"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.-II) **Date: 01/10/2020**

The students of M.Sc. II 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	CP-1112C	Nuclear and Particle physics	07/10/2020	12.00 to 1.00 pm	20
2	CBP-1113C	Thin Film Deposition Technology	08/10/2020	12.00 to 1.00 pm	20
3	CP-1114C	Solid State Physics-I	09/10/2020	12.00 to 1.00 pm	20
4	CP-1115C	Solid State Physics-II	10/10/2020	12.00 to 1.00 pm	20

Coordinator

HOD

HEAD
DEPARTMENT OF PHYSICS
VIVEKANAND COLLEGE, KOLHAPUR
(AUTONOMOUS)

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-II Internal Examination
Subject: Physics
Title of the Paper: Nuclear and particle physics

Date: 07/10/2020
Day: Wednesday

Time:12.00 noon to 1.00 pm
Marks:20

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

1. Email *

2. Name of the Student *

3. Email address *

4. Seat No./Roll No *

5. Phone No. *

6. 1) Range of nuclear force is.....

Mark only one oval.

- A) 1 femto-meter
- B) 1 pico- meter
- C) 1 centimeter
- D) 1 nanometer

7. 2) Majorana forces would give special stability to

Mark only one oval.

- A) gamma particle
- B) deuteron
- C) alpha particle
- D) an atom

8. 3) In collective shell model quadrapole vibrations will be excursion of

Mark only one oval.

- A) $\lambda=0$
- B) $\lambda=2$
- C) $\lambda=3$
- D) $\lambda=4$

9. 4) According to shell model of the nucleus which is correct?

Mark only one oval.

- A) magic number exist
- B) Nucleons interact with their nearest neighbours only
- C) Nucleons interact with a general force field
- D) neutron exists

10. 5)The typical time scale of the strong interactions process is .

Mark only one oval.

- A) 10-23 sec
- B) 10-27 sec
- C) 10-22 sec
- D) 10-24 sec

11. 6)According to Yukawa the nuclear force was due to exchange of a particle with non zero mass is called

Mark only one oval.

- A) Hadrons
- B) fermions
- C) mesons
- D) baryons

12. 7) selection rule for first forbidden Gammow-Teller transitions is .

Mark only one oval.

- A) $\Delta=+0, 1$
- B)$\Delta=+2, 1$
- C) $\Delta=+ 2, 1, 0$
- D) $\Delta=+3, 2, 1$

Nuclear and Particle Physics

20 responses

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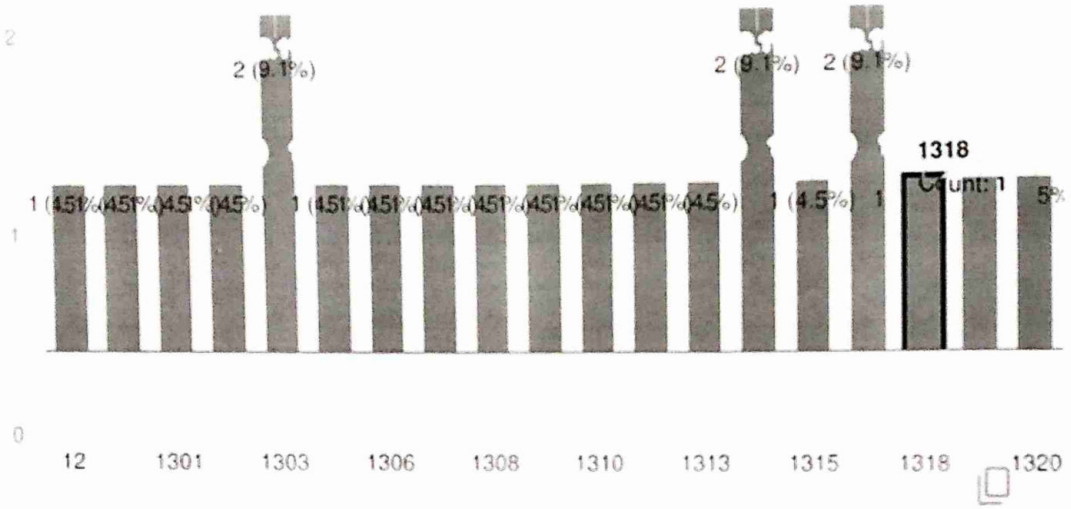
22 responses



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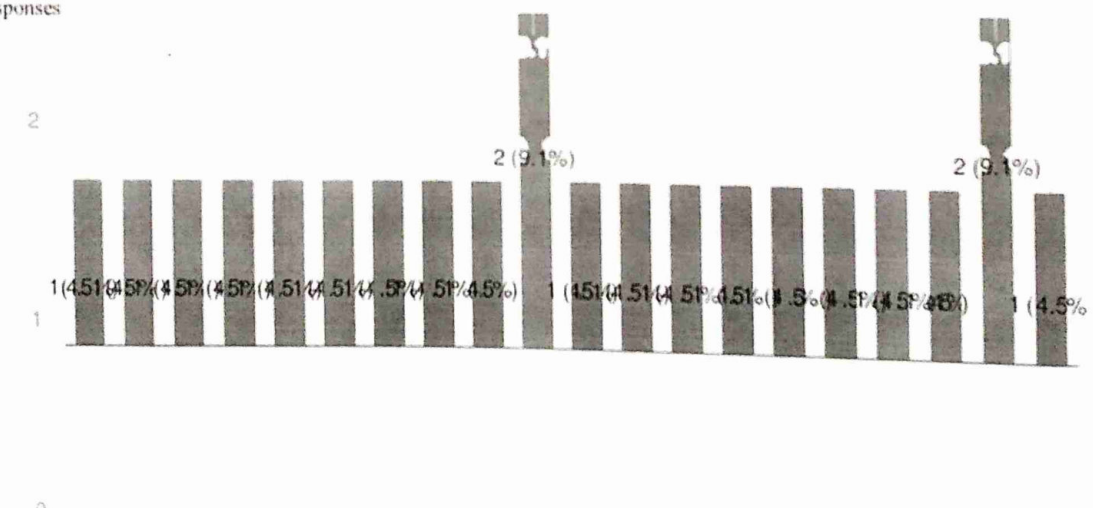
22 responses



Responses:Nuclear and particle physics:2020-21

Timestamp	Score	Name of the Student	Roll No.	Email address
7/10/2020 12:35:12	20 / 20	Manisha Nanaso Patil	12	mp3465691@gmail.com
7/10/2020 12:38:06	18 / 20	Vaishnavi Namdeo Tamke	1320	tamkevaishnavi68@gmail.com
7/10/2020 12:39:45	20 / 20	Pooja Ashok Nirmale	1309	Poojanirmale310@gmail.com
7/10/2020 12:40:21	20 / 20	Anuradha Layman Patole	15	anuradhaayarekar@gmail.com
7/10/2020 12:41:38	20 / 20	Susmita chandar Kamble	1307	susmitakamble2311@gmail.com
7/10/2020 12:52:03	20 / 20	Dhanashri Rajesh Phadatare	1316	dhanashrip511@gmail.com
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7/10/2020 14:36:16	4 / 20			
7/10/2020 15:41:01	20 / 20	Patil Pranit Mohanrao	1313	pranitpatil5312@gmail.com
7/10/2020 20:57:18	20 / 20			
7/10/2020 20:59:42	18 / 20	Amruta Anandrao shinde	1318	shindea4042@gmail.com
7/10/2020 14:40:49	18 / 20	Asmita Anandrao Patil	1311	asmitapatil113@gmail.com

Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-II Internal Examination
Subject: Physics
Title of the Paper: Thin Film Deposition and other techniques

Date: 08/10/2020
Day: Thursday

Time: 12.00 noon to 1.00 pm
Marks: 20

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1) Attempt any 10
2) Each Question carry two mark.

* Indicates required question

1. Email *

2. Name of the Student *

3. Email address *

4. Seat No./Roll No *

1. Thickness of thin film varies from .....

Mark only one oval.

- 10 to 20 micrometer
- 10 to 20 meter
- 10 to 20 centimeter
- 10 to 20 nanometer

2. SILAR stand for ....

Mark only one oval.

- Successive Ionic Layer Adsorption and Reaction
- Successive Ionic Layer Absorption and Reaction
- Successive Molecule Layer Adsorption and Reaction
- Successful Atom Layer Adsorption and Reaction

3. A process of electroplating, in which metals ions from the solutions are deposited on the cathode as a thin film in the presence of an applied external field is known as .....

Mark only one oval.

- Electroless deposition
- Cathodic deposition
- Anodic oxidation
- Thermal oxidation

4. What is the factor that differentiates between Electroless deposition and Cathodic deposition?

Mark only one oval.

- Nature of electrolyte
- Cathode
- External field
- Anode

5. What should be the nature of the material of the substrates on which the deposition take place in Cathodic deposition?

Mark only one oval.

- Non metallic
- Metallic
- Plastic
- Wooden

6. Chemical vapour deposition is a method which is used to obtain which of the following material thin films ?

Mark only one oval.

- Semiconductors
- Non conducting polymers
- Conducting compounds
- Crystalline semiconductor

7. Which of the following factor is taken care while selecting the container in the process of vacuum evaporation?

Mark only one oval.

- Chemically reactive
- Withstand low temperature
- Withstand high temperature
- Conducting

8. Among other variables, deposition rate and thickness is principally influenced by the .....

Mark only one oval.

- Only temperature
- Only boiling point
- Temperature, boiling point, vapor pressure of the target
- Temperature, melting and boiling point, vapor pressure, density and thermal conductivity of the target

9. Name the source from below which is NOT used for PVD is.....

Mark only one oval.

- Combustion flame heating
- Electron beam heating
- Resistance boat heating Arc
- source evaporation

10.. In sputtering, the substrate can be a....

Mark only one oval.

- Conductor like metal
- Insulator like polymer Semi-
- conductor like siliconAll of
- above

11.Chemical reaction has NO role in....

Mark only one oval.

- Reactive sputtering
- Thermal PVD
- Thermal CVD
- Plasma enhanced CVD

12.In physical vapor deposition, a more uniform film will be achieved....

Mark only one oval.

- by rotating substrate during evaporation
- by using deep narrow crucibles to increase the directionality of evaporation beamby
- increasing the distance between source and substrate
- by placing both extended source and substrate on surface of an imaginary sphere

13. Which of the following materials cannot be deposited by CVD (Chemical Vapor Deposition) method?

Mark only one oval.

- Stainless steel
- Poly-Silicon
- Al2O3
- Cu

Thin Film Deposition and other thechnology

19 responses

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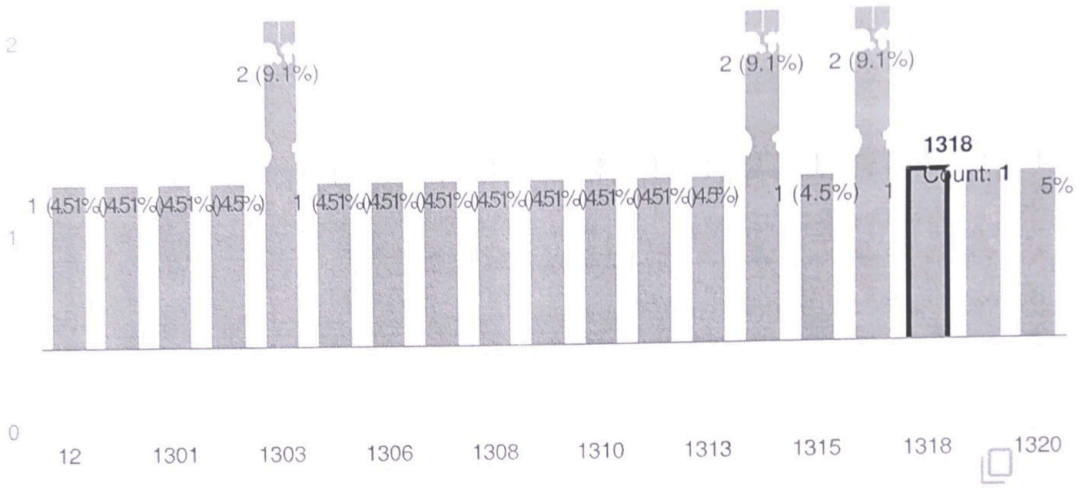
19 responses



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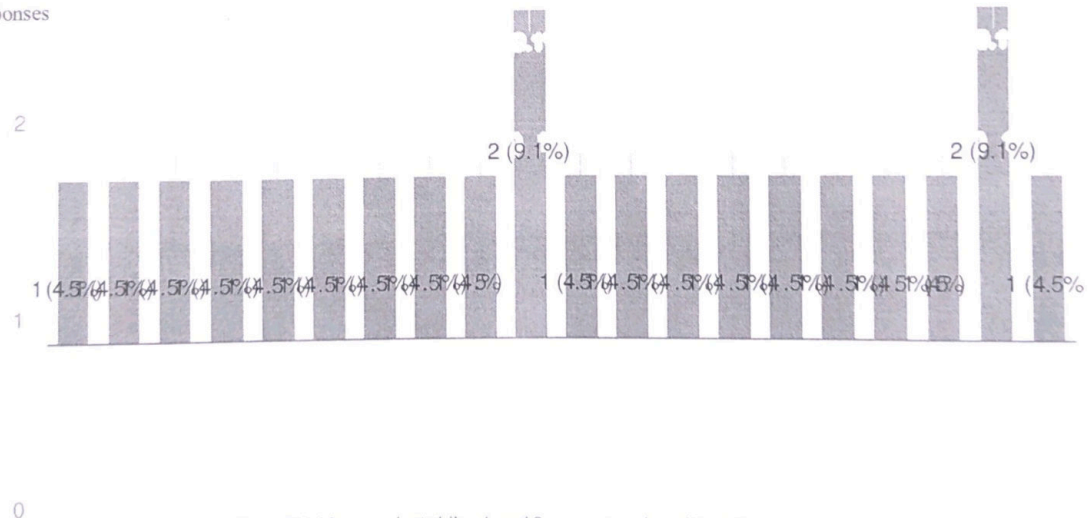
19 responses



Responses: Thin Film deposition and other techniques:2020-21

Timestamp	Score	Name of the Student	Roll No.	Email address
8/10/2020 12:38:06	20 / 20	Sushant Suresh Bote	1301	sushantbote2015@gmail.com
8/10/2020 12:39:45	20 / 20	Ketaki vasantrao kadam	1306	ketakikadam166@gmail.com
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Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-II Internal Examination
Subject: Physics
Title of the Paper: Solid State Physics-I

Date: 09/10/2020
Day: Friday

Time:12.00 noon to 1.00 pm
Marks: 20

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1. Email *

2. Ne of the student *

3. Email *

4. Roll Number *

1.The gas pressure of in PECVD is

Mark only one oval.

- 0.5 to 1 torr5
- to 10 torr
- 0.1 to 5 torr
- 50m to 5 torr

2.In RF sputtering pressure is used as

Mark only one oval.

- 0.5- 2 Pa
- 0.5 K- 2 kPa
- 0.5 K- 2 Pa
- 0.5- 2 k Pa

3.In DC magnetron sputtering, the magnetic field B has strength is

Mark only one oval.

- 10 MT
- 100 MT
- 1000MT
- 10000 MT

4.In this technique to prepare multilayer film

Mark only one oval.

- sol gel technique
- L-B technique
- Spin coating techniquenone
- of these

5. The solvent does not evaporate This means the film thickness depends only on

Mark only one oval.

- rotational speed
- spinning time
- rotational speed & spinning time
- none of rotational speed & spinning time

6. In this method typical precursors are metal alkoxides and metal chlorides which undergo hydrolysis

Mark only one oval.

- sol gel technique
- L-B technique
- Spin coating technique
- both Spin coating technique and L-B technique

7. The preparation of cement which are used

Mark only one oval.

- Dielectric only
- metal only
- Dielectric as well as metal
- Insulatar

8. Sputtering is a process where by, particles are ejected by from a solid target due to bombardment of target by

Mark only one oval.

- particles
- photons
- phonons
- energetic particles

9. The power supply required for RF sputtering is low voltage RF source at

Mark only one oval.

- 13.56Hz

10. In spray pyrolysis the deposition of thin films, generally take place above ------ temperature

Mark only one oval.

- 300k
- 300c
- 300F
- 3000c

11. The power supply required for RF sputtering is low voltage RF source at

Mark only one oval.

- 13.56Hz
- 13.56mHz
- 13.56MHz
- 1356Hz

Solid State Physics-I

20 responses

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20 responses

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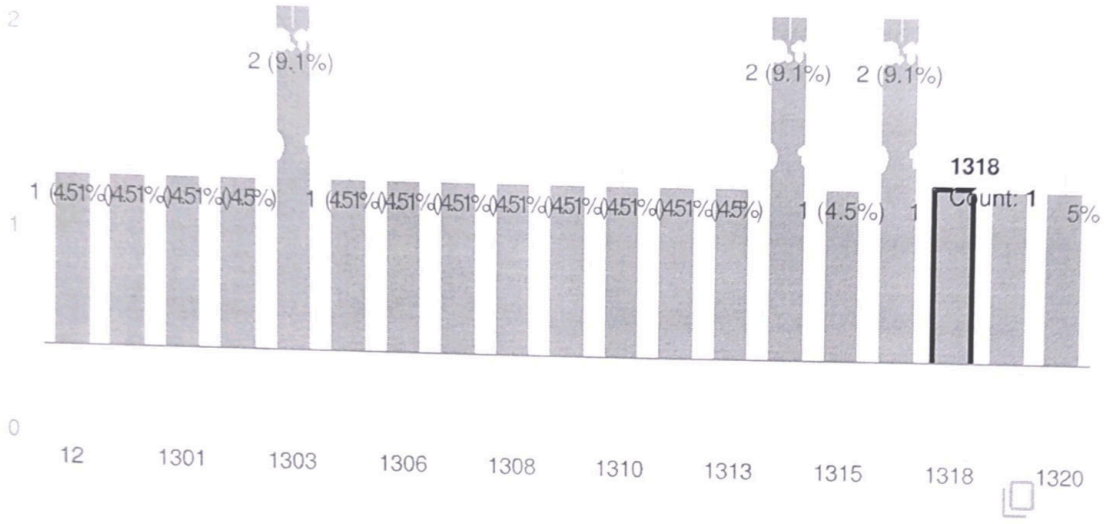

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20 responses

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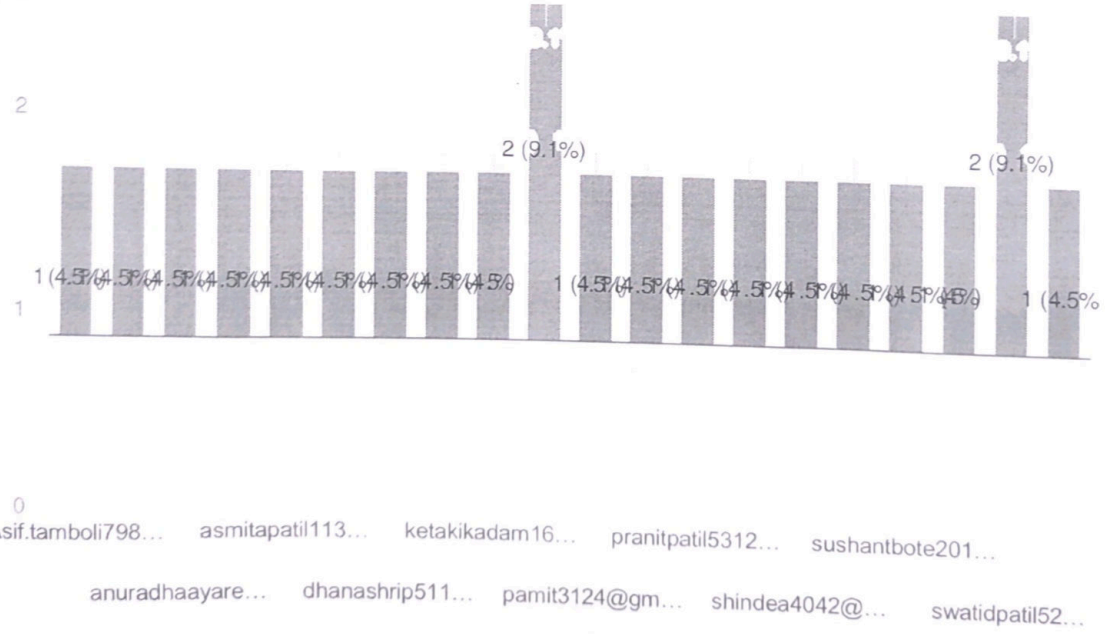

Responses: Solid State Physics-I:2020-21

Timestamp	Score	Name of the Student	Roll No.	Email address
9/10/2020 12:38:06	20 / 20	Susmita chandar Kamble	1307	susmitakamble2311@gmail.com
9/10/2020 12:39:45	20 / 20	Dhanashri Rajesh Phadatare	1316	dhanashrip511@gmail.com
9/10/2020 12:41:38	18 / 20	Mahesh Deshmukh	1302	deshmukhmahesh713@gmail.com
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Vivekanand College, Kolhapur (Autonomous).

Department of Physics

M. Sc. Part-II Internal Examination
Subject: Physics
Title of the Paper: Solid State Physics-II

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

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

1. Name of the Student

2. Roll No.

3. Email address

4. 1. Drude model was based on..... 2 points

Mark only one oval.

- a) Classical mechanics
- b) Quantum mechanics
- c) Kinetic theory of gases
- d) Kinetic theory of Fluid

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

Mark only one oval.

- a) Infinite
- b) Zero
- c) Negligibly positive
- d) Negative

6. 3. The fundamental model of solid fails to explain 2 points

Mark only one oval.

- a) Calculation of particle
- b) Quantum mechanics
- c) Kinetic theory of gases
- d) Specific heat

7. 4. The basic electric property of solids drawn fundamental model is 2 points

Mark only one oval.

- a) Resistivity and mobility
- b) Eigenvalue
- c) Flux
- d) Electric charge

8. 5. Free electron model explains various electrical properties of 2 points

Mark only one oval.

- a) Semiconductor
- b) Semi-metals
- c) Metals
- d) Insulators

9. 6. Metals are good conductors of..... and electricity 2 points

Mark only one oval.

- a) Heat
- b) Total energy
- c) Fluids
- d) Quarks

10. 7. Tight bending method explains the addition of .....for the electronic band structure 2 points

Mark only one oval.

- a) Fundamental particles
- b) Photons
- c) Wave functions
- d) Kinetic gases

11. 8. Green's function is used in..... 2 points

Mark only one oval.

- a) Single body problems
- b) Many body problems
- c) Kinetic theory of gases
- d) Bohr atomic model

12. 9. Linear combination of atomic orbit allows..... of molecular orbitals 2 points

Mark only one oval.

- a) Addition
- b) Subtraction
- c) Superposition
- d) Composition

13. 10. Interaction between..... is negligible in independent electron approximation. 2 points

Mark only one oval.

- a) Electron-Proton
- b) Electron-Electron
- c) Electron-Neutron
- d) Neutron-neutron

Solid State Physics-II

21 responses

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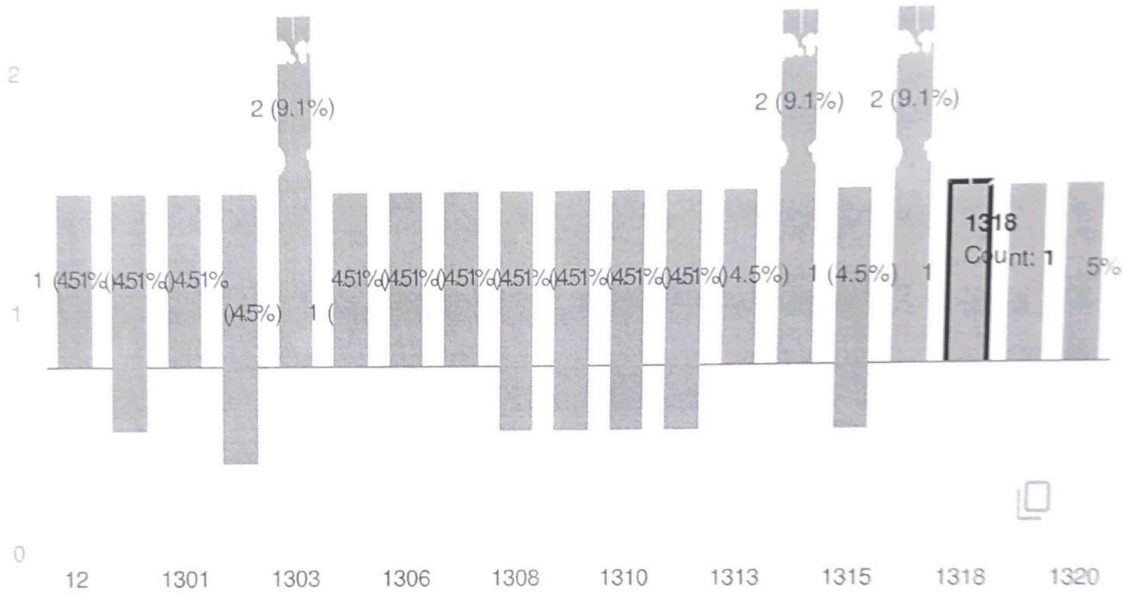
21 responses



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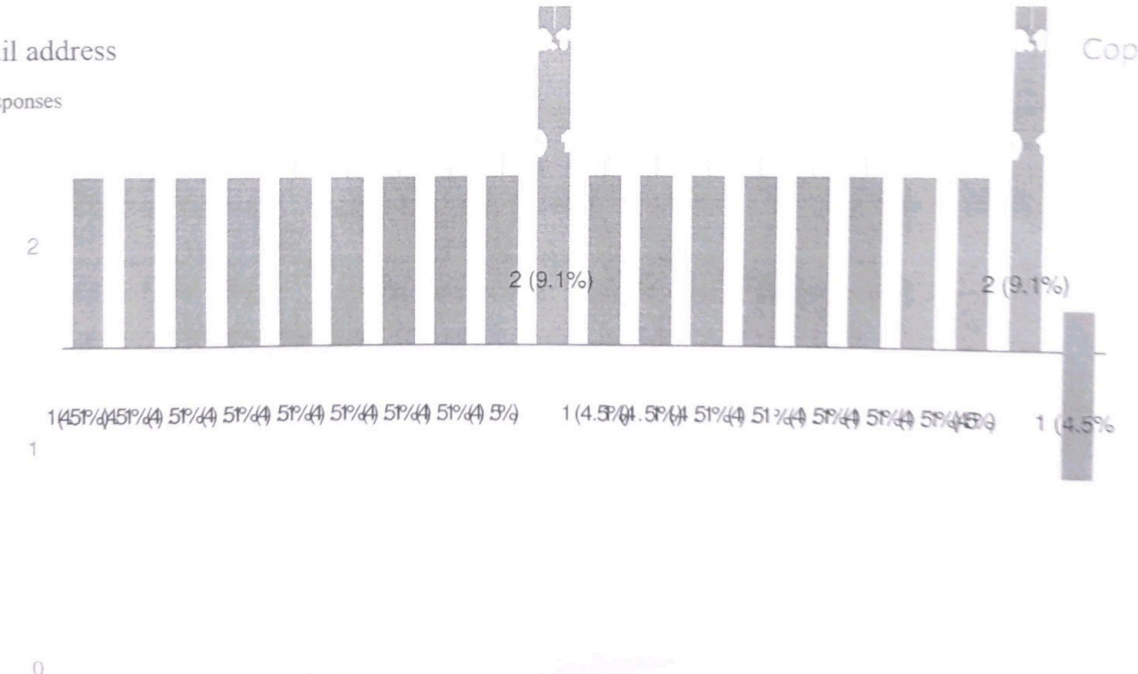

Responses:Solid State Physics-II:2020-21

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10/10/2020 12:38:06	20 / 20	Patil Pranit Mohanrao	1313	pranitpatil5312@gmail.com
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