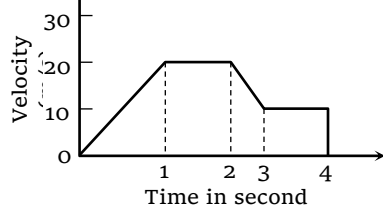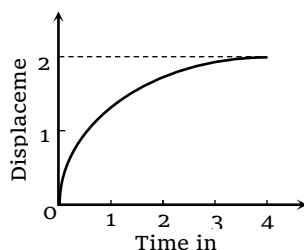1. The variation of velocity of a particle with time moving along a straight line is illustrated in the following figure. The distance travelled by the particle in four seconds is


(a) 60 m

(b) 55 m

(c) 25 m

(d) 30 m

2. The displacement of a particle as a function of time is shown in the figure. The figure shows that

(a) The particle starts with certain velocity but the motion is retarded and finally the particle stops

(b) The velocity of the particle is constant throughout

(c) The acceleration of the particle is constant throughout.

(d) The particle starts with constant velocity, then motion is accelerated and finally the particle moves with another constant velocity

3. A ball is thrown vertically upwards. Which of the following graph/graphs represent velocity-time graph of the ball during its flight (air resistance is neglected)
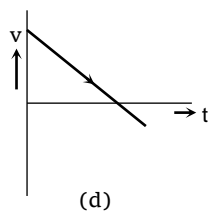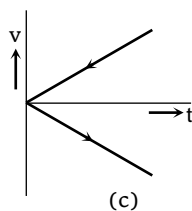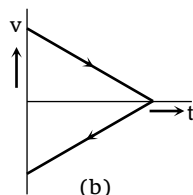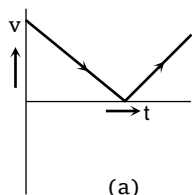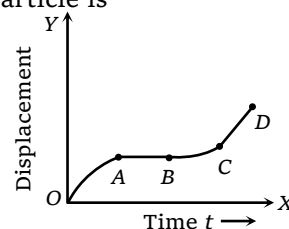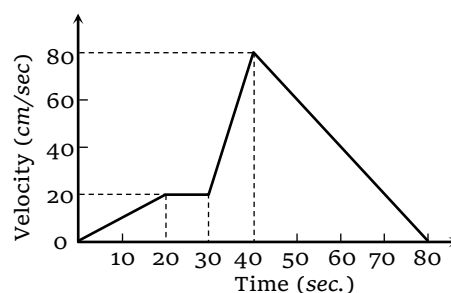

(a) A

(b) B

(c) C

(d) D

4. The graph between the displacement x and time t for a particle moving in a straight line is shown in figure. During the interval OA, AB, BC and CD, the acceleration of the particle is

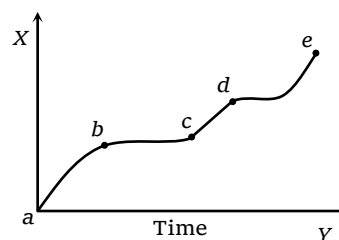|	OA,	AB,	BC,	CD
(a)	+	O	+	+
(b)	–	O	+	O
(c)	+	O	–	+
(d)	–	O	–	O

5. The $v - t$ graph of a moving object is given in figure. The maximum acceleration is
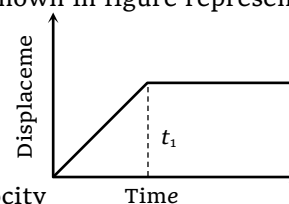

(a) $1 cm/\sec c^2$

(b) $2 cm/\sec^2$

(c) $3 \ cm/\sec^2$

(d) $6 \ cm/\sec^2$

6. The displacement versus time graph for a body moving in a straight line is shown in figure. Which of the following regions represents the motion when no force is acting on the body

(a) ab

(b) bc

(c) cd

(d) de

7. The $x - t$ graph shown in figure represents

(a) Constant velocity

(b) Velocity of the body is continuously changing

(c) Instantaneous velocity

(d) The body travels with constant speed upto time t_1 and then stops

8. A lift is going up. The variation in the speed of the lift is as given in the graph. What is the height to which the lift takes the passengers

(a) 3.6 *m*

(b) 28.8 *m*

(c) 36.0 *m*

(d) Cannot be calculated from the above graph
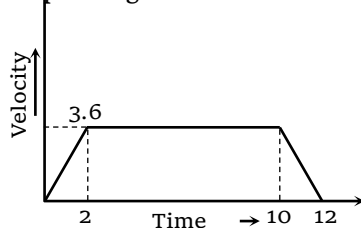
9. The velocity-time graph of a body moving in a straight line is shown in the figure. The displacement and distance travelled by the body in 6 *sec* are respectively
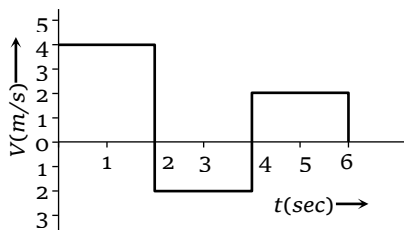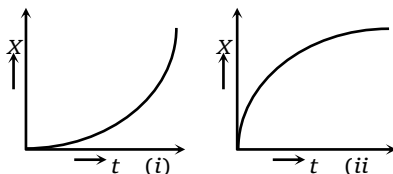
(a) 8 *m*, 16 *m*   (b) 16 *m*, 8 *m*

(c) 16 *m,* 16 *m*   (d) 8 *m*, 8 *m*

10. Velocity-time (*v-t*) graph for a moving object is shown in the figure. Total displacement of the object during the time interval when there is non-zero acceleration and retardation is

(a) 60 *m*

(b) 50 *m*

(c) 30 *m*

(d) 40 *m*
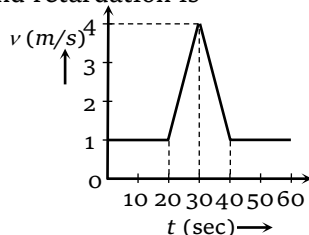
11. Figures (i) and (ii) below show the displacement-time graphs of two particles moving along the *x*-axis. We can say that

(a) Both the particles are having a uniformly accelerated motion

(b) Both the particles are having a uniformly retarded motion

(c) Particle (i) is having a uniformly accelerated motion while particle (ii) is having a uniformly retarded motion **[IIT 1976]**

(d) Particle (i) is having a uniformly retarded motion while particle (ii) is having a uniformly accelerated motion
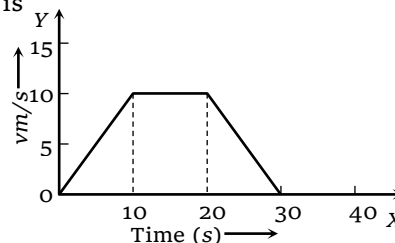
12. For the velocity-time graph shown in figure below the distance covered by the body in last two seconds of its motion is what fraction of the total distance covered by it in all the seven seconds

(a) $\dfrac{1}{2}$

(b) $\dfrac{1}{4}$

(c) $\dfrac{1}{3}$

(d) $\dfrac{2}{3}$
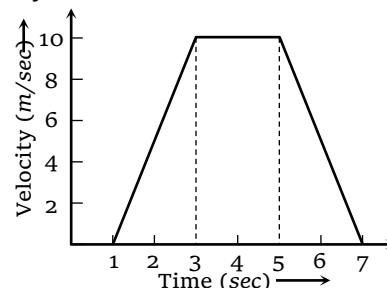
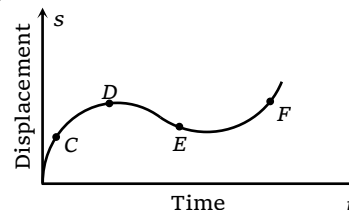**13.** In the following graph, distance travelled by the body in metres is

(a) 200

(b) 250

(c) 300

(d) 400

14. Velocity-time curve for a body projected vertically upwards is

(a) Parabola **[Kerala PMT 2005]** (b) Ellipse

(c) Hyperbola   (d) Straight line

15. The displacement-time graph of moving particle is shown below
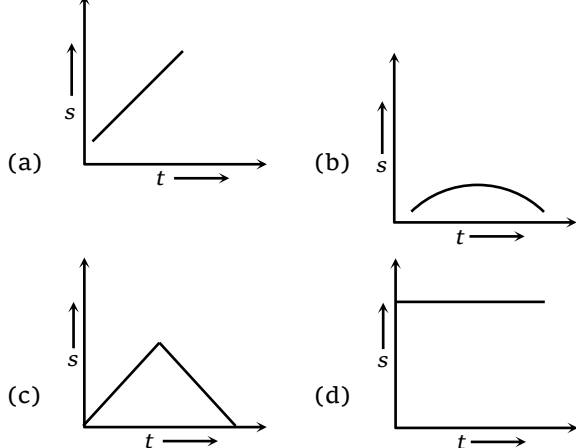
[Kurukshetra CEE 1996] The instantaneous velocity of the particle is negative at the point

(a) *D*   (b) *F*

(c) *C*   (d) *E*

16. An object is moving with a uniform acceleration which is parallel to its instantaneous direction of motion. The displacement (s)– velocity (v) graph of this object is
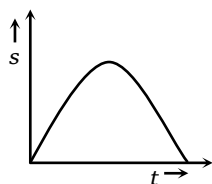
(a) ... (b) ...

(c) ... (d) ...
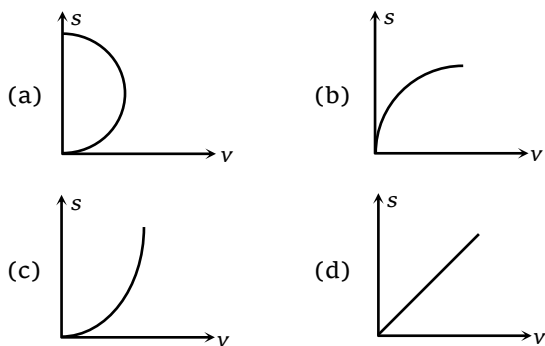
17. Which of the following graph represents uniform motion
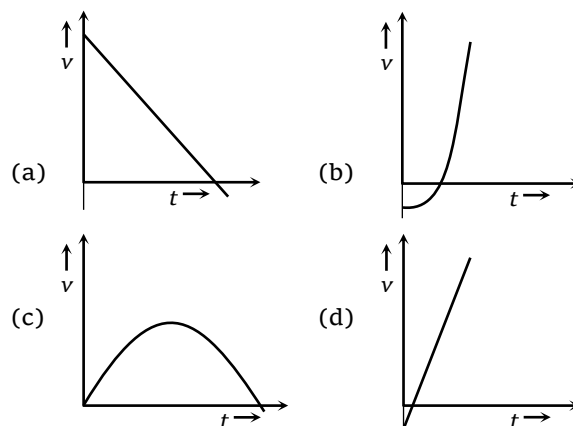

(a) ... (b) ...

(c) ... (d) ...

18. A ball is dropped vertically from a height d above the ground. It hits the ground and bounces up vertically to a height $d/2$. Neglecting subsequent motion and air resistance, its velocity v varies with the height h above the ground is
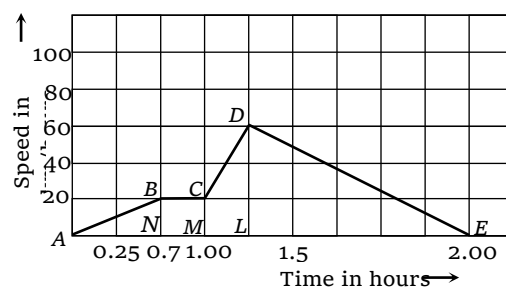

(a) ... (b) ...

(c) ... (d) ...
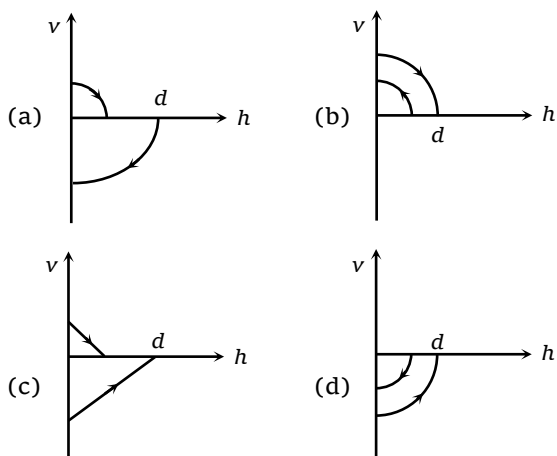
19. The graph of displacement v/s time is

Its corresponding velocity-time graph will be

(a) ... (b) ...

(c) ... (d) ...

20. A train moves from one station to another in 2 hours time. Its speed-time graph during this motion is shown in the figure. The maximum acceleration during the journey is
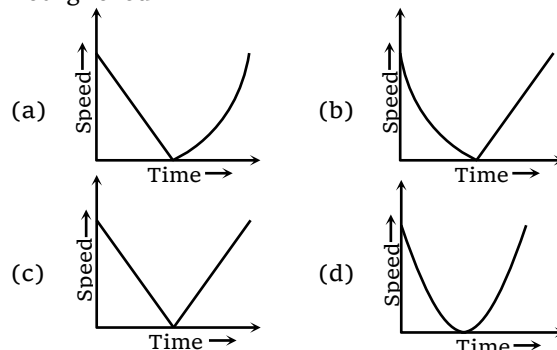

(a) 140 $km\ h^{-2}$ (b) 160 $km\ h^{-2}$

(c) 100 $km\ h^{-2}$ (d) 120 $km\ h^{-2}$

**21.** The area under acceleration-time graph gives

(a) Distance travelled   (b) Change in acceleration

[IIT-JEE Screening 2000]

(c) Force acting   (d) Change in velocity

22. A ball is thrown vertically upwards. Which of the following plots represents the speed-time graph of the ball during its height if the air resistance is not ignored
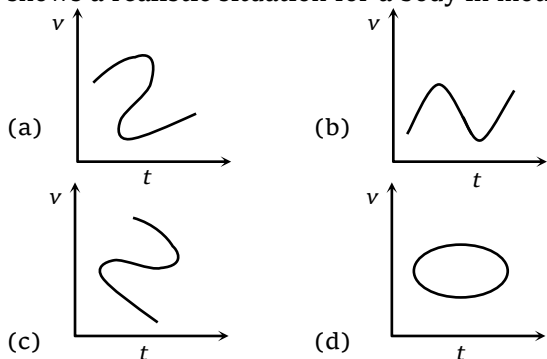

(a) ... (b) ...

(c) ... (d) ...

23. Which graph represents the uniform acceleration

(a) ... (b) ...
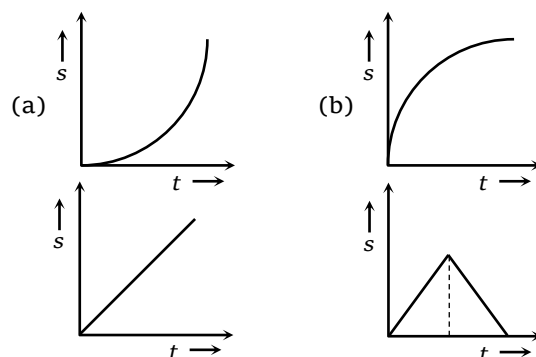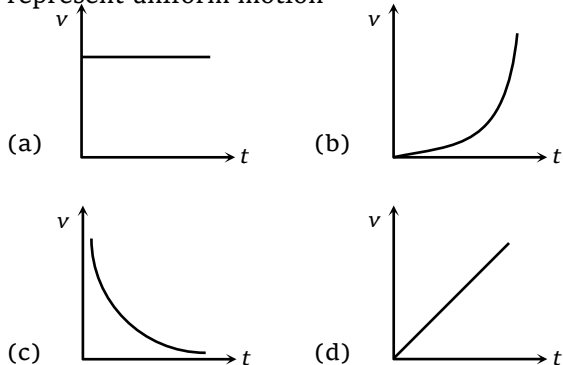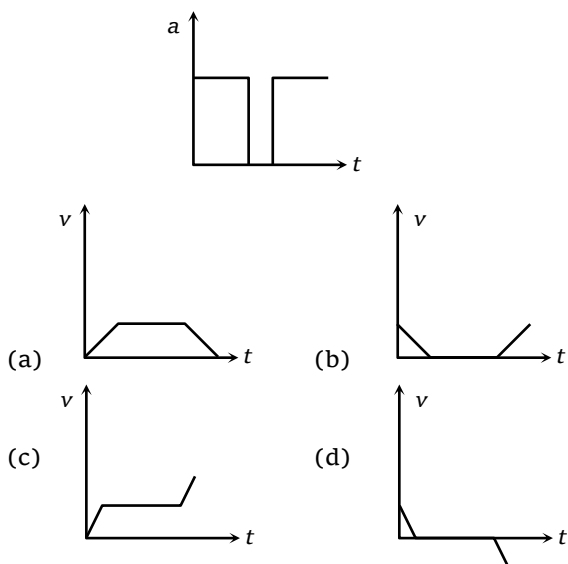
(c)   (d)

24. Which of the following velocity-time graphs shows a realistic situation for a body in motion

(a)

(b)

(c)

(d)

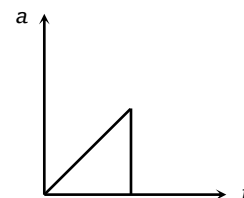**25.** Which of the following velocity-time graphs represent uniform motion

(a)

(b)

(c)

(d)

26. Acceleration-time graph of a body is shown. The corresponding velocity-time graph of the same body is
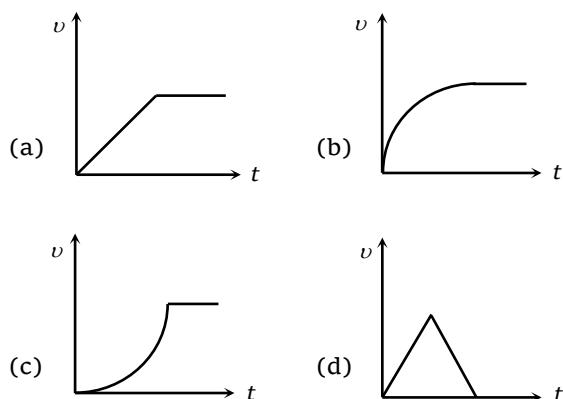
(a)

(b)

(c)

(d)

27. The given graph shows the variation of velocity with displacement. Which one of the graph given below correctly represents the variation of acceleration with displacement

[AIIMS 2004]

(a)

(b)

[Kerala PMT 2004]
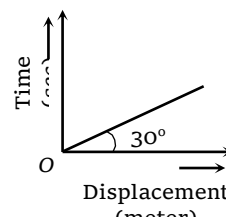
(c)

(d)
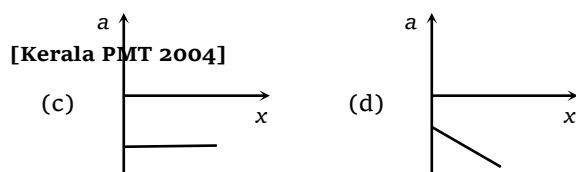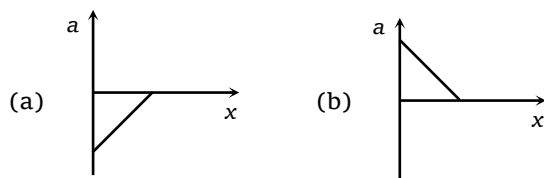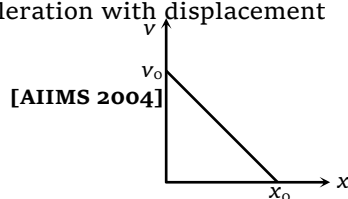
28. The acceleration-time graph of a body is shown below

The most probable velocity-time graph of the body is

(a)

(b)

(c)

(d)

29. From the following displacement-time graph find out the velocity of a moving body

O 30°

Displacement

(a) $\dfrac{1}{\sqrt{3}}$ m/s (b) 3 m/s

(c) $\sqrt{3}$ m/s (d) $\dfrac{1}{3}$

30. The $v-t$ plot of a moving object is shown in the figure. The average velocity of the object during the first 10 seconds is
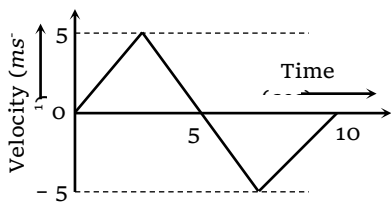
(a) 0   (b) 2.5 ms^{-1}

(c) 5 ms^{-1} (d) 2 ms^{-1}

Answer Key

1	b	2	a	3	d	4	b	5	d
6	c	7	d	8	c	9	a	10	b
11	c	12	b	13	a	14	d	15	d
16	c	17	a	18	a	19	a	20	b
21	d	22	c	23	a	24	b	25	a
26	c	27	a	28	c	29	c	30	a