Sl.No.1307 **Course Code: 71817103**

VINAYAKA MISSIONS RESEARCH FOUNDATION, SALEM

(Deemed to be University)

B.SC(PHYSICS) DEGREE EXAMINATION – November 2018

First Semester

DSC – I MECHANICS

Time: Three hours Maximum: 70 marks

PART – A (10 x 2 = 20)

(Answer ALL Questions)

1. State the principle of conservation of momentum
2. Give any example inelastic collision.
3. Define Simple harmonic motion
4. State the condition for maximum time period of a compound pendulum
5. Define center of gravity
6. Identify the term called cone of friction
7. Define clearly the term "Centre of Pressure"
8. State the Bernoulli's equation? Explain the meaning of each term.
9. State the conservation theorem if linear momentum?
10. Give any two Examples of Lagrange's Equation

PART – B (4 x 5 = 20)

(Answer ALL Questions)

11. a) Mention the three principles that hold good when an impact takes place between two smooth spheres.

(OR)

b) Enumerate the velocities of two smooth sphere after oblique impact.

12. a) Explain the meaning of the term, period, amplitude and phase of Simple Harmonic motion with examples and neat diagram

(OR)

b) Obtain an expression for period of compound pendulum.

13. a) Explain center of gravity with neat diagram

(OR)

b) What are different states of equilibrium of the body, explain with neat diagram

14. a) State & explain rate of flow of liquid. What is the equation of continuity?

(OR)

b) Explain the term "Generalized coordinates".

PART – C (3 x 10 = 30)

(Answer any THREE Questions)

15. Calculate the velocity and direction of smooth sphere after oblique impact with fixed smooth plane.

16. What is meant by Simple harmonic motion? Describe its characteristics
17. What is friction, explain the types with neat diagram.

18. Determine the position of centre of pressure for a triangular lamina of height h immersed vertically with (a) its apex on the surface of he liquid,and (b) its base horizontal

19. State and prove D'Alemberts principle for virtual work

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Sl.No.1933 **Course Code: 71817203**

VINAYAKA MISSIONS RESEARCH FOUNDATION, SALEM

(Deemed to be University)

B.SC(PHYSICS) DEGREE EXAMINATION – November 2018

Second Semester

DSC – IV THERMAL PHYSICS AND STATISTICAL MECHANICS

Time: Three hours Maximum: 70 marks

PART – A (10 x 2 = 20)

(Answer ALL Questions)

1. State Rayleigh Jeans law
2. Relate Planck's and Rayleigh Distribution law.
3. Define conduction
4. Distinguish between ideal and real gas
5. State the third law of thermodynamics
6. State Carnot's theorem.
7. What is Joules Thompson coefficient?
8. Write down the TDS second equation
9. State Fermi Dirac Distribution law
10. What is photon Gas?

PART – B (4 x 5 = 20)

(Answer ALL Questions)

11. a) Explain Planck's law

(OR)

b) Derive Planck law for black body radiation

12. a) State and explain law of equipartition of energy?

(OR)

b) Explain Maxwell's distribution of molecular velocities.

13. a) Derive the equation during an adiabatic change for a perfect gas

(OR)

b) Write a note on reversible and irreversible process

14. a) Write a note on Joule Thompson Effect

(OR)

b) Compare Fermic dirac and Bose Einstein distribution law

PART – C (3 x 10 = 30)

(Answer any THREE Questions)

15. Discuss the concept of Energy density with neat diagram
16. Verify experimentally Maxwell's velocity distribution law
17. State and prove Carnot s theorem
18. Deduce the first and second form of Entropy Equation
19. Deduce Fermi Dirac Distribution Law

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Sl.No.1338 **Course Code: 71817204**

VINAYAKA MISSIONS RESEARCH FOUNDATION, SALEM

(Deemed to be University)

B.SC(PHYSICS) DEGREE EXAMINATION – November 2018

Second Semester

SEC – PHYSICS IN EVERYDAY LIFE

Time: Three hours Maximum: 70 marks

PART – A (10 x 2 = 20)

(Answer ALL Questions)

1. Define :Motion
2. What is gravitation?
3. State Pascal law
4. What is the difference between Pressure and thrust?
5. How sound is classified?
6. Define transverse and longitudinal waves.
7. State: Faraday's Second Law
8. What is electromagnetic induction?
9. Define microscope
10. What are the nuclear power plants?

PART – B (4 x 5 = 20)

(Answer ALL Questions)

11. a) Explain rotational motion

(OR)

b) Deduce the relation between work power and energy

12. a) Explain about the thrust

(OR)

b) Write notes on Bernoulli's principle

13. a) Write a note on steam engine

(OR)

b) State Sabine formulae and explain the reverberation.

14. a) Write notes on Lightening arrester

(OR)

b) Explain about the atom bomb

PART – C (3 x 10 = 30)

(Answer any THREE Questions)

15. Explain briefly the relation between energy and environment
16. Describes in details about the three states of matter and binding forces
17. List out the factors affecting the acoustics of building with remedies
18. Brief explain about the principle and working of transformers
19. Explain about the principle and working of Projector with neat diagram

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S.No.1217 Sub.Code:71817302

VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM
(Deemed to be University)
B.SC(PHYSICS) DEGREE EXAMINATION – November 2018
Third Semester
DSC IV - ATOMIC PHYSICS AND SPECTROSCOPY

Time : Three Hours Maximum: 70 marks

SECTION - A
Answer All questions (10 x 2 = 20)

1 State : Critical potential
2 What are the types of potentials?
3 Write the any two properties of Positive ray?
4 State: Detection Masses of Isotopes by Dempster mass spectrograph?
5 What is X-ray?
6 Define Compton Effect
7 Write 3rd law of Photoelectric emission
8 Define Photo conductive cell
9 What is selection rule for "J"?
10 What is stark effect?

SECTION - B
Answer the following (4 X 5 = 20)

11.a Explain the vector atom model –concepts of quantization

OR

.b Write notes on total angular momentum

12.a Explain combined action of electric field and action of Magnetic field –Thomson method

OR

.b Explain- Aston's Mass spectrograph

13.a Write a note on Main features of continuous X-ray spectrum.

OR

.b Explain the Principle of X-ray spectrometer with diagram.

14.a Write law's of Photoelectric emission

OR

.b Write notes on spectral notation of optical spectra

SECTION -C
III. Answer ANY **THREE** of the following questions: (3 x 10 = 30)

15 Explain and state the Pauli's exclusion principle.
16 Explain in details about the Dempster Mass spectrograph
17 Explain the Derivation of Planck's law of Radiation

18 States (i) Photo emissive cell (ii) Photo voltaic cell
(iii) Photo conductive cell

19 Explain about the Anomalous Zeeman Effect

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