

OIL CONSERVATION COMMISSION

P. O. BOX 2045

HOBBS, NEW MEXICO

DATE May 6, 1958

TO:

W. H. Black

Box 174

Midland, Texas

Gentlemen:

In accordance with the provisions of Commission Order No. R 1160,  
your State #1-A 18-17-33, which  
Lease Well No. S-T-R

is currently listed in the undesignated section of the oil proration  
schedule, will appear in the Maljamar Pool in  
the June Proration schedule.

Please file Form C-110 showing the change in pool designation of  
this well.

Yours very truly,

OIL CONSERVATION COMMISSION

R. F. Montgomery  
Proration Manager

RFM/eb

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 354

PROBLEM SET 1

Due: Monday, September 10, 2018

1. (10 points) A particle of mass  $m$  moves in a potential  $V(x) = \frac{1}{2}kx^2$ .

(a) Find the energy levels  $E_n$  for  $n = 0, 1, 2, 3$ .

(b) Find the wave functions  $\psi_n(x)$  for  $n = 0, 1, 2, 3$ .

(c) Find the expectation value  $\langle x \rangle$  for  $n = 0, 1, 2, 3$ .

2. (10 points) A particle of mass  $m$  moves in a potential  $V(x) = \frac{1}{2}kx^2 + \frac{1}{4}\alpha x^4$ .

(a) Find the energy levels  $E_n$  for  $n = 0, 1, 2, 3$  using perturbation theory.

(b) Find the wave functions  $\psi_n(x)$  for  $n = 0, 1, 2, 3$  using perturbation theory.

(c) Find the expectation value  $\langle x \rangle$  for  $n = 0, 1, 2, 3$  using perturbation theory.

3. (10 points)

(a) Find the energy levels  $E_n$  for  $n = 0, 1, 2, 3$ .

(b) Find the wave functions  $\psi_n(x)$  for  $n = 0, 1, 2, 3$ .

(c) Find the expectation value  $\langle x \rangle$  for  $n = 0, 1, 2, 3$ .

4.

5.

6.

7.