

(For the Candidates admitted from 1999 and onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2000.

Second Semester

Part III — Physics

QUANTUM MECHANICS — I

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1. If  $|P\rangle = |A\rangle + |B\rangle$  then  $\langle P|$  is
 

(a) $\langle A  + \langle B $	(b) $\langle A  + \langle B $
(c) $\langle A  +  B\rangle$	(d) $\langle A B\rangle$
2. By variation method
 

(a) $\int \psi^* H \psi d\tau \leq E_0$
(b) $\int \psi^* H \psi d\tau \geq E_0$
(c) $\int \psi^* H \psi d\tau < E_0$
(d) $\int \psi^* H \psi d\tau > E_0$

(1, 5, 488)

$$dx = \begin{pmatrix} 0 & 0 & 1 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{pmatrix} dy = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \\ 0 & 0 & 0 \end{pmatrix}$$

$$dz = \begin{pmatrix} 0 & 0 & 1 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & -1 & 0 \end{pmatrix}$$