"Education for Knowledge, Science and Culture."
– Shikshanmaharshi Dr. Bapuji Salunkhe

Shri. Swami Vivekanand ShikshanSanstha's

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

Department of physics

NOTICE (M.Sc.-I) **Date: 01/10/2020**

The students of M.Sc. I Physics are hereby informed that; their internal examination will be held on **07/10/2020 to 10/10/2020.** The time table is given below.

Sr No.	Paper Code	Name of the paper	Date	Time	Marks
1	CC-1100	Mathematical Methods in Physics	07/10/2020	12.00 to 1.00 pm	20
2	CC-1101	Classical Mechanics	08/10/2020	12.00 to 1.00 pm	20
3	CC-1102	Quantum Mechanics	09/10/2020	12.00 to 1.00 pm	20
4	CC-1103	Condensed Matter Physics	10/10/2020	12.00 to 1.00 pm	20

Coordinator

HOD

Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-I Internal Examination

Subject: Physics

Title of the Paper: Mathematical Methods in Physics

Date: 07/10/2020 **Time:12.00 noon to 1.00 pm**

Day: Wednesday **Marks: 20**

---

1) Attempt any 10

2) Each Question carry two marks.

* Indicates required question

1. Email *

2. Name of the Student *

3. PRN *

4. email address *

5. Roll No. *

6. 1 Three coordinates of spherical polar coordinate system are .....

Mark only one oval.

a)x,y,z

b) r, θ, φ
c) r, θ, z
d) r, φ,z

7. 2 Three coordinates of Cylindrical polar coordinate system are .....

Mark only one oval.

a)x,y,z

b) r, θ, φ
c) r, θ, z
d) r, φ,z

8. 3 In orthogonal curvilinear coordinate system, the coordinate surfaces are in general .....

Mark only one oval.

a)Plane

b) curved
c) spherical
d) linear

9. 4 In orthogonal curvilinear coordinate system, the coeffici called .....

Mark only one oval.

- a)Scale coordinates
- b) scale coefficients
- c) scale factors
- d) all of the above

10. 5.In spherical polar coordinate system, h3= .....

Mark only one oval.

- a)r
- b) $\sin\theta$
- c) $r\sin\theta$
- d) $\cos\theta$

11. 6.The highest of the orders of the differential coefficients oc equation is called .....of the differential equation.

Mark only one oval.

- a)Degree
- b) order
- c) linearity
- c) power

12. 7.The ..... of a differential equation is highest power of highest order differential coefficient occurring in it.

Mark only one oval.

a)Degree

b) order
c) linearity
d) all of the above

13. 8. In a ..... Differential equation the dependent variable and all its derivatives occur in the first power.

Mark only one oval.

a)Homogeneous

b) in homogeneous
c) linear
d) nonlinear

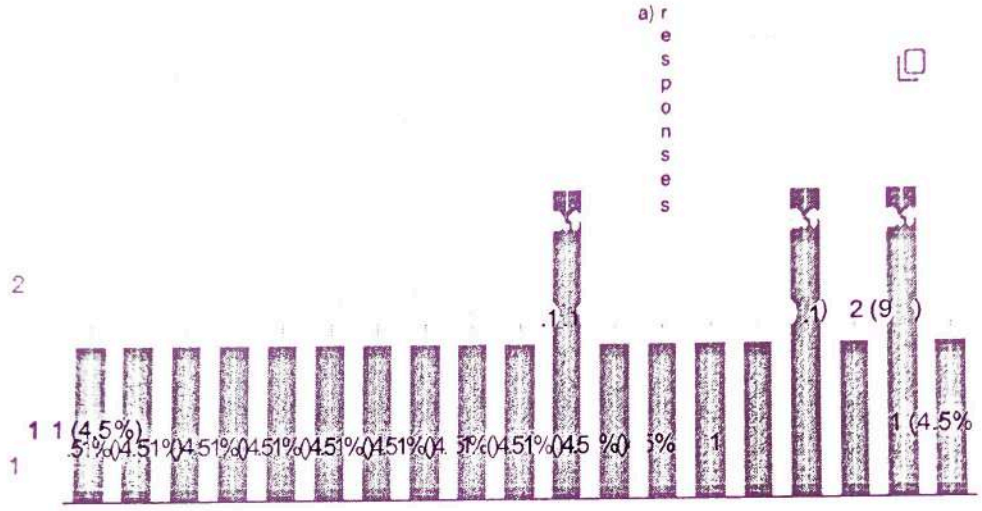
Internal Examination On Mathematical Methods in Physics

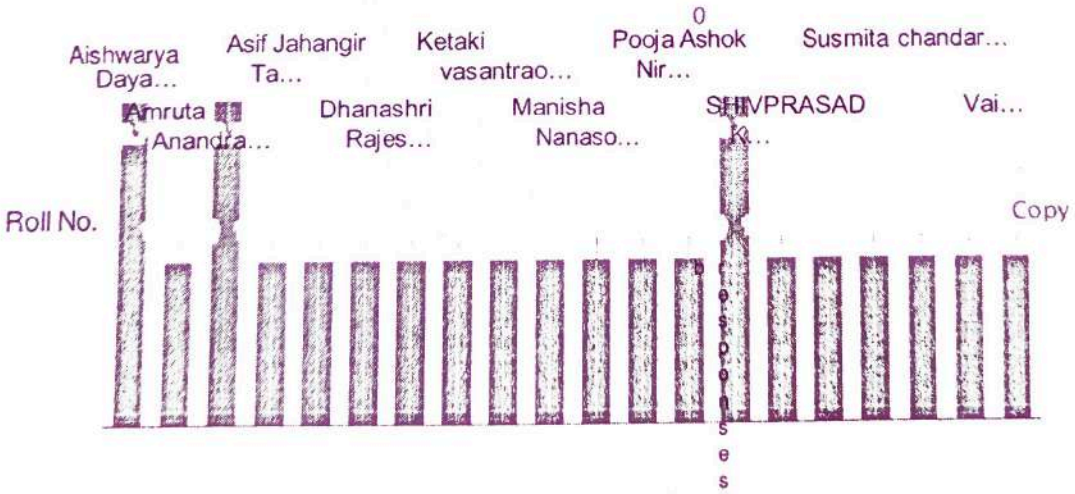
26 responses

Publish analytics

Name of the Student

Copy





Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-I Internal Examination Subject- Physics

Responses:Mathematical methods in physics				
Timestamp	Score	Name of the Student	Roll No.	Email address
7/10/2020:35:12 PM	10 / 20	Dinesh Naresh Sherala	1317	dineshsherala@gmail.com
7/10/2020 12:38:06	16 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
7/10/2020 12:39:45	20 / 20	Ruchita Rajendra Mandavkar.	1308	ruchitam10198@gmail.com
7/10/2020 12:40:21	20 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
7/10/2020 12:41:38	20 / 20	Ketaki vasantrao kadam	1306	ketakikadam166@gmail.com
7/10/2020 12:54:55	20 / 20	Patil Pranit Mohanrao	1313	pranitpatil5312@gmail.com
7/10/2020 13:11:24	18 / 20	Amruta Anandrao shinde	1318	shindea4042@gmail.com
7/10/2020 13:16:54	18 / 20	Asmita Anandrao Patil	1311	asmitapatil113@gmail.com
7/10/2020 13:22:18	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
7/10/2020 13:23:35	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
7/10/2020 13:23:47	18 / 20	Vaishnavi Namdeo Tamke	1320	tamkevaishnavi68@gmail.com
7/10/2020 13:25:58	20 / 20	Pooja Ashok Nirmale	1309	Poojanirmale310@gmail.com
7/10/2020 13:28:02	20 / 20	Anuradha Layman Patole	1315	anuradhaayarekar@gmail.com
7/10/2020 13:28:16	20 / 20	Susmita chandar Kamble	1307	susmitakamble2311@gmail.com
7/10/2020 13:28:29	20 / 20	Dhanashri Rajesh Phadatare	1316	dhanashrip511@gmail.com
7/10/2020 13:29:26	20 / 20		1315	anuradhaayarekar@gmail.com
7/10/2020 13:30:18	18 / 20	Mahesh Deshmukh	1302	deshmukhmahesh713@gmail.com
7/10/2020 13:39:41	20 / 20	Amit Ashok Jadhav	1304	pamit3124@gmail.com
7/10/2020 14:03:27	20 / 20	SHIVPRASAD KRISHNARAO JADHAV	1305	shivajadhav100sj@gmail.com
7/10/2020 14:36:16	20 / 20	Asif Jahangir Tamboli	1319	Asif.tamboli7980@gmail.com
7/10/2020 20:57:18	16 / 20	Swati Dinkar Patil	1314	swatidpatil5241@gmail.com
7/10/2020 20:59:42	20 / 20	Swati Dinkar Patil	1314	swatidpatil5241@gmail.com
7/10/2020 14:40:49	20 / 20	Aishwarya Dayanand Deshmukhe	1303	aishwaryadeshmukhe11@gmail.com

Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-I Internal Examination Subject: Physics
Title of the Paper: Classical Mechanics

Date: 08/10/2020 **Time: 12.00 noon to 1.00 pm**
Day: Thursday **Marks: 20**

---

1) Attempt any 10
2) Each Question carry two marks.
* Indicates required question

1. Name of the student *

2. Email *

3. PRN *

4. Roll Number *

1. Drude model was based on.....

a) Classical mechanics

b) Quantum mechanics

c) Kinetic theory of gases

d) Kinetic theory of Fluid

2. In classical model, the interactions between solid spheres (atoms) are.....

a) Infinite

b) Zero

c) Negligibly positive

d) Negative

3. The fundamental model of solid fails to explain .....

a) Calculation of particle

b) Quantum mechanics

c) Kinetic theory of gases

d) Specific heat

5. Free electron model explains various electrical properties of

a) Semiconductor

b) Semi-metals

c) Metals

d) Insulators

6. Metals are good conductors of and electricity

a) Heat

b) Total energy

c) Fluids

d) Quarks

electronic band structure.....

a) Fundamental particles

b) Photons

c) Wave functions

d) Kinetic gases

8. Green's function is used in.....

a) Single body problems

b) Many body problems

c) Kinetic theory of gases

d) Bohr atomic model

9. Linear combination of atomic orbit allows of molecular orbitals

a) Addition

b) Subtraction

c) Superposition

d) Composition

10. Interaction betweenis negligible in independent electron approximation.

a) Electron-Proton

b) Electron-Electron

c) Electron-Neutron

d) Neutron-neutron

Internal Examination On ClassicalMechanics

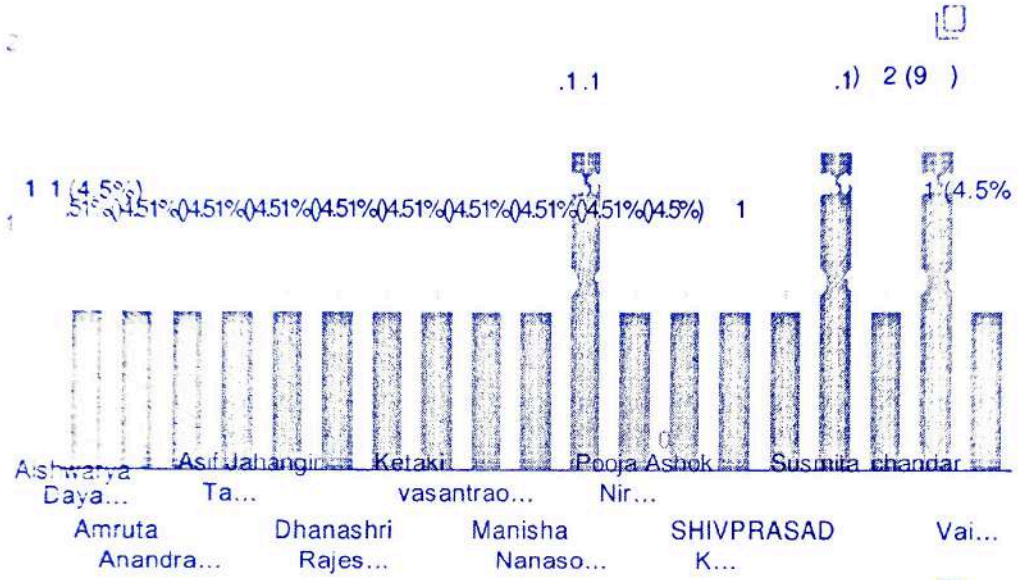
25 responses

RESPONSES

Name of the Student

Copy

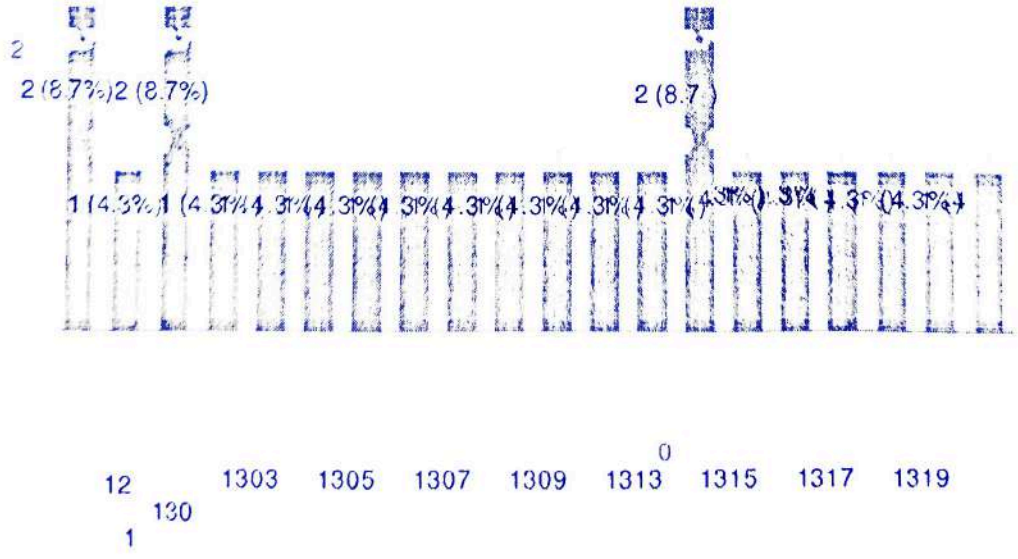
25 responses



Roll No.

Copy

25 responses



Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-I Internal Examination

Subject: Physics

Responses:Classical Mechanics				
Timestamp	Score	Name of the Student	Roll No.	Email address
8/10/2020:35:12 PM	10 / 20	Dinesh Naresh Sherala	1317	dineshsherala@gmail.com
8/10/2020 12:38:06	16 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
8/10/2020 12:39:45	20 / 20	Ruchita Rajendra Mandavkar.	1308	ruchitam10198@gmail.com
8/10/2020 12:40:21	20 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
8/10/2020 12:41:38	20 / 20	Ketaki vasantrao kadam	1306	ketakikadam166@gmail.com
8/10/2020 12:54:55	20 / 20	Patil Pranit Mohanrao	1313	pranitpatil5312@gmail.com
8/10/2020 13:11:24	18 / 20	Amruta Anandrao shinde	1318	shindea4042@gmail.com
8/10/2020 13:16:54	18 / 20	Asmita Anandrao Patil	1311	asmitapatil113@gmail.com
8/10/2020 13:22:18	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
8/10/2020 13:23:35	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
8/10/2020 13:23:47	18 / 20	Vaishnavi Namdeo Tamke	1320	tamkevaishnavi68@gmail.com
8/10/2020 13:25:58	20 / 20	Pooja Ashok Nirmale	1309	Poojanirmale310@gmail.com
8/10/2020 13:28:02	20 / 20	Anuradha Layman Patole	1315	anuradhaayarekar@gmail.com
8/10/2020 13:28:16	20 / 20	Susmita chandar Kamble	1307	susmitakamble2311@gmail.com
8/10/2020 13:28:29	20 / 20	Dhanashri Rajesh Phadatare	1316	dhanashrip511@gmail.com
8/10/2020 13:29:26	20 / 20		1315	anuradhaayarekar@gmail.com
8/10/2020 13:30:18	18 / 20	Mahesh Deshmukh	1302	deshmukhmahesh713@gmail.com
8/10/2020 13:39:41	20 / 20	Amit Ashok Jadhav	1304	pamit3124@gmail.com
8/10/2020 14:03:27	20 / 20	SHIVPRASAD KRISHNARAO JADHAV	1305	shivajadhav100sj@gmail.com
8/10/2020 14:36:16	20 / 20	Asif Jahangir Tamboli	1319	Asif.tamboli7980@gmail.com
8/10/2020 20:57:18	16 / 20	Swati Dinkar Patil	1314	swatidpatil5241@gmail.com
8/10/2020 20:59:42	20 / 20	Swati Dinkar Patil	1314	swatidpatil5241@gmail.com
8/10/2020 14:40:49	20 / 20	Aishwarya Dayanand Deshmukhe	1303	aishwaryadeshmukhe11@gmail.com

Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-I Internal Examination
Subject: Physics
Title of the Paper: Quantum Mechanics-I

Date: 09/10/2020 **Time:12.00 noon to 1.00 pm**
Day: Friday **Marks: 20**

---

1) Attempt any 10
2) Each Question carry two mark.
* Indicates required question

1. Name of the student *

2. Email *

3. PRN *

4. Roll Number *

1.at is the general form of second order non-linear partial differential equations (x and y being independent variables and z being a dependent variable)? 2 points

Mark only one oval.

a) F(x,y,z,∂z/∂x,∂z ∂y,∂2z/∂x2,∂2z/∂y2,∂2z/∂x∂y)=0

b) F(x,z,∂z/∂x,∂z/∂y,∂2z/∂x2,∂2z/∂y2)=0

c) F(y,z,∂z/∂x,∂z/∂y)=0

d) F(x,y)=0

2. 2)The solution of the general form of second order non-linear partial differential equation is obtained by Monge's method. 2 points

Mark only one oval.

True False

3. 3) What is the order of the partial differential equation, ∂2z/∂x2−(∂z/∂y)5+∂2z/∂x∂y=0? 2 point

a) Order-5
b) Order-1
c) Order-4
d) Order-2
e)

2 points

4. 4) A differential equation is considered to be ordinary if it has

Mark only one oval.

a) one dependent variable
b) more than one dependent variable
c) one independent variable

d) more than one independent variable

5. The time evolution operator satisfies the condition at t-t_0

Mark only one oval.

- U(t,t_0) =1
- U(t,t_0) =0
- U(t,t_0) =-1
- [U(t.t_0)]^2 =0

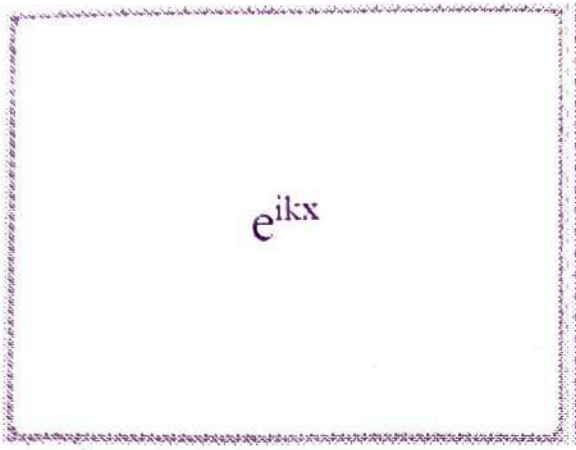
6. The dimensions of δ (ω-ω_0) is

Mark only one oval.

- [L]
- [T^2]
- [T]
- [L^2]

7. In scattering from finite range potential outgoing scattered wave is in form

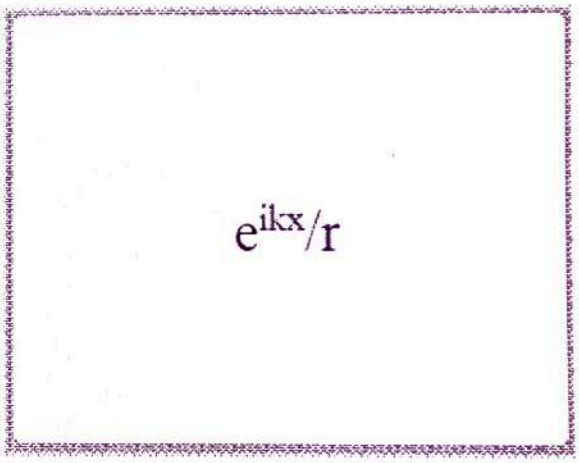
Mark only one oval.



Option 1

Option 2

Option 3



Option 4

8. The Born approximation is valid for ..... and .....

Mark only one oval.

- high energy, strong potentiallow
- energy, strong potentialhigh
- energy, weak potential low
- energy, weak potential

9. By partial wave method total scattering cross section is for hard sphere..... Geometrical cross section for hard sphere.

Mark only one oval.

- Same as
- four times
- twice
- three times

10. In resonance scattering , the resonance obtained at each value of δ_t

Mark only one oval.

- nπ, n=1,2,3,.....
- nπ/3, n=2,4,6,....
- nπ/2, n= 1,3,5.....
- only at π/2

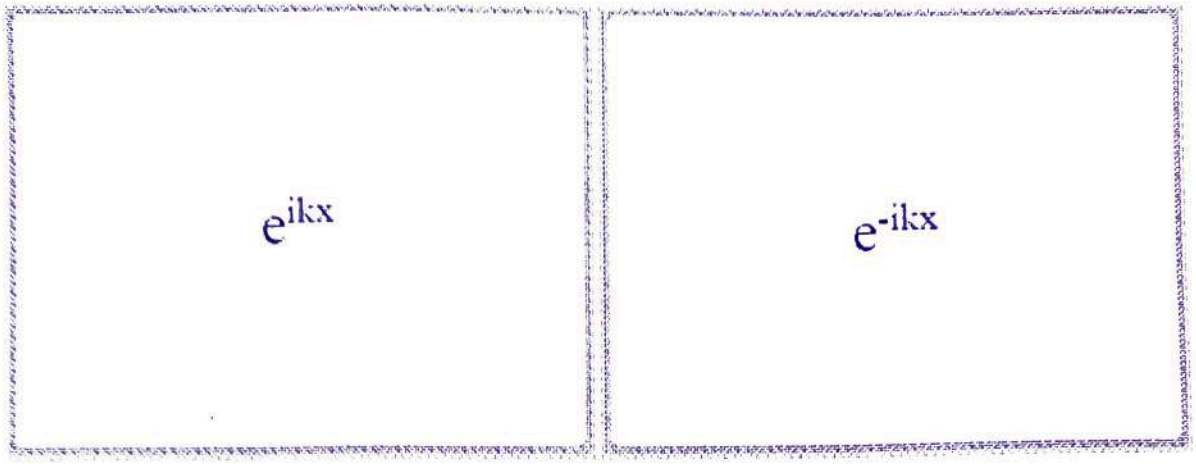
11. In Schrodinger picture evolution of observable is determined by .....

Mark only one oval.

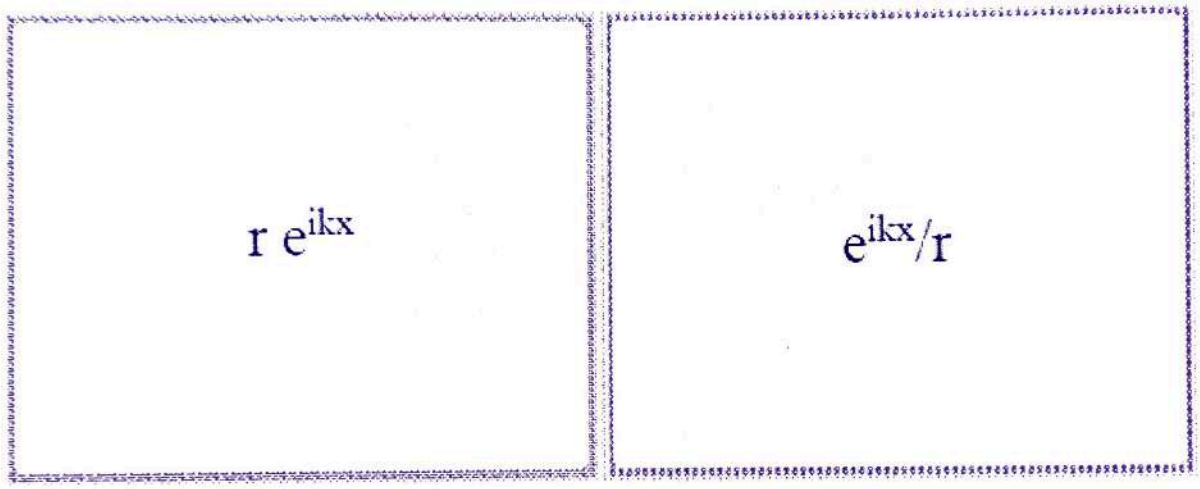
- H
- H_0
- V
- Observable do not change

12. In scattering from the finite range potential outgoing scattered wave is in form

Mark only one oval.



Option 1 Option 2



Option 3 Option 4

13. Variational method is usefull for the estimating the.....when exact wave functionis not available.

Mark only one oval.

- Ground state energy E_0
- energy of first excited state
- E_1
- energy of second excited state
- E2energy of Third excited state
- E_3

Internal Examination Quantum Mechnics

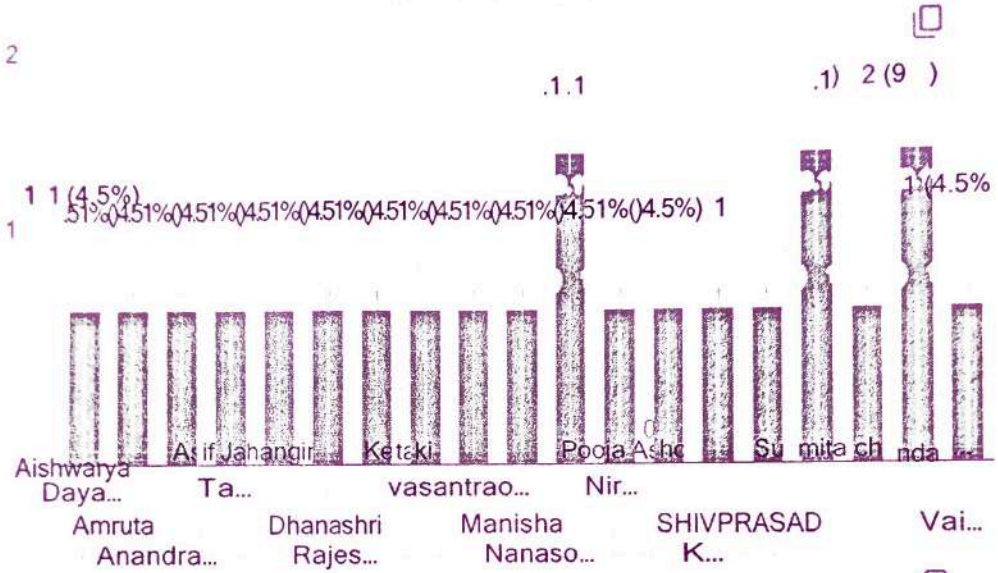
25 responses

Publish analytics

Name of the Student

Copy

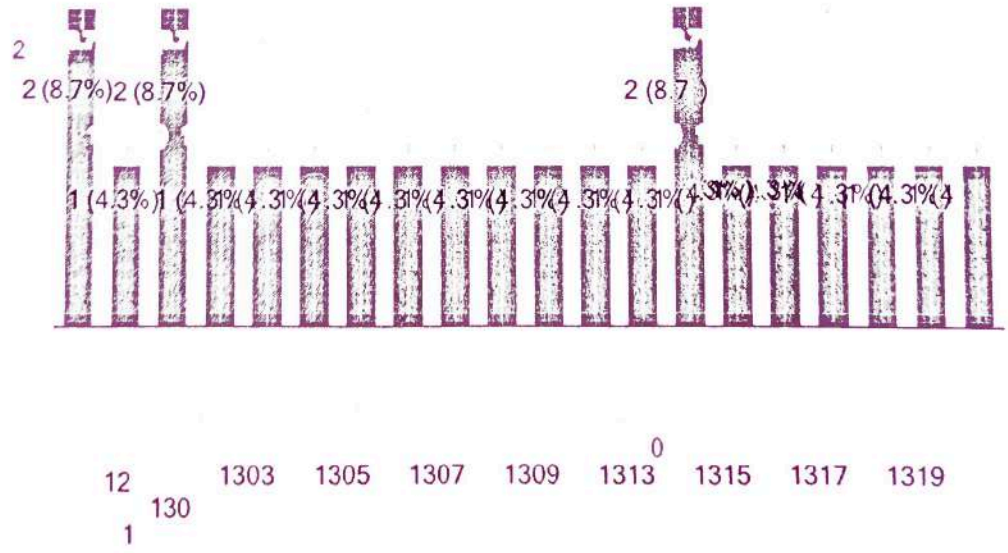
25 responses



Roll No.

Copy

25 responses



Responses:Quantum Mechnics				
Timestamp	Score	Name of the Student	Roll No.	Email address
9/10/2020 12:39:45	20 / 20	Susmita chandar Kamble	1307	susmitakamble2311@gmail.com
9/10/2020 12:40:21	20 / 20	Phadatare	1316	dhanashrip511@gmail.com
9/10/2020 12:41:38	18 / 20	Mahesh Deshmukh	1302	deshmukhmahesh713@gmail.com
9/10/2020 12:54:55	20 / 20	Amit Ashok Jadhav	1304	pamit3124@gmail.com
9/10/2020 13:11:24	20 / 20	KRISHNARAO JADHAV	1305	shivajadhav100sj@gmail.com
9/10/2020 13:16:54	20 / 20	Asif Jahangir Tamboli	1319	Asif.tamboli7980@gmail.com
9/10/2020 13:22:18	16 / 20	Swati Dinkar Patil	1314	swatidpatil5241@gmail.com
9/10/2020 13:23:35	20 / 20	Swati Dinkar Patil	1314	swatidpatil5241@gmail.com
9/10/2020 13:23:47	20 / 20	Deshmukhe	1303	aishwaryadeshmukhe11@gmail.com
9/10/2020 13:25:58	10 / 20	Dinesh Naresh Sherala	1317	dineshsherala@gmail.com
9/10/2020 13:28:02	16 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
9/10/2020 13:28:16	20 / 20	Mandavkar.	1308	ruchitam10198@gmail.com
9/10/2020 13:28:29	20 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
9/10/2020 13:30:18	20 / 20	Ketaki vasantrao kadam	1306	ketakikadam166@gmail.com
9/10/2020 13:39:41	20 / 20	Patil Pranit Mohanrao	1313	pranitpatil5312@gmail.com
9/10/2020 14:03:27	18 / 20	Amruta Anandrao shinde	1318	shindea4042@gmail.com
9/10/2020 14:36:16	18 / 20	Asmita Anandrao Patil	1311	asmitapatil113@gmail.com
9/10/2020 14:40:49	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
9/10/2020 20:57:18	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
9/10/2020 20:59:42	18 / 20	Tamke	1320	tamkevaishnavi68@gmail.com
9/10/2020:35:12 PM	20 / 20	Pooja Ashok Nirmale	1309	Poojanirmale310@gmail.com
9/10/2020:21:47	20 / 20	Anuradha Layman Patole	1315	anuradhaayarekar@gmail.com
9/10/2020 22:38:06 PM	20 / 20	Susmita chandar Kamble	1307	susmitakamble2311@gmail.com

Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-I Internal Examination
Subject: Physics
Title of the Paper: Condensed Matter Physics

Date: 10/10/2020 **Time:12.00 noon to 1.00 pm**
Day: Saturday **Marks: 20**

---

1) Attempt any 10
2) Each Question carry two marks.
* Indicates required question

1. Name of the student *

2. Email *

3. PRN *

4. Roll Number *

1. 1. In ..... permanent dipoles are strongly aligned in the same direction. *

Mark only one oval.

- a) Diamagnetic materials
- b) Paramagnetic materials
- c) Ferromagnetic materials
- d) Anti-ferromagnetic materials

2. 2. The Paramagnetic susceptibility of a solid varies with the temperature T as.....

Mark only one oval.

- a) T
- b) T2
- c) T4
- d) T-2

3. 4. The crystal lattice is a lattice in real ordinary space but the lattice in .....

Mark only one oval.

- a) Gaussian space
- b) Laplacian space
- c) Fourier space
- d) Hypothetical space

5. Which of the following are the properties of superconductors? *

Mark only one oval.

- e) They are diamagnetic in nature
- f) They have zero resistivity
- g) They have infinite conductivity
- h) All of the above

4. 6. The crystalline states resulting from van der Waal type of bonding is observed in..... *

Mark only one oval.

a) Argon
b) Copper
c) Ice
d) Rock salt

5. 7. Schotty-defect is .....in crystals. *

Mark only one oval.

a) Interstitial impurity
b) Vacancy – interstitial pair of positive ions
c) Pair of nearby positive ion and negative ion vacancies
d) Substitution impurity

6. 8. Ferroelectric materials are characterized by... ..... *

Mark only one oval.

- a) Very high degree of polarization
- b) A sharp dependence of polarization on temperature
- c) Non liner dependence of the variation of polarization on the applied voltage
- d) All the above

7. 9. A stacking fault is a.....dimensional defect. *

Mark only one oval.

- a) Zero
- b) One
- c) Two
- d) Three

8. 10. The first Brillouin zone of the FCC crystal lattice is... ..... *

Mark only one oval.

- a) Body centered cube
- b) A rhombic dodecahedron
- c) A rhombohedron
- d) A truncated octahedron

9. 11. The Fermi level shift toward the ..... Of the energy gap *
when the temperature of a p-type semiconductor is increased.

Mark only one oval.

a) Top
b) Bottom
c) Middle
d) Remains unshifted

10. 12. The inert gases are..... *

Mark only one oval.

a) Diamagnetic
b) Paramagnetic
c) Anti-ferromagnetic
d) None of the above

11. 13. The first Brillouin zone of the bcc crystal lattice is.....*

Mark only one oval.

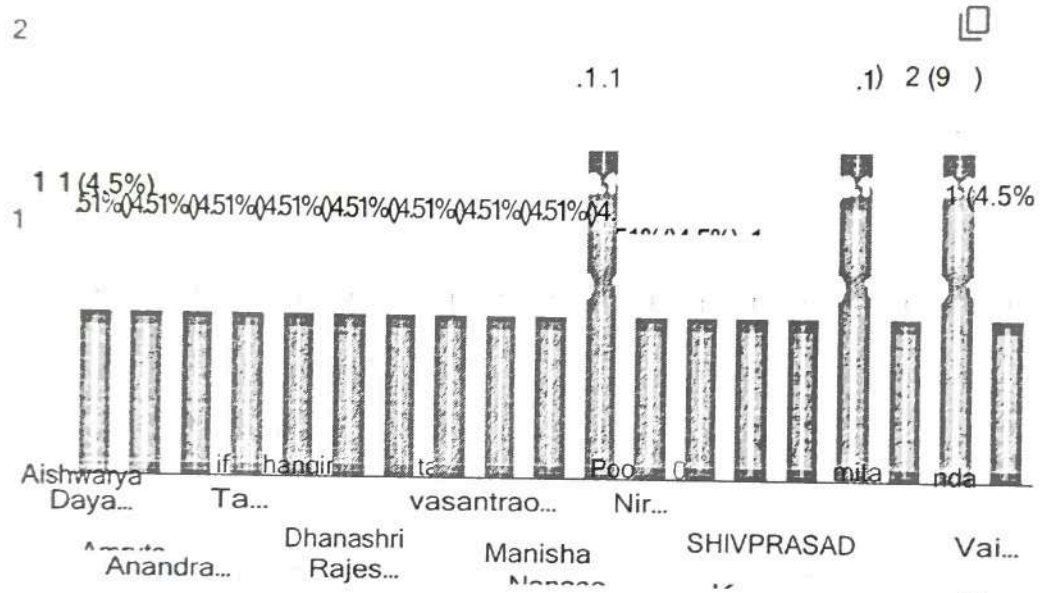
a) A regular octahedron
b) A truncated octahedron
c) A rhombic dodecahedron
d) FCC

Condensed Matter Physics-resposes

Publish analytics

Copy

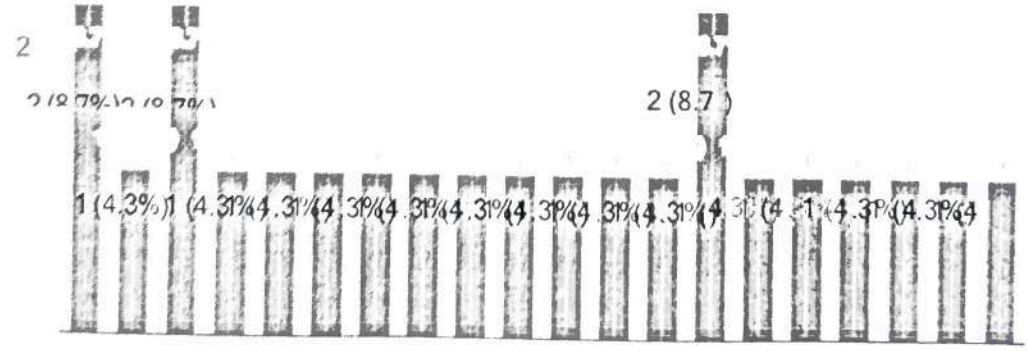
Name of the Student



Roll No.

Copy

25 responses



Responses:Condensed Matter Physics				
Timestamp	Score	Name of the Student	Roll No.	Email address
10/10/2020:35:12 PM	10 / 20	Dinesh Naresh Sherala	1317	dineshsherala@gmail.com
10/10/2020 13:28:02	16 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
10/10/2020 13:30:18	20 / 20	Mandavkar.	1308	ruchitam10198@gmail.com
10/10/2020 20:59:42	20 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
10/10/2020 12:38:06	20 / 20	Ketaki vasantrao kadam	1306	ketakikadam166@gmail.com
10/10/2020 12:39:45	20 / 20	Patil Pranit Mohanrao	1313	pranitpatil5312@gmail.com
10/10/2020 12:40:21	18 / 20	Amruta Anandrao shinde	1318	shindea4042@gmail.com
10/10/2020 12:41:38	18 / 20	Asmita Anandrao Patil	1311	asmitapatil113@gmail.com
10/10/2020 12:54:55	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
10/10/2020 13:11:24	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
10/10/2020 13:16:54	20 / 20	KRISHNARAO JADHAV	1305	shivajadhav100sj@gmail.com
10/10/2020 13:22:18	20 / 20	Asif Jahangir Tamboli	1319	Asif.tamboli7980@gmail.com
10/10/2020 13:23:35	16 / 20	Swati Dinkar Patil	1314	swatidpatil5241@gmail.com
10/10/2020 13:23:35	20 / 20	Swati Dinkar Patil	1314	swatidpatil5241@gmail.com
10/10/2020 13:23:47	20 / 20	Deshmukhe	1303	aishwaryadeshmukhe11@gmail.com
10/10/2020 13:25:58	20 / 20	Manisha Nanaso Patil	1312	mp3465691@gmail.com
10/10/2020 13:28:16	18 / 20	Tamke	1320	tamkevaishnavi68@gmail.com
10/10/2020 13:28:29	20 / 20	Pooja Ashok Nirmale	1309	Poojanirmale310@gmail.com
10/10/2020 13:39:41	20 / 20	Anuradha Layman Patole	1315	anuradhaayarekar@gmail.com
10/10/2020 14:03:27	20 / 20	Susmita chandar Kamble	1307	susmitakamble2311@gmail.com
10/10/2020 14:36:16	20 / 20	Phadatare	1316	dhanashrip511@gmail.com
10/10/2020 14:40:49	18 / 20	Mahesh Deshmukh	1302	deshmukhmahesh713@gmail.com
10/10/2020 20:57:18	20 / 20	Amit Ashok Jadhav	1304	pamit3124@gmail.com