**9E Movement Under Gravity**

1. A ball is projected vertically upwards from a point O with a speed of 12ms-1. Find:
2. The greatest height reached by the ball
3. The total time the ball is in the air
4. A book falls off the top shelf of a bookcase. The shelf is 1.4m above the ground. Find:
5. The time it takes the book to reach the floor
6. The speed with which the book strikes the floor
7. A ball is projected upwards from a point X which is 7m above the ground, with initial speed 21ms-1. Find the time of flight of the ball.
8. A particle is projected vertically upwards from a point O with initial speed *u* ms-1. The greatest height reached by the particle is 62.5m above the ground. Find:
9. The speed of projection
10. The total time for which the ball is 50m or more above the ground
11. A ball, A, falls vertically from rest from the top of a tower 63m high. At the same time as A begins to fall, another ball, B, is projected vertically upwards from the bottom of the tower with velocity 21ms-1. The balls collide. Find the height at which this happens.