mathbb{R}$ is cont. at $\frac{a+b}{2}$ with $f(\frac{a+b}{2}) \neq 0$, prove that f is not in a nbd of $(\frac{a+b}{2})$ where it keeps the same sign as that of $f(\frac{a+b}{2})$.

\Rightarrow Since $f(\frac{a+b}{2}) \neq 0$

$$-|f(\frac{a+b}{2})| < 0 < |f(\frac{a+b}{2})|$$

~~or for all $\epsilon > 0$ be arbitrary,~~

Since f is cont. at $\frac{a+b}{2}$, $\exists \delta > 0$ s.t.

$$\forall x \in N(\frac{a+b}{2}, \delta) \quad |f(x) - f(\frac{a+b}{2})| < |f(\frac{a+b}{2})|$$

\therefore

Assignments-Zoology

Assignment-10 (Submitted by Next Tuesday)

- ① অপসারণকারী ও পুনঃস্থাপনকারী পান্থক্য লেখ ।
- ② হেমিসিষ্ট্রা অথবা ডিমিসিষ্ট্রা পুনঃস্থাপন বলাত কী বোঝ ।
- ③ হেমিসিষ্ট্রা পুনঃস্থাপন কী ?
- ④ অতিরিক্ত স্রাবস্রাঙ্গ বলাত কী বোঝ ।
- ⑤ স্রাবস্রাঙ্গ অঙ্গ বলাত কী বোঝ ।
- ⑥ স্রাবস্রাঙ্গের পেশী অঙ্গ কী ?
- ⑦ পান্থক্যের প্রধান গাঢ় বায়ুমানির নাম লেখ ।
- ⑧ বায়ুমানির কাজ লেখ ।
- ⑨ স্রাবস্রাঙ্গের অতিরিক্ত স্রাবস্রাঙ্গের নাম লেখ ।
- ⑩ পেশী কী ?
- ⑪ বায়ুমানি কী ? পান্থক্যের দেহে কয়টি বায়ুমানি বর্তমান ?

Assignment

Math Hons (Sem 2)

Real Analysis

Answer these questions:

1. Give an example of an unbounded sequence with two subsequences one of which is convergent and other is divergent.
2. Give examples of two non-convergent sequences $\{x_n\}$ and $\{y_n\}$ such that the sequence $\{x_n y_n\}$ is convergent.
3. State the Archimedean Property of \mathbb{R} and prove it.
4. If $\lim_{n \rightarrow \infty} (b_n - a_n) = 0$, find $\lim_{n \rightarrow \infty} \frac{a_n}{b_n}$ where $b_n > 1$ for all n .
5. Justify the statement: "Every interior point of a subset of \mathbb{R} is its limit point".
6. Prove that a Cauchy sequence is bounded. Is the converse true? Justify your answer.
7. Prove or disprove: $\lim_{x \rightarrow 0} \frac{1}{e^{1/x} + 1}$ exists.

Screenshots of Classroom

(Dr. Bhumika Pradhan, Assistant Professor, Dept. of Botany)

The image displays two screenshots of the Canvas LMS Classroom interface. The top screenshot shows the 'Students' page with a list of 10 students. The bottom screenshot shows a continuation of the student list, starting from the second student of the top screenshot.

Top Screenshot: Students List

Student Name	Profile Picture	More Options
Unknown		⋮
tanishtha Sarangi		⋮
Shreya Bhat		⋮
Nivedita Sengupta		⋮
Mrinal Dutta		⋮
Soumyadip Ghosh		⋮
Dolly Nayak		⋮
Madhurima Majumdar		⋮
Ritika Mondal		⋮
Jani Misra		⋮

Bottom Screenshot: Students List (Continuation)

Dolly Nayak		⋮
Madhurima Majumdar		⋮
Ritika Mondal		⋮
Jani Misra		⋮
Arif Hussain Mulla		⋮
ARIF HUSSAIN MULLA		⋮
Sayani Misra		⋮
neeharika mondal		⋮
Sanjay Patra		⋮
Elavajit Saha		⋮
Meros Sengupta		⋮

3rd Sem Hons

Botany Hons

Customise

Class code

n5256qq

Upcoming

No work due in next

[View all](#)

Announce something to your class

B. Pradhan
25 Jul

These are some of the questions on Bryophytes. You all also try to solve questions from book, old question papers etc.

	Questions on Bryophyte.p... PDF		Questions.docx Word
--	------------------------------------	--	------------------------

Add class comments

B. Pradhan
15 Jul

Refer lecture also

6th Sem Hons

Botany Hons

Customise

Class code

eoletvp

Subject Plant Biotechnology

Class code

eoletvp

Upcoming

No work due in next

[View all](#)

Announce something to your class

B. Pradhan
21 Jul

Reference notes for Research Methodology paper (1, 4, 6 topic number)

	Hazardous signs.pdf PDF		Microtomy.pdf PDF
	Model organisms.pdf PDF		Smear preparation techni... PDF

Students

11 students

<input type="checkbox"/>	<input type="text" value="Search"/>	<input type="checkbox"/>
<input type="checkbox"/>	Warren Budget	
<input type="checkbox"/>	Diva Bhaskaran	
<input type="checkbox"/>	Divyanshu Chatterjee	⋮
<input type="checkbox"/>	Shreyas Das	
<input type="checkbox"/>	Hriday Hans Choudhary	
<input type="checkbox"/>	G. G. Mondal	⋮
<input type="checkbox"/>	Sayan Sen	
<input type="checkbox"/>	Sameer Purohit	
<input type="checkbox"/>	Gaurav Singh	
<input type="checkbox"/>	Anshu Mishra	⋮



Classmate
eolbvp

Announcement for you

Upcoming
Show all 4 items

S. Pradhan 21 Jul

Advance how to search the following paper 2, 3 & 4 page number

Hazardous signs.pdf	Microbiology.pdf
Micro organisms.pdf	Sexual reproduction technol.pdf

1 like comment

Muskan Das 21 Jul

S. Pradhan 21 Jul

So through the last of parts in every paper for the disease

Female infertility.pdf	infertility management p...
male and infertility.pdf	Female infertility.pdf
Male infertility.pdf	skin diseases.pdf
medicinal plants - good PL...	

0 likes comment

S. Pradhan 21 Jul

Please use various disease as a disease which is through these paper

1. Jaundice.pdf	2. Cancer disease.pdf
3. Diabetes.pdf	4. Asthma.pdf

S. Poojari
20th

Origin of alternation of generations, unifying characters of seedless bryophytes, seedless vascular plants etc. The info relevant purpose only to be used as a

🔍 📄 📌

S. Poojari
21th

Practical table

🔍 📄 📌

S. Poojari
21th

Task 11. Use following the practical exercise. Say the page number.

🔍 📄 📌

Botany Home

Class code
xqqydlu

Upcoming
No next class is open
[View all](#)

👤 Welcome something to your class

👤 **S. Prakash**
9 Jul
Dear Students please find the notes. Do not share outside the class.
This is for reference purpose by to find the Plant Tissue Culture book by Dr. Rajan Kumar Dasari.

📄 1. Haploid culture.pdf PDF

📄 1. Oogonensis.pdf PDF

👤 [View all content](#)

👤 **S. Prakash**
14 Jul
Mushroom notes (Sec B)

📄 1_2_2006.pdf PDF

📄 Mushroom storage metho... PDF

👤 [View all content](#)



👤 **S. Prakash**
14 Jul
Mushroom notes (Sec B)

📄 1_2_2006.pdf PDF

📄 Mushroom storage metho... PDF

📄 Nutritional and medicinal... PDF

📄 nutritional contents of mushroom... PDF

👤 [View all content](#)

👤 **S. Prakash**
7 Jul
Phylogenetic tree ppt

📄 Phylogenetic tree Notes p... PDF

👤 [View all content](#)



🔍



E. Prabha
21 hr

See the page numbers and enter this in the practical page. This can be a single copy or file also.







- | | |
|----------------------------------|----------------------------------|
| IMG_20210220_124007.jpg
Image | IMG_20210220_124015.jpg
Image |
| IMG_20210220_124023.jpg
Image | IMG_20210220_124042.jpg
Image |
| IMG_20210220_124051.jpg
Image | IMG_20210220_124102.jpg
Image |
| IMG_20210220_124108.jpg
Image | IMG_20210220_124113.jpg
Image |
| IMG_20210220_124121.jpg
Image | IMG_20210220_124129.jpg
Image |
| IMG_20210220_124142.jpg
Image | IMG_20210220_124149.jpg
Image |

IMG_20210220_124113.jpg























 S. Prabha

Students

12 students 

- actions 
-  Sujata Barman 
-  Sumanth Bhowmik 
-  ANUSH CHATTERJEE 
-  Arjita Ghosh 
-  Santhi Mandal 
-  Arpita Mondal 
-  Kama Mukherjee 



-  Sumanth Bhowmik 
-  ANUSH CHATTERJEE 
-  Arjita Ghosh 
-  Santhi Mandal 
-  Arpita Mondal 
-  Kama Mukherjee 
-  Suchandra Paul 
-  Debraj Roy 
-  Irina Roy 
-  Anshik Sarkar 
-  Savita Singh 



Screenshots of Assignments submission

(Dr. Bhumika Pradhan, Assistant Professor, Dept. of Botany)

