STANLEY COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN

MAIN ANSWER SHEET

Mid Examination-1

Branch: CSE Sem: IV Section: C Roll No(Full): 160619733[illegible] Subject: JAVA Date: 23/6/21

N. Vinuela

18/20

PART-A

1Ans The use of string tonkenizer :-

The java.util.string.Tokenizer class allows you to break a string into tokens. It is simple way to break string. It doesn't provide the facility to differentiate numbers, quoted strings, identifiers, etc. like string Tokenizer class. We will discuss about stream tokenizer.

It doesn't provide the facility to differentiate numbers.

2

2Ans The differnance between ouerloading and ouerridding.

1. Ouerridding implements runtime polymorphism whereas ouerloading implements compile time polymorphism.
2. The method ouerridding occurs between superclass and subclass. Ouerloading occurs between methods in the same class.
3. Ouerridding methods have the same signature i.e same name and method arguments. Ouerloading method names are the same but the parameters are different.
4. With ouerloading, the method to call is determined at the compiler time with ouerridding, the method to call is determined at runtime based on the object type.

2

5. If overridding breaks, it can cause serious issue in our program because the effect will be visible at runtime. whereas overloading breaks, the compile-time error will come and it's easy to fix.

3 Ans Type conversion and Type casting.

Type casting is when you assign a value of one primitive data type to another data type. In Java, there are two types of casting.

i) Widening casting:- converting a smaller type to larger type size
byte → short → char → int → long → float → double
This is also called as type conversion.

ii) Narrowing casting:- converting type of larger type to smaller type size
double → float → long → int → char → short → byte.

PART-B

4 Ans This:- to refer current class instance variable. The this keyword can be used to refer current class instance variable. if there is ambiguity between instance variables and parameters this keyword resolves the problem of ambiguity. Program without this keyword

```
class student {
 int rollno;
 String name;
 float fee;
 student (int rollno, String name, float fee) {
```

Additional sheet No: 1

Rollno (Hall):-160619733178

```
rollno = rollno;
name = name;
fee = fee;
}
void display(){system.out.print(rollno+" "+name" "+fee);}
}
class Test This1{
public static void main (String[] args) {
student s1 = new student ("111", ankit", 5000);
student s2 = new student ("112", sumit", 6000);
s1.display();
s2.display();
}}
```

output:-

0 null 0.0

0 null 0.0

Solution of the above by this keyword

```
class student{
int rollno;
string name;
float fee;
student (int rollno, string name, float fee){
this.rollno = rollno;
this.name = name;
this.fee = fee;
}
void display(){system.out.print(rollno+" "+name" "+fee);}
}
class Test This 2 {
public static void main (String[] args) {
student s1 = new student ("111", ankit, 5000);
student s2 = new student ("112", sumit, 6000);
s1.display();
s2.display();
```

output :-

111 ankit 5000

112 sumit 6000

super keyword in Java

The super keyword in java is a reference variable which is used to refer immediate parent class object. whereas you create the instance of subclass an instance of parent class is created implicitly which is referred by super reference variable

Super keyword is used to refer immediate parent class instance variable.

```
class Animal{
string color = "white";
}
class Dog extends Animal{
string color = "Black";
void printcolor(){
system.out.print(color); // prints colour of Dog class
system.out.print(color); // prints colour of Animal class
}
}
class Test super1{
public static void main(String args[]){
Dog d=new Dog();
d.printcolor();
}
}
```

6(a) The difference between a constructor and method :-

Key	constructors	methods
1) purpose	constructor is used to create and intilalize an object	methods are used to execute certain statements.

Additional sheet No:- 2

Roll no (Full):- 16061973378

2) Invocation	A constructor is invoked implicitly by the system	A method is to be invoked during progam code.
3) Return type	A constructor can have any return type	A method can have return type
4) Object	A constructor initializes an object which is not existent	A method initializes or invoked only on existing object.
5) Name	A constructor must have same name as that of the class	A method name can not be same as class name.

Example:-

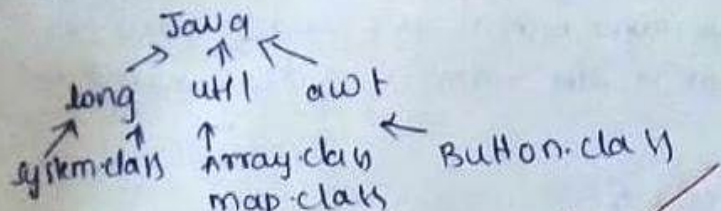
```
public class JavaTester {
  int num;
  JavaTester(){
    num = 3;
    System.out.println("constructor)}
    public void intI(){
      num = 5;
      system.out.printIn("method invoked")
      }
      public static void main (String arg[])
       JavaTester tester = new JavaTester
       tester.intI();
      }
}
```

(b)1) A java package is a group of similar types of class, interface and sub-packages

2) Package in java can be categorized in two form built-in package and user-defined package

3) There are many built-in packages such as java, lang, awt, javax, swing, net, io, util, sql etc

4) Here, we will have the detailed learning of creating & using user defined



Ex // save as simplejava
package mypack;
public class simple {
public static void main(String args[]){
System.out.println("welcome to package");
}
}

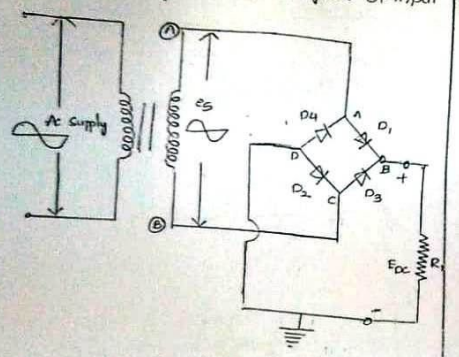
Importing

There are 3 ways to access the package from outside the package

Ex1 // save by A.java
package pack1;
public class A {
public void msg(){}
}
// save by B.java

```
package mypack;
import pack1.*
class B{
public static void main (String args[])
  A obj = new A();
  obj.msg();
}}
```

During positive half cycle of input



During negative half cycle of input.

The bridge rectifier circuit has four diodes connected to form a bridge. The ac input voltage is applied to diagonally opposite ends of the bridge. The load resistance is connected b/w the other two ends of the bridge rectifier circuits & its waveforms are shown in below fig.

the load current flows through the R_L

⇒ During the -ve half cycle of the i/p ac voltage diodes D_2 & D_4 conducts, whereas diode D_1 & D_3 don't conduct.

⇒ The conducting diodes D_2 & D_4 will be in series through the load resistance R_L & the current flows through the R_L in same direction. thus the bidirectional wave is converted into a unidirectional wave.

b) 1) Idc:-

$$I_m = \frac{V_{s(m)}}{R_L} = \frac{\sqrt{2} \times 20}{1 \times 10^{-3}} = 28.2842 \text{ mA}$$

$$I_{dc} = \frac{2I_m}{\pi} = 13 \text{ mA}.$$

2) voltage across the load:-

5b) $\frac{N_2}{N_1} = \frac{1}{11}$, $V_{p(rms)} = 220V$.

$f = 60Hz$

$R_L = 1k\Omega$

$$\frac{N_2}{N_1} = \frac{V_{s(rms)}}{V_{p(rms)}}.$$

ROLL NUMBER: 160911735023

BRANCH / SEM / SEC: ECE - A / 2nd sem

SUBJECT : ED

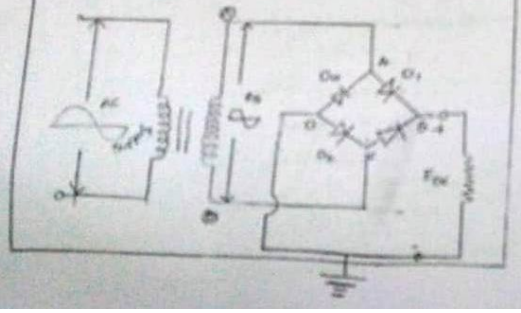
DATE : 31/10/2017

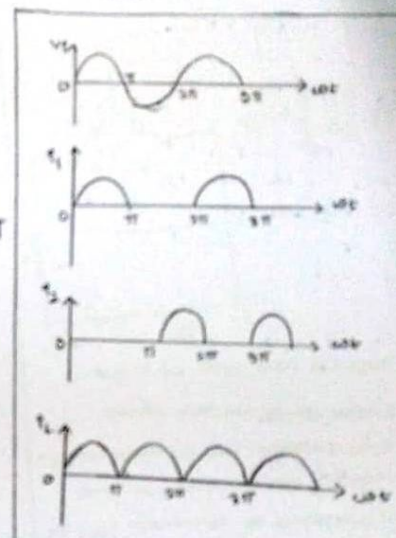
Part-B

7a) Bridge rectifiers, input and output wave forms:-

Bridge rectifier:-

The full wave rectifier circuits requires a center tapped transformer where only one half of the total ac voltage of the transformer secondary winding is utilized to convert the dc output. The need of the center tapped transformer in a full-wave rectifier is eliminated in the bridge rectifier.





4

operation:-

⇒ For the positive half cycle of the i/p ac voltage diode D_1 & D_3 conduct, whereas diodes D_2 & D_4 don't conduct. The conducting diodes will be in series through load resistance R_L, so

$\frac{1}{10} = \frac{V_{S(rms)}}{220} \Rightarrow V_{S(rms)} = 20V$

$V_{Sm} = \sqrt{2}\ V_{S(rms)}$.

3) i. I_{dc}

$I_m = \frac{V_{Sm}}{R_L} = \frac{\sqrt{2} \times 20}{1 \times 10^{-3}} = 28.2842\ mA$

$I_{dc} = \frac{2I_m}{\pi} = \underline{18mA}$

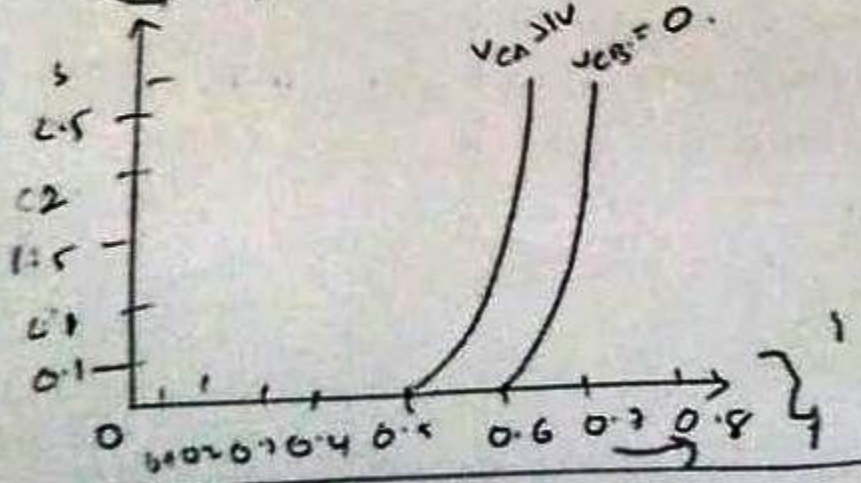
ii. $V_{dc} = I_{dc} R_L$

$= 18 \times 10^{-3} \times 1 \times 10^{-3}$

$= 18V$ ✓

iii. $PIV = V_{Sm} = 28.2842V$. ✓

6) I_B (mA)



I/I Characteristics

Stanley College of Engineering & Technology for Women

Chapel Road,Abids.

Department of Humanities and Sciences

Date:02.02.2021

CIRCULAR

All the faculty are informed that they have to identify the slow learners and conduct remedial classes for them, for improving their performance. The remedial hour is to be conducted before the second internal exams.

Timings 4.30pm to 5.30 pm

Monday	Mathematics -I
Tuesday	Engineering Physics
Wednesday	Engineering Chemistry
Thursday	BEE
Friday	PPS

SUBJECT	FACULTY
Mathematics -I	Dr. S Rajender/ Dr. K.L Vasaundhara/ V.Mythreye/ G Shirisha/ M Vidhya Bhargavi/BNSM Chandrika
Physics	Dr S Narender Reddy/G. Padmasree/ J.P Pramod/ P Anusha
Chemistry	Dr. K Nagi Reddy/ M Sharadadevi/ R Gangadhara/ B. Srilatha
PPS	L Tirupathi Reddy/ C Kishore Kumar Reddy/ SumayyaAfreen
BEE	S Suman/ Vijaya Lakshmi

HoD (H&S)

K. Sahrutha
CME
Physics

MID-I

STANLEY COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN
Additional sheet No.: 1
Roll no.(full): 160620140023

2.5.2

29/6/2021

Sem-II
Mid-I

10 30 4B
2+2+2 5+2 1+4

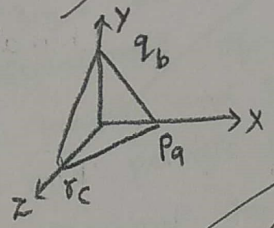
19

① a) **Miller indice**

It is used to describle directions and planes in a crystal. According to miller an atomic plane can be undieited with the help of three integers called miller indices.

Determination of Miller indices:

1. Find the intercepts of desired plane on the crsytalography axis.
2. let these are P_a, q_b, r_c



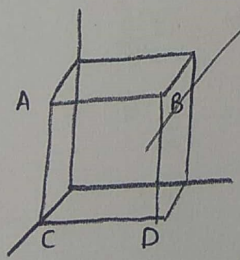
K Sahrutha
5/7/4

3) Express the intercepst as mutiples of the unit cell dimensions (or) lattice parameters (P,q,r) ; (P q r)

4) Take the ratios of reciprocals $\frac{1}{P} : \frac{1}{q} : \frac{1}{r}$

5) Find $\frac{1}{P}(l \cdot c \cdot m) : \frac{1}{q}(l \cdot c \cdot m) : \frac{1}{r}(l \cdot c \cdot m)$. the smallest number can be represented (h,k,l) are called as miller indicies.

Ex:



∴ Miller indices for ABCD plane is (1,0,0)

05/07/21

Sem-II

Mid-II

STANLEY COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN

MAIN ANSWER SHEET

Mid Examintion-2

Branch: CME Sem: II Section: A Roll no(full): 160620740011 Subject: Physics Date: 21/09/2021

(2) State and prove schrodinger's time independent wave equation?

D. Neha 10/9/21

Schrodingee's time independent wave equation:

Let us consider a system of matter wave associated with a particle Let x,y,z be the the co-ordinates of the particle ψ is displacement of wave at any time 't' and is work function and it is assumed ψ is finite, single valued and perodic function

The classical differential Eq of wave to matter is

$$\frac{\partial^2\psi}{\partial t^2} = v^2\nabla^2\psi \quad -(1)$$

∇ - Laplacian operator

$$\nabla = \frac{\partial^2}{\partial x^2} + \frac{d^2}{\partial y^2} + \frac{\partial^2}{\partial z^2}$$

$v \rightarrow$ velocity of wave

Sol of Eq (1) is

$$\psi = \psi_0 \sin\omega t = \psi_0 \sin 2\pi\nu t \quad -(2)$$

$$\frac{\partial\psi}{\partial t} = \psi_0 (2\pi\nu)\cos 2\pi\nu t$$

$$\frac{\partial^2\psi}{\partial t^2} = -\psi_0 (4\pi^2\nu^2)\sin 2\pi\nu t$$

$$\frac{\partial^2\psi}{\partial t^2} = -4\pi^2\nu^2\psi$$

$$\frac{\partial^2\psi}{\partial t^2} = \frac{-4\pi^2\nu^2\psi}{\lambda^2} \quad -(3)$$

$V = \nu\lambda$

$\nu = \frac{v}{\lambda}$

from (1) & (3)

$$-v^2\nabla^2\psi = \frac{-4\pi^2\nu^2\psi}{\lambda^2}$$

$$\nabla^2\psi + \frac{4\pi^2\psi}{\lambda^2} = 0 \quad -(4)$$

10/09/2021

2.5.2 Model Curriculum. USE- A,B,C

B.E I Sem Imid Key.

PART-A

1. Define Conduction and Displacement current?

Ans:- Conduction Current :-

An Electric current is a flow of Electric charge (or) The Rate of change of charge with 't' time is also known as Electric current.

Electric charge flows when there is voltage present across conductor, in Electric circuit this charge is carried By moving Electrons

Displacement current :-

The Rate of change of Electric Displacement field is known as displacement current and is Quantity appears in Max-Well Equation.

Max-Well proved that a changing Electric field in vaccum (or) in di-electrics also produces a magnetic field. So, a changing Electric field is Equivalent to a current, which flows as long as the Electric field is changing and producing the same magnetic field as on

Ordinary conduction current is known as Displacement current.

2. Discuss Miller Indices ?

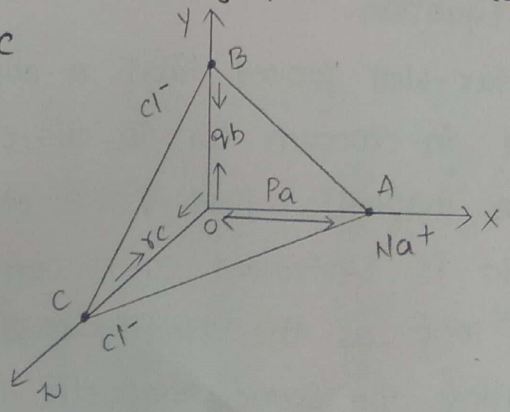
Ans: **Miller Indices :-**

In a crystal Orientation of place can be described in terms of intercepts on the crystallographic axis of crystaline structure

Miller suggessted a method of indicating the Orientation of a plane by reducing the reciprocal values of the intercepts into smallest whole number and are called as miller indices. represented with (h k l)

Procedure for finding miller indices :-

1. find out intercepting positions of designed plane along crystallographic axes. let this plane as A1B1C



(i) Intercepts of a ABC plane Pa, 9b, 2c.

(ii) Express the intercepts as multiples of unit cell dimensions (or) only integer values i.e; pqr

(iii) Take the reciprocal values of these integers i.e; 1/p 1/q 1/r

(iv) Multiply each reciprocal value with lcm to get a whole Number i.e;

1/p x lcm 1/q x lcm 1/r x lcm

The smallest Number's can be represented as (h k l) known as miller indices.

3. Calculate the longest wave length that can be analyzed by a sodium chloride crystal of spacing d = 2.80 A° in the first Order ?

Ins:- n = 1 , d = 2.80 A°

$$\boxed{n\lambda = 2d\sin\theta}$$

$\sin\theta = 1$

$\theta = 90^\circ$

$n\lambda = 2d$

$\lambda = 2 \times 2.80 / 1$

$\lambda = 5.60$

PART - B

4.(a) Deduce Relation Between D, E and P?

Ans:- (i) Electric Displacement (D) :-

Electric Displacement is a vector Quantity whose integral over any charged surface is equal to free charge only with in the surface and is numerically equal to free charge density.

$\therefore \boxed{D = q/A}$

(ii) Electric Intensity :-

The Electric Intensity (E) at any point in Electric field is numerically equal to the force experienced by a unit positive charge at that point. The direction of 'E' is the same as that of direction of field.

(iii) Di- Electric polarization (P) :-

The Electric dipole movement per unit volume is di electric polarization and is numerically equal induced surface charge density.

$\therefore P = q'/A$ ($\because$ charge per unit area)

Applications :-

1. Determination of type of semi conductor.
2. If R_H is -ve then that is n-type materia
3. If R_H is +ve then that is P-type materia
4. It is used to calculate the charge carrier concentration.
5. Used to determine the mobility of charge carriers (μ_e) and (μ_h).
6. Used to measure magnetic flux density
7. Used as position sensor and displacement sensor.
8. Used in DC - motor.

2. Discuss the Ferrites ?

Ans:- A ferrite is a type of ceremic compound composed of iron oxide combined chemically one or more additional metallic elements

Fe_2O_3 + metallic Element

* Ferrites are Electrically Non- conductive
* Ferrites are Ferri mag- materials.
* Ferrites contains very less loop area. Hence known as soft magnets.
* Ferrites possess different metallic/mechanical properties at different temperature.

Ferrites are divided into 2 categories on the basis of coercive values those are,

i) Hard ferrites

* It contains high coercivity value and it is very difficult to demagnitise
* Hard ferrites used to make Refrigerator magnets, loud speakers, Electric motors and small Electronic circuits

ii) Soft ferrites

* Soft ferrites contains very low Coercive value and it is easy to magnetise or demagnetise
* Soft ferrites used to fabricate insulators, transformers and micro wave components.
* All ferrite nano particles exhibit super- para mag- properties.

Define population Inversion and pumping ?

Ans:- The process by which the population of a particular excited state is made more than specified lower energy state is called as "population Inversion".

→ population Inversion represents the number of excited particles (N_2), must be greater than number of ground state particles (N_1).

→ A system (or) substance in which the population inversion is achieved is called as "active system".

→ The process of achieving population inversion is known as "pumping".

→ pumping can be done with the help of

(i) optical pumping (Ruby laser)

(ii) Electric discharge method (He-Ne laser)

(iii) Direct conversion method (Semi-cond laser)

(iv) chemical reaction method (CO_2 laser)

PART - B

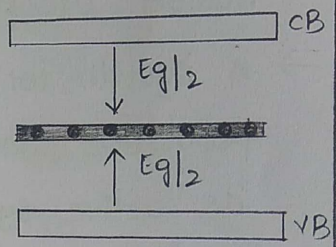
4. Define fermilevel, intrinsic and Extrinsic Semi-conductors, write characteristics of P-N Jn diode in detail ?

Ans:- **Fermi level :-**

In pure Semi conductor between CB and VB The layer which is formed by the particles at 0 kelvin temperature is known as fermilevel.

→ It is always equivalent to

$E_f = E_g/_2$ eV



→ At 0 kelvin temperature max. Number of particles accumulated in VB or CB

Semi conductors :- Semi conductors are divided into 2 types i) Intrinsic S.C ii) Extrinsic S.C

i) **Intrinsic S.C :-**

→ It is a pure Semi conductor doped with Si & Ge

→ It belongs to IV Group

→ Electronic configuration is ns^2np^2

ii) **Extrinsic S.C :-** Extrinsic S.C again divided into 2 parts i) P type S.C and n type S.C

→ P type semi conductor belongs to III Group

→ n type semi conductor belongs to V Group.

Define domain and write Weiss theory of ferromagnetism ?

Domain :-

The permanent magnetic dipoles are the atomic magnets of ferro magnetic material are accumulated in a specified region is called "domain".

In ferro magnetic materials Number of permanent magnetic - dipoles available and they always directed towards applied field direction and it possess spontaneous magnetisation and the magnitude of magnetisation purely depends on temperature.

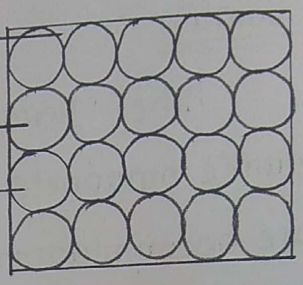
Curie law established the relationship between Susceptability and temperature according to it Susceptability is always '+ve' & very high

The Weis's theory used the simple model to explain the domain and domain theory of ferromagnetism. According to Weis's the indivisual atom carry an atomic movement any magnetostatic interaction in B|w 2 atomic movements are completely irrelevant.

P-type S.C :- In P-type S.C maximum No. of Parti... is holes and the minimum is Electrons.

→ P_i is the charge carrier concentration

→ Conductivity is possible +ve due to mobility of free holes.

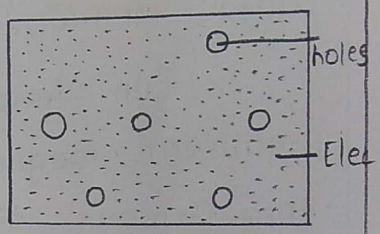


n-type S.C :-

Max → Electrons , Min → holes

n_i → charge carrier concentration

→ conductivity is possible due to Electrons.



Pure :-

→ conductivity less & standard

→ high resistivity

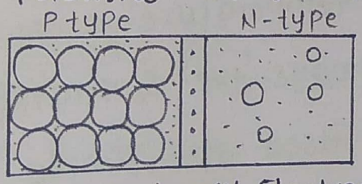
Impure :-

→ due to dopping keeps on increasing 10^{-6} to 10^{-12}

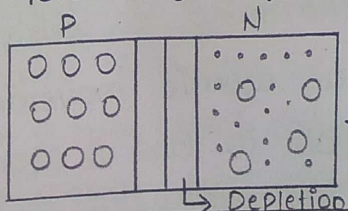
→ less resistivity, more conduction.

Diode :-

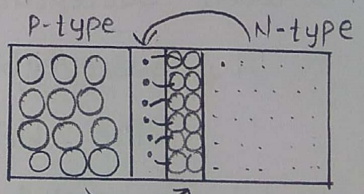
→ adding two diodes or two polarities or two Electrodes.



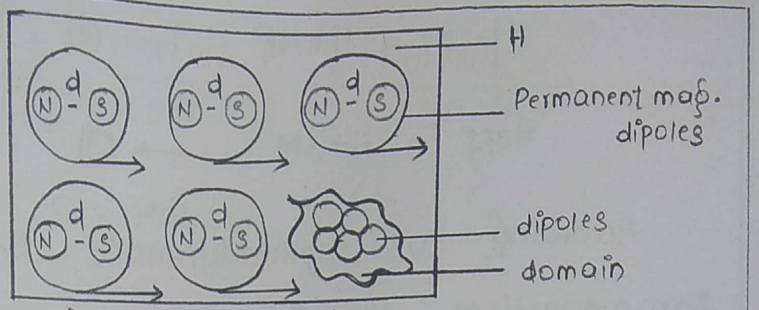
→ Due to heavy Electrostatic force they migrate



→ Now this is diode depletion layer (or) potential Barrier (or) Resisting zone



→ strong covalent bonds form and the net charge cancelled with each other.



ferro-mag-material.

Weis's assumed that in real gas the molecules are mutually influenced By there magnetic movements and there exist a molecular field within gas and is called molecular internal field.

The transition metals like Fe, Co, Ni etc. exhibits the magnetic field even without applied external field and is called as ferromagnetism.

Weis's proposed the existence of inter magnetic field 'Hi' is always directly proportional to intensity of magnetisation 'M'.

$\therefore Hi \propto M$

$Hi = \lambda \cdot M \quad \rightarrow (1)$

where λ is known as Weis's constant

The effective magnetic field strength of ferro-magnetic materials (H_{eff}) can be

$$H_{eff} = H + H_i \quad \rightarrow (2)$$

$$H_{eff} = H + \lambda M \quad \rightarrow (3)$$

According to thermodynamic theory of ferromagnetism the intensity of magnetisation 'M' can be written as

$$M = \frac{\mu_0 \mu^2 N H_{eff}}{3kT} \quad \rightarrow (4)$$

μ_0 is permeability of free space

k is boltzman constant

T is temperature

N is total No. of atoms per unit volume

$$M = \frac{\mu_0 \mu^2 N (H + H_i)}{3kT}$$

$$= \frac{\mu_0 \mu^2 N H}{3kT} + \frac{\mu_0 \mu^2 H_i N}{3kT}$$

$$M = \frac{\mu_0 \mu^2 N H}{3kT} + \frac{\mu_0 \mu^2 N \cdot \lambda M}{3kT}$$

$$M - \frac{\mu_0 \mu^2 N \lambda M}{3kT} = \frac{\mu_0 \mu^2 N H}{3kT}$$

$$M\left\{1 - \frac{H\mu_0^2 N\lambda}{3kT}\right\} = \frac{H\mu_0^2 NH}{3kT}$$

$$C = H\mu_0^2 N/3k$$

$$M\left\{1 - \frac{C\lambda}{T}\right\} = \frac{CH}{T}$$

$$M\left\{1 - \frac{T_c}{T}\right\} = \frac{CH}{T}$$

$$M\left\{\frac{T - T_c}{T}\right\} = \frac{CH}{T}$$

$$M(T - T_c) = CH$$

$$\frac{M}{H} = \frac{C}{T - T_c}$$

$$\chi = \frac{C}{T - T_c}$$

The above Eqn is known as Curie - Wiess law. Curie temperature 'T_c' purely depends on nature of the material.

If $T > T_c$ then the ferromagnetic material works as paramagnetic material.

6. Define Acceptance angle and Numerical Aperture ? Discuss double crucible method ?

ns:- **Acceptance angle :-**

It is defined as the maximum angle from the optical fibre axis at which the light energy enters into the fibre so that the light will propagate in the core by performing total internal reflection.

At a particular angle of incidence where light enters into the core of optical fibre propagates by performing total internal reflection is called acceptance angle (θ_A)

Numerical Aperture :-

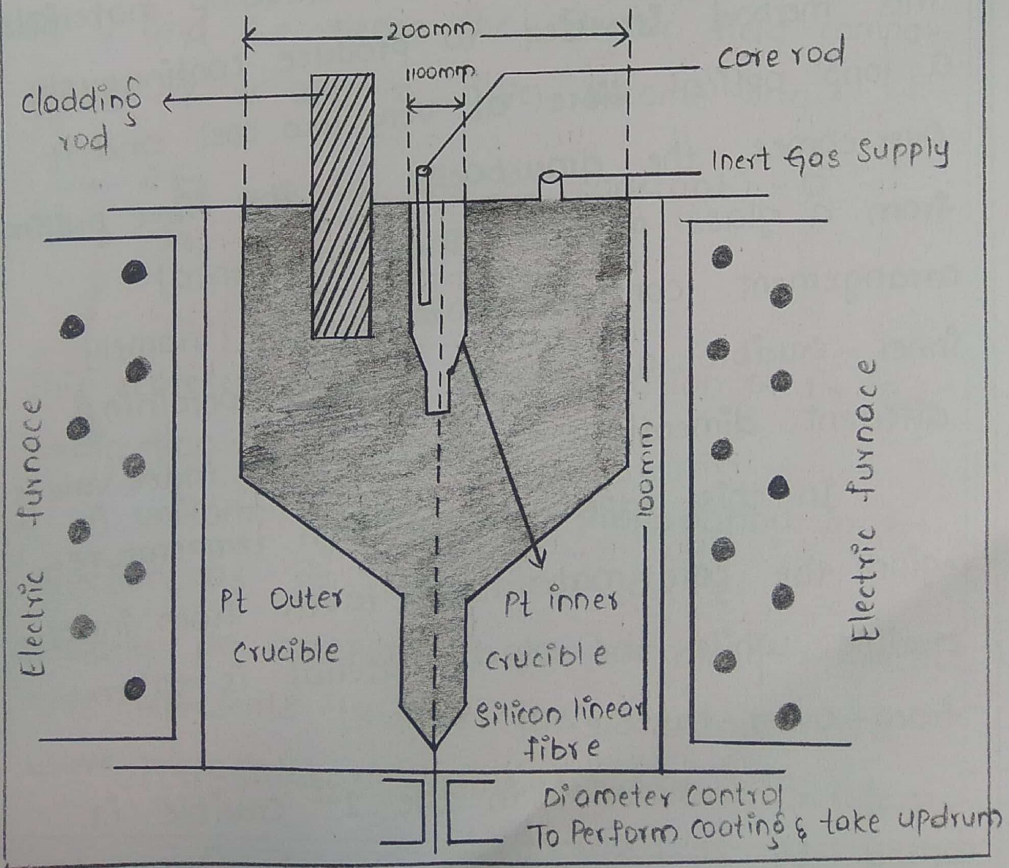
It determines the light gathering capacity (or) ability of the optical fibre. It is an measurement of the amount of light energy that can be accepted by the optical fibre. Numerically Numerical Aperture of an optical fibre is always equivalent to the sine angle of acceptance angle.

$$NA = \sin\theta_A .$$

The fibre is drawn from the melts using silicon linear filter at end of the 2nd crucible.

The optical fibre continuously taken out with controlled diameter and polymer protecting shell or coating at the end of the outlet which contains a pure core and clad.

platinum crucibles are used to avoid contaminations and this method is more suitable in producing plastic step index fibres.



According to refractive index values of core and clad Numerical Aperture of an optical fibre is equivalent to

$$NA = \sqrt{H_1^2 - H_2^2}$$

Double Crucible method :-

In the double crucible (or) direct melt technique the fibre is drawn from directly the melt of the core and cladding materials. This method is used to produce continuously a long optical fibre at very low cost and it over comes the drawbacks of the fibre pulling from a glass preform. The experimental arrangement consists of 2 crucibles namely inner crucible and outer crucible containing different dimentions and refractive index values

In this experiment at high temperature region the core material is taken from inner crucible while the clad material is taken from outer crucible.

The material in the 1st crucible is melted by electric furnace at higher temperature.

charge density is zero

$\therefore$ charge density $\rho = 0$

According to Max-Well's 1st Wave Equation

$$\nabla \cdot E = \rho = 0 \longrightarrow (2)$$

$$\nabla \cdot E = 0$$

$$\therefore \frac{\partial E_x}{\partial x} + \frac{\partial E_y}{\partial y} + \frac{\partial E_z}{\partial z} = 0$$

For a uniform wave E is independent of y and z. Hence the Electric field components of y and z never become zero.

$$\therefore \frac{\partial E_x}{\partial x} = 0 \qquad \because \frac{\partial}{\partial x}(\text{constant}) = 0$$

$$\therefore \boxed{E_x = \text{constant}}$$

This represents there is no variation of E_x in x-direction.

$\therefore$ A uniform plane wave propagating in x-direction as no components of 'E'

Similarly No components of 'H' along x-direction

This represents (x-axis) the Electromagnetic wave propagates only through x-direction In this case.

(b) Write the Equation of plane Waves in free Space

Ans:- **Plane Wave (or) uniform Wave :-**

A uniform wave is a particular case of wave Equation for which the Electric field is independent of y and z-axis and is the function of 'x' and 't' and such a wave is called as uniform plane wave.

According to general wave expression

$$\nabla^2 E = \mu\epsilon \cdot \frac{\partial^2 E}{\partial t^2}$$

But $\nabla = \partial/\partial x + \partial/\partial y + \partial/\partial z$

$$\vec{E} = iE_x + jE_y + kE_z$$

$$\therefore \frac{\partial^2 E_x}{\partial x^2} = \mu\epsilon \cdot \frac{\partial^2 E_x}{\partial t^2}$$

Similarly $\frac{\partial^2 E_y}{\partial y^2} = \mu\epsilon \cdot \frac{\partial^2 E_y}{\partial t^2}$

$$\frac{\partial^2 E_z}{\partial z^2} = \mu\epsilon \cdot \frac{\partial^2 E_z}{\partial t^2}$$

$\longrightarrow$ (1)

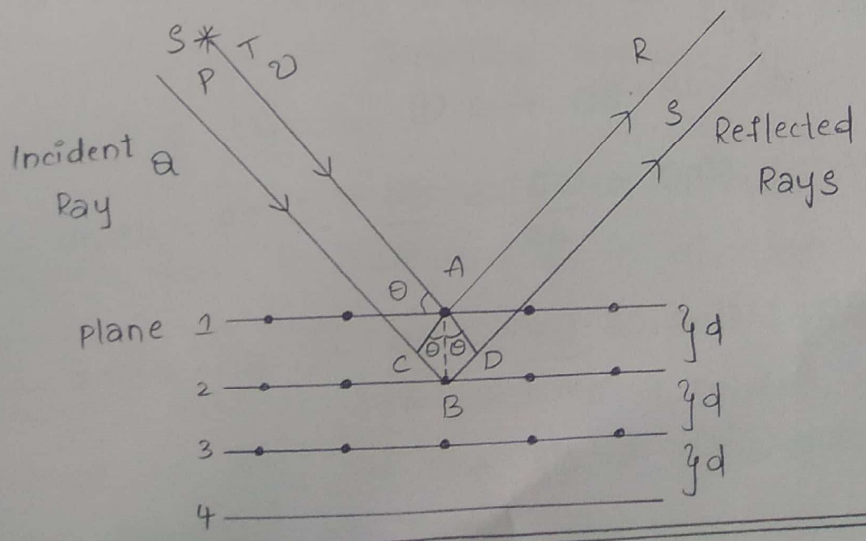
In some region or the system the net

The uniform plane Electromagnetic waves are transver in nature and having components 'E' and 'B' only in directions perpendicular to the propagation of direction of wave.

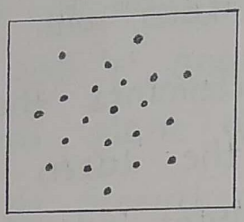
5. (a) Define Bragg's law with formula ?

Ans: Bragg's law determines the physical characteristics of the taken crystal with the help of resultant pattern.

let us consider a set of ||el lattice planes of a crystal seperated by a distance 'd'. let a narrow beam of x-ray of wave length 'λ' incident upon the plane of a crystal by making an angle 'θ'



The beam reflected in all directions by the atoms of various atomic planes. These waves super impossess with each other results the high intensed spots on the screen as a interference pattern.



Resultant pattern

let us consider PA light ray reflected at 'A' atom along AR direction from plane 1. Similarly the QB ray reflected at 'B' atom along OS direction.

∴ The path difference in between these two light rays

$$\Delta = CB + BD \longrightarrow (1)$$

$$\Delta BAC : \sin\theta = \frac{CB}{AB} = \frac{CB}{d} \quad \therefore CB = d\sin\theta \longrightarrow (2)$$

$$\Delta BAD : \sin\theta = \frac{BD}{AB} = \frac{BD}{d} \quad \therefore BD = d\sin\theta \longrightarrow (3)$$

Sub (2) (3) in (1)

B. Lahari
R.No.08
AI&DS, Sem I

AY: 2020-21

05/05

2.5.2

Physics Assignment-II

1. Explain the formation of energy gap in solids & Discuss the formation of PN In Diode, Draw the graph of I-V characteristics of Diode.

A. In solid-state physics, an energy gap is an energy range in a solid where no electron states exist, that is an energy range where the density of states vanishes. Especially in condensed-matter physics, an energy gap is often known more abstractly as a spectral gap, a term which need not be specific to electrons or solids.

Inside the crystal each electron has a unique position and no two electrons see exactly the same pattern of surrounding charges. Because of this, each electron will have a different energy level. These different energy levels with continuous energy variation are called "energy bands."

The energy band structure in a solid consists of conduction band, valence band and a seperation between them.

2.5.2

SEM-II PHYSICS - BS104PH 2020-2021

ASSIGNMENT-I

Name : A. Greeshma Branch : CME Rollno : 160620740004

1. Define unit cell, Basis, Bravias lattice Plane.

Ans:- Unit cell :- unit cell is the smallest unit or region which is repeated in space indefinitely and generates the space lattice.

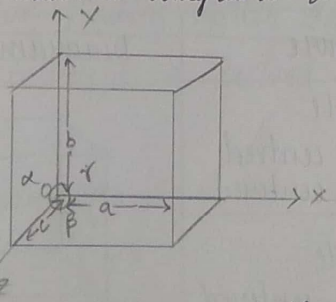
Basis :- A group of atoms (or) molecules (or) particles identical in composition is called "Basis."

∴ Space lattice + Basic = Crystalline structure.

Bravias lattice :- There are 14 distinguishable possible ways of arranging all available points in 3-dimensional space. These 14 space lattices are called as "Bravais lattices".

2. Define basic lattice parameters & Discuss different crystal systems with suitable diagrams & examples.

Ans:-



The X, Y, Z axes of the crystalline structure is known as "crystallographic axis". The angle btwn crystallographic axis are α, β, γ and these are called as "Interfacial angles".

⇒ The fundamental translation vectors a, b, c and interfacial angles α, β, γ all together called as "basic lattice parameters".

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Chapel Road, Abids

REMEDEAL CLASSESS FOR SLOW LEARNERS (2020-21 SEM I)

Subject: Engineering Mathematics-I AY: 2020-21

Code: BS201 MT SEM : I

CSE 1

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620733019	8	Remedeal classes conducted	20
2	160620733035	11		15
3	160620733060	8		20

CSE 2

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620733069	10	Remedeal classes conducted	19
2	160620733071	8		14
3	160620733102	8		18
4	160620733114	10		18

CSE 3

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620733164	7	Remedeal classes	17
2	160620733169	11		12

ECE 1

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620735031	9	Remedeal	16

ECE 2

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620735048	5	Remedeal classes conducted	18
2	160620735061	7		19
3	160620735072	7		19
4	160620735081	7		19

EEE

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620734017	12	Remedeal	13

IT A

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620737018	4	Remedeal classes	11
2	160620737021	9		14

IT B

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
	160620737064	8	Remedeal classes	10
	160620737071	11		12

CME

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
	160620740013	13	Remedeal classes conducted	15
	160620740030	4		10
	160620740035	2		12
	160620740038	9		16
	160620740040	10		15

AI&DS

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
	160620747028	8	Remedeal classes conducted	16

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REMEDEAL CLASSES ATTENDENCE FOR SLOW LEARNERS (2020-21 SEM I)

Subject: Engineering Mathematics-I
Code: BS201 MT

AY: 2020-21
Year/Sem: B.E I Sem

CSE A

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620733019	/	/	/	a	/	/	/
2	160620733035	/	a	/	/	/	/	a
3	160620733060	/	/	/	/	a	/	/

CSE B

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620733069	/	/	a	a	/	/	/
2	160620733071	a	/	/	/	a	/	/
3	160620733102	/	a	/	/	/	/	/
4	160620733114	/	/	/	a	/	/	/

CSE C

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620733164	/	/	a	/		/	/
2	160620733169	/	/	a	/	a	/	/

ECE A

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620735031	/	a	/	/	/	/	/

ECE B

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620735048	/	/	a	/	/	/	/
2	160620735061	/	/	a	/	/	a	/
3	160620735072	a	/	/	a	/	/	a
4	160620735081	/	/	/	/	/	/	/

EEE

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620734017	/	a	/	/	/	/	/

IT A

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620737001	/	/	/	a	a	/	/
2	160620737013	/	/	/	/	/	/	/
3	160620737017	/	a	/	/	/	/	/
4	160620737019	/	/	/	a	/	a	/
5	160620737020	/	/	/	/	/	/	/
6	160620737027	a	/	a	a	/	/	a
7	160620737041	/	/	/	/	a	/	/

IT B

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620737057	/	/	/	a	/	a	/
2	160620737059	/	/	a	/	/	/	/
3	160620737069	a	/	/	/	a	/	a
4	160620737076	/	/	/	a	/	/	/
5	160620737079	/	/	/		/	/	/

CME

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620740016	/	a	/		/	/	/
2	160620740001	/	/	/	a	/	/	/

AI&DS

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620747001	/	a	/	/	/	/	/
2	160620747006	/	/	/	/	/	/	/
3	160620747008	/	a	/	/	/	/	/
4	160620747010	/	/	/	/	a	/	/
5	160620747013	/	/	/	/	a	a	/
6	160620747017	/	/	/	/	/	/	a
7	160620747019	/	/	/	a	/	/	/
8	160620747030	/	/	/	/	/	/	/
9	160620747035	/	/	a	/	a	/	/
10	160620747038	/	/	/	/	/	a	a
11	160620747042	/	/	/	/	a	/	/
12	160620747047	/	a	/	/	a	/	/
13	160620747049	/	/	a	/	/	/	/
14	160620747053	/	/	/	/	/	/	/

HoD

Stanley College of Engineering & Technology for Women

Chapel Road, Abids.

Department of Humanities and Sciences

Date:16.07.2021

CIRCULAR

All the faculties are informed that they have to identify the slow learners and conduct remedial classes for them, for improving their performance. The remedial hour is to be conducted before the second internal exams.

Timings 4.30pm to 5.30 pm

Monday	Mathematics -II
Tuesday	Physics
Wednesday	Chemistry
Thursday	BEE
Friday	PPS

SUBJECT	FACULTY
Mathematics -II	Dr. S Rajender/ Dr. K.L Vasaundhara/ V.Mythreye/ G Shirisha/ M Vidya Bhargavi
Physics	G. Padmasree/ J.P Pramod/ P Anusha
Chemistry	Dr. K Nagi Reddy/ M Sharadadevi/ R Gangadhara/ B. Srilatha
BEE	S Suman/ Vijaya Lakshmi
PPS	L Tirupathi Reddy/ C Kishore Kumar Reddy/ SumayyaAfreen

HoD (H&S)

Stanley college of Engineeirng & Technology for women

Chapel Road, Abids

REMEDIAL CLASSESS FOR SLOW LEARNERS (2020-21 SEM II)

Subject: Engineering Mathematics-II AY: 2020-21

Code: BS203 MT SEM : II

CSE 1

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620733029	8	Remedial classes conducted	15
2	160620733031	10		20
3	160620733035	11		11
4	160620733036	10		15
5	160620733057	6		16

CSE 2

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620733092	10	Remedial classes conducted	19
2	160620733095	11		17
3	160620733107	11		17
4	160620733111	10		12

CSE 3

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620733156	1	Remedial classes	14
2	160620733160	12		20

ECE 1

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620735013	12	Remedial classes	13
2	160620735032	13		15

ECE 2

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620735061	12	Remedial classes	18
2	160620735071	11		18

EEE

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620734010	11	Remedial classes conducted	15
2	160620734022	8		16
3	160620734023	9		19

IT A

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620737001	12	Remedial classes conducted	20
2	160620737013	12		14
3	160620737017	6		12
4	160620737019	12		15
5	160620737020	8		16
6	160620737027	12		20
7	160620737041	13		20

IT B

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620737057	12	Remedial classes conducted	15
2	160620737059	11		14
3	160620737069	8		20
4	160620737076	11		18
5	160620737079	8		12

CME

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620740016	12	Remedial classes	20
2	160620740001	13		17

AI&DS

S. NO	HALL TICKET NUMBER	MID I MARKS	Action taken	MID II MARKS
1	160620747001	7	Remedial classes conducted	15
2	160620747006	9		18
3	160620747008	10		18
4	160620747010	1		10
5	160620747013	10		11
6	160620747017	4		17
7	160620747019	7		12
8	160620747030	8		16
9	160620747035	6		14
10	160620747038	5		12
11	160620747042	6		10
12	160620747047	6		17
13	160620747049	10		18
14	160620747053	10		10

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REMEDEAL CLASSES ATTENDENCE FOR SLOW LEARNERS (2020-21 SEM II)

Subject: Engineering Mathematics-II
Code: BS203 MT

AY: 2020-21
Year/Sem: B.E II Sem

CSE 1

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620733029	/	/	a	/	/	/	a
2	160620733031	/	/	/	a	/	/	/
3	160620733035	/	a	/	/	/	/	/
4	160620733036	/	/	/	/	a	/	/
5	160620733057	/	a	/	/	/	a	/

CSE 2

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620733092	/	/	a	/	a	/	/
2	160620733095	/	/	a	/	/	/	/
3	160620733107	/	/	a	/	/	a	/
4	160620733111	/	/	/	a	/	/	/

CSE 3

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620733156	/	/	/	/	a	/	/
2	160620733160	/	/	a	/	/	/	/

ECE 1

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620735013	/	/	/	/	a	/	/
2	160620735032	/	a	/	/	/	a	/

ECE 2

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620735061	/	/	a	/	a	/	/
2	160620735071	/	a	/	/	/	/	/

EEE

S. NO	HALL TICKET NUMBER	19/7	26/7	2/8	9/8	16/8	23/8	6/9
1	160620734010	/	/	a	/	/	/	/
2	160620734022	a	/	/	/	a	/	/
3	160620734023	/	/	a	/	/	/	a

IT A

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620737018	✓	✓	a	✓	✓	✓	✓
2	160620737021	✓	a	✓	✓	✓	✓	✓

IT B

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620737064	✓	✓	a	✓	✓	a	✓
2	160620737071	✓	✓	✓	✓	✓	✓	✓

CME

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
1	160620740013	✓	✓	✓	✓	✓	a	✓
2	160620740030	✓	✓	✓	✓	✓	✓	✓
3	160620740035	✓	✓	✓	✓	✓	✓	a
4	160620740038	✓	a	✓	✓	✓	✓	✓
5	160620740040	✓	✓	✓	✓	a	✓	✓

AI&DS

S. NO	HALL TICKET NUMBER	8/2	15/2	22/2	1/3	8/3	15/3	22/3
	160620747028	✓	✓	✓	✓	a	✓	✓

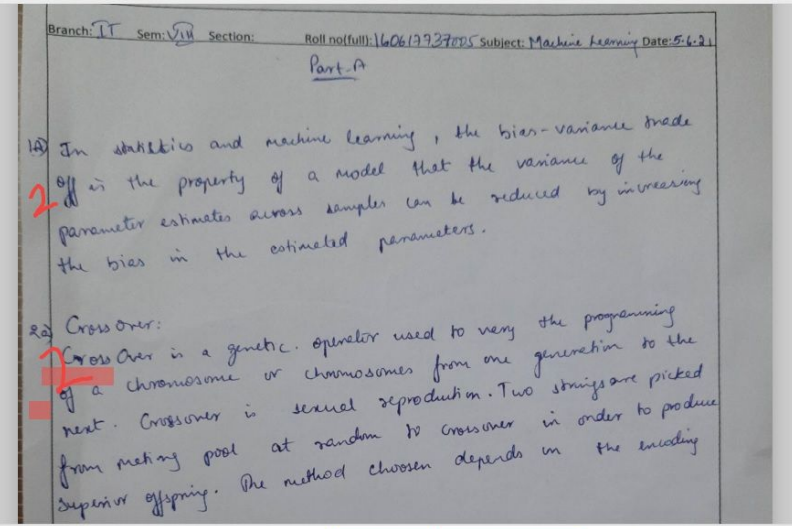
HoD

Assignment: Mid2 ML
View all submissions

seventh4@gmail.com
Due date: 5 June 2021, 1:45 PM

Change user
4 of 57

Page 1 of 5



Branch: IT Sem: VIII Section: Roll no(full): 160617737005 Subject: Machine Learning Date: 5-6-21

Part-A

1a) In statistics and machine learning, the bias-variance trade off is the property of a model that the variance of the parameter estimates across samples can be reduced by increasing the bias in the estimated parameters.

2

2a) Cross Over:

Cross Over is a genetic operator used to vary the programming of a chromosome or chromosomes from one generation to the next. Crossover is sexual reproduction. Two strings are picked from mating pool at random to crossover in order to produce superior offspring. The method chosen depends on the encoding

Notify students | Save changes | Save and show next | Reset

Course: PE 833 CS MACHINE LEARNING
Assignment: Mid2 ML
View all submissions

160617737005 IT VII
seventh4@gmail.com
Due date: 5 June 2021, 1:45 PM

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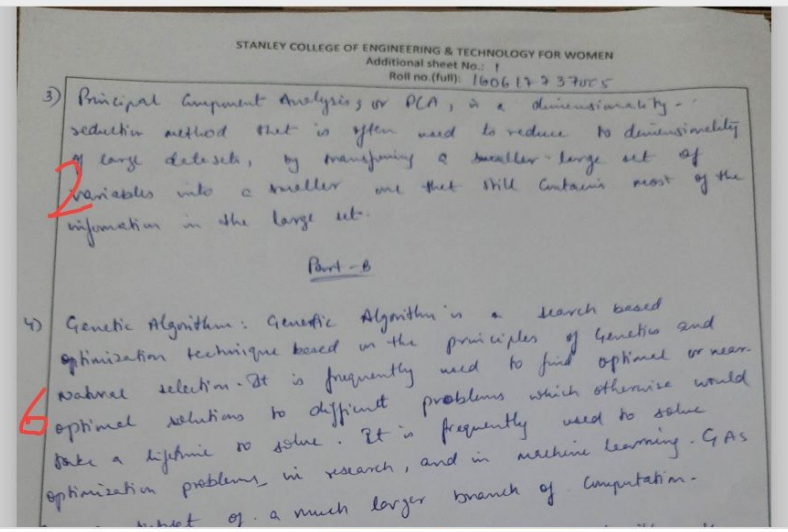
4 of 57

Page 2 of 5



STANLEY COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN
Additional sheet No.: 1
Roll no.(full): 160617737005

3) Principal Component Analysis or PCA, is a dimensionality-reduction method that is often used to reduce the dimensionality of large datasets, by transforming a large set of variables into a smaller one that still contains most of the information in the large set.

2

Part-B

4) Genetic Algorithm: Genetic Algorithm is a search based optimization technique based on the principles of Genetics and natural selection. It is frequently used to find optimal or near-optimal solutions to difficult problems which otherwise would take a lifetime to solve. It is frequently used to solve optimization problems, in research, and in machine learning. GAs

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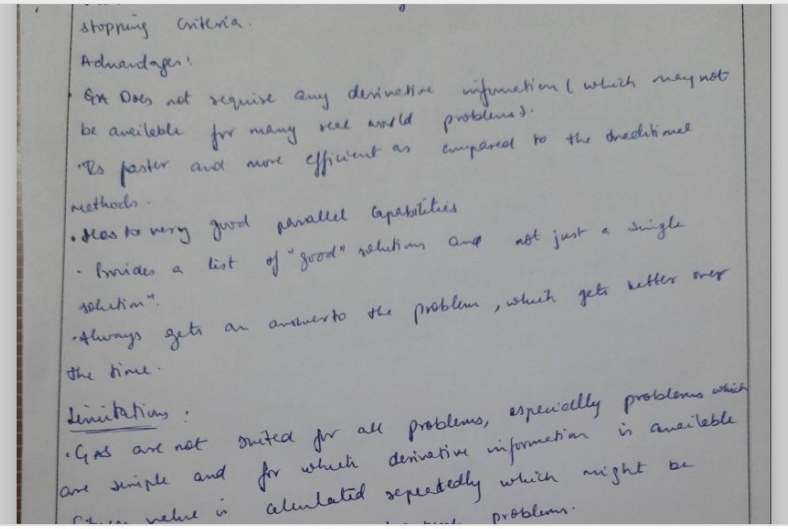
of a much larger branch of Computation.

Notify students | Save changes | Save and show next | Reset



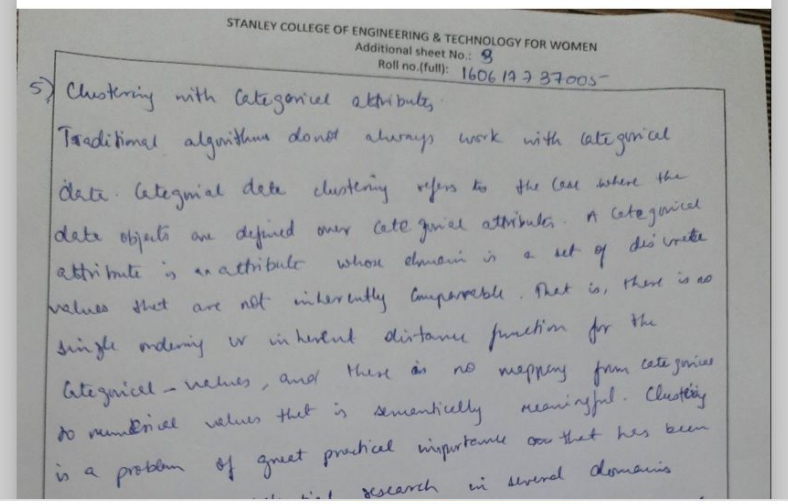
stopping criteria.

Advantages:

- Does not require any derivative information (which may not be available for many real world problems).
- Is faster and more efficient as compared to the traditional methods.
- Has very good parallel capabilities
- Provides a list of "good" solutions and not just a single solution".
- Always gets an answer to the problem, which gets better over the time.

Limitations:

- GAs are not suited for all problems, especially problems which are simple and for which derivative information is available
- value is calculated repeatedly which might be problems.



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5) Clustering with categorical attributes:

Traditional algorithms don't always work with categorical data. Categorial data clustering refers to the case where the data objects are defined over categorical attributes. A categorical attribute is an attribute whose domain is a set of discrete values that are not inherently comparable. That is, there is no simple ordering or inherent distance function for the categorical values, and there is no mapping from categories to numerical values that is semantically meaningful. Clustering is a problem of great practical importance and that has been research in several domains

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We can represent the four books using the following boolean points: (1, 0, 0, 0, 0, 0), (0, 1, 1, 1, 1, 0), (0, 1, 1, 0, 1, 1), (0, 0, 0, 1, 0, 1). We can use Euclidean distance to develop the following adjacency matrix of distance:

	1	2	3	4
1	0	2.24	2.24	1.73
2	2.24	0	1.14	2
3	2.24	1.14	0	2
4	1.73	2	2	0