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Reg. No. : 8022LA019

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(For the candidates admitted from 1999 and onwards)

M.Sc. DEGREE EXAMINATION, APRIL 2001.

Second Semester

Physics

QUANTUM MECHANICS — I

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1. If \hat{a} and \hat{a}^+ represent annihilation and creation operators then, the momentum operator \hat{p} is,

- (a) $\sqrt{\hbar\omega}(\hat{a}^+ + \hat{a})$
- (b) $\sqrt{\hbar\omega}(\hat{a}^+ - \hat{a})$
- (c) $i\sqrt{\hbar\omega}(\hat{a}^+ - \hat{a})$
- (d) $i\sqrt{\frac{m\hbar\omega}{2}}(\hat{a}^+ - \hat{a})$

$i\sqrt{\frac{m\hbar\omega}{2}}$

$m\omega^2 = \dots$