PhysicsByAaryan

CSIR NET . GATE . JEST . BARC - Physics

Basic Physics - CSIR NET Physics PYQs

General Aptitude . All PYQs (2015-2025) with answer key

87 questions . Answer key included

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Q1. [Dec 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 Dec	2 M

A person walks downhill at $10km/h$, uphill at $6km/h$ and on the plane at $7.5km/h$. If the person takes 3 hours to go from a place A to another place B, and 1 hour on the way back, the distance between A and B is

1. $15km$
2. 23.5 km
3. 16 km
4. Given data is insufficient to calculate distance.

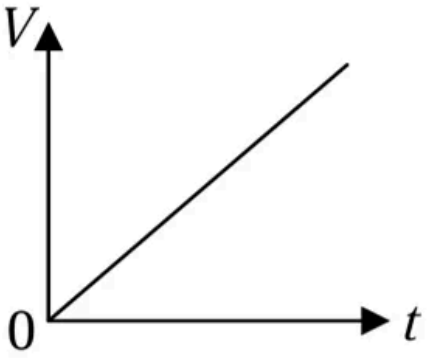
Q2. [Dec 2015] . 2.0 marks

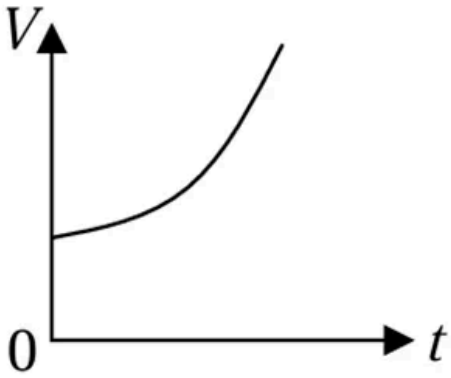
General Aptitude > Basic Physics

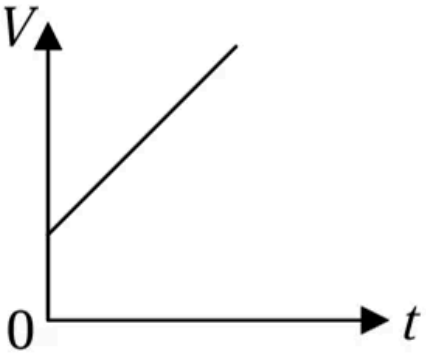
CSIR NET	2015 Dec	2 M

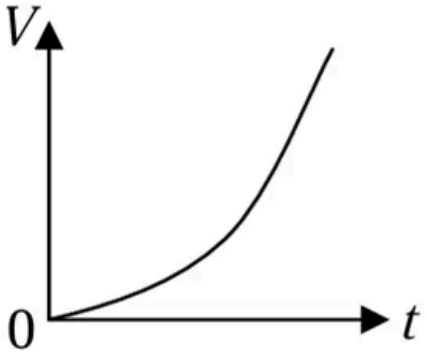
A vessel is partially filled with water. More water is added to it at a rate directly proportional to time

$\left[\text{ i.e., } \frac{dV}{dt} \propto t\right]$. Which of the following graphs depicts correctly the variation of total volume V of water with time t ?

1. 

2. 

3. 

4. 

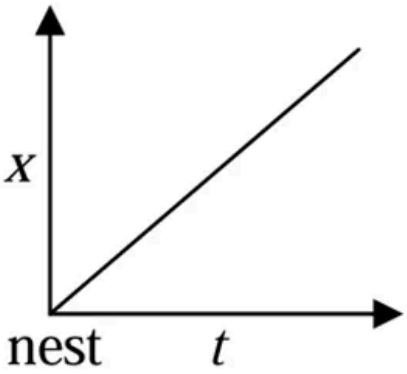
Q3. [Dec 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 Dec	2 M

A bird leaves its nest and flies away. Its distance x from the nest is plotted as a function of time t. Which of the following plots cannot be right?

1.



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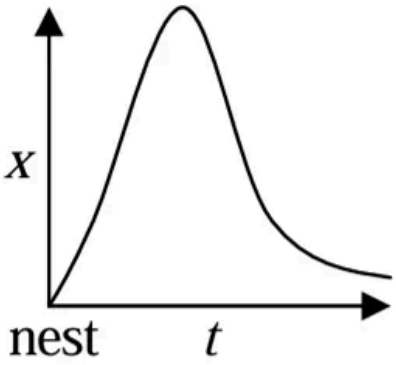

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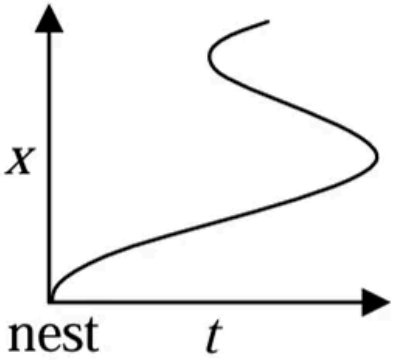

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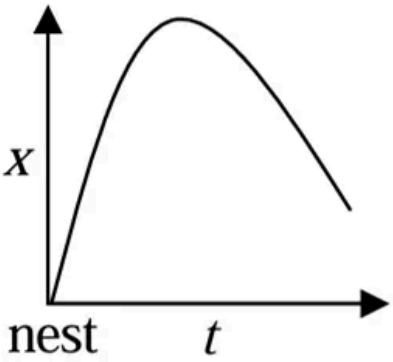


Q4. [Dec 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 Dec	2 M

A car is moving at 60 km/h. The instantaneous velocity of the upper most points of its wheels is

1. 60 km/h forward
2. $120 km/h$ forward
3. 60 km/h backward
4. 120 km/h backward

Q5. [Dec 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 Dec	2 M

A living cell has a protoplasm which is water based and demarcated by a lipid bilayer membrane. If a cell is pierced up to $\frac{1}{5}$ th of its diameter with a very sharp needle, after taking the needle out

1. no effect will be observed.
2. protoplasm will leak out from the hole made by the needle for a few minutes until the cell heals the wound.
3. protoplasm will keep on leaking out till the cell is dead.
4. the cell will burst like a balloon.

Q6. [Dec 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 Dec	2 M

Density of a rice grain is $1.5 g/cc$ and bulk density of rice heap is $0.80 g/cc$. If a 1 litre container is completely filled with rice, what will be the approximate volume of pore space in the container?

1. $350 cc$
2. $465 cc$
3. $550 cc$
4. $665 cc$

Q7. [Dec 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 Dec	2 M

A turtle starts swimming from a point A located on the circumference of a circular pond. After swimming for 4 meters in a straight line it hits point B on the circumference or the pond. From there it changes direction and swims for 3 meters in a straight line and arrives at point D diametrically opposite to point A. How far is point D from A ?

1. $3m$
2. $4m$
3. $7m$
4. $5m$

Q8. [Dec 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 Dec	2 M

A film projector and microscope give equal magnification. But a film projector is not used to see living cells because

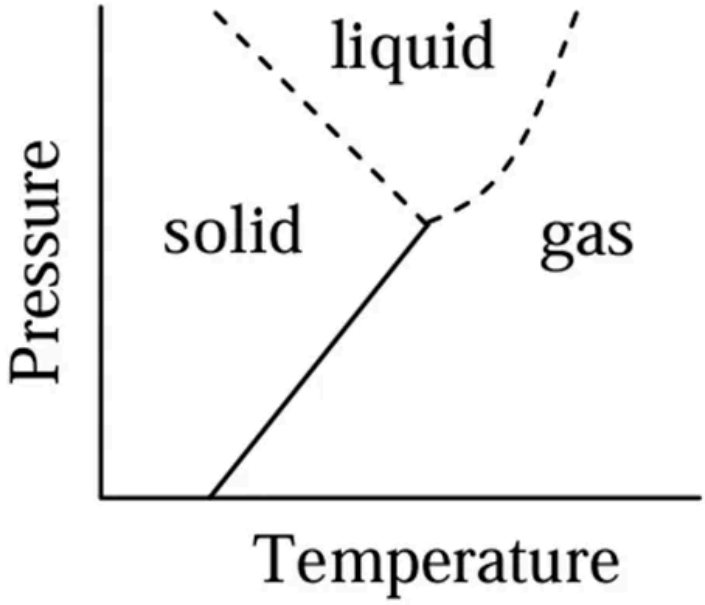
1. a living cell cannot be placed in a film projector.
2. the viewer's eye is close to a microscope whereas it is far away from the projector's screen.
3. a microscope produces a virtual image whereas a projector produces a real image.
4. a microscope has greater resolving power than a projector.

Q9. [June 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 June	2 M

By reading the accompanying graph, determine the INCORRECT statement out of the following.



1. Melting point increases with pressure
2. Melting point decreases with pressure
3. Boiling point increases with pressure
4. Solid. liquid and gas can co-exist at the same pressure and temperature

Q10. [June 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 June	2 M

A man starts his journey at 0100 Hrs local time to reach another country at 0900 Hrs local time on the same date. He starts a return journey on the same night at 2100 Hrs local time to his original place, taking the same time to travel back. If the time zone of his country of visit lags by 10 hours, the duration for which the man was away from his place is

1. 48 hours
2. 20 hours
3. 25 hours
4. 36 hours

Q11. [June 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 June	2 M

A float is drifting in a river, 10 m downstream of a boat that can be rowed at a speed of $10\mathrm{m}/$ minute in still water. If the boat is rowed downstream, the time taken to catch up with the float

1. will be 1 minute
2. will be more than 1 min
3. will be less than 1 min
4. can be determined only if the speed of the river is known

Q12. [June 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 June	2 M

An ant can lift another ant of its size whereas an elephant cannot lift another elephant of its size, because

1. ant muscle fibres are stronger than elephant muscle fibres.
2. ant has proportionately thicker legs than elephant
3. strength scales as the square of the size while weight scales as cube of the size
4. ants work cooperatively, whereas elephants work as individuals

Q13. [June 2015] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2015 June	2 M

In a fast-moving car with open windows, the driver feels a continuous incoming breeze. The pressure inside the car, however, does not keep increasing because,

1. air coming in from the front window goes out from the rear.
2. air comes in as well as goes out through every window but the driver only feels the incoming one.
3. no air actually comes in and the feeling of breeze is an illusion.
4. cool air reduces the temperature therefore the pressure does not increase.

Q14. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

Seeds when soaked in water gain about 20% by weight and 10% by volume. By what factor does the density increase?

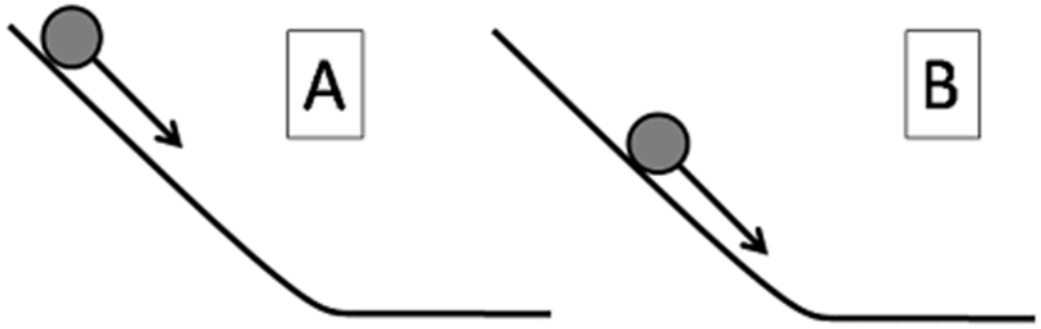
1. 1.20
2. 1.10
3. 1.11
4. 1.09

Q15. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

Retarding frictional force, f, on a moving ball, is proportional to its velocity, V. Two identical balls roll down identical slopes (A & B) from different heights. Compare the retarding forces and the velocities of the balls at the bases of the slopes.



1. $f_A > f_B; V_A > V_B$
2. $f_A > f_B; V_B > V_A$
3. $f_B > f_A; V_B > V_A$
4. $f_B > f_A; V_A > V_B$

Q16. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

Two cockroaches of the same species have the same thickness but different lengths and widths. Their ability to survive in oxygen deficient environments will be compromised if

1. their thickness increases, and the rest of the size remains the same.

2. their thickness remains unchanged, but their length increases.

3. their thickness remains unchanged, but their width decreases.

4. their thickness decreases, but the rest of the size remains unchanged.

Q17. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

Intravenous (IV) fluid has to be administered to a child of 12 kg with dehydration, at a dose of 20 mg of fluid per kg of body weight, in 1 hour. What should be the drip rate (in drops/min) of IV fluid?

(1 mg = 20 drops)

1. 7

2. 80

3. 120

4. 4

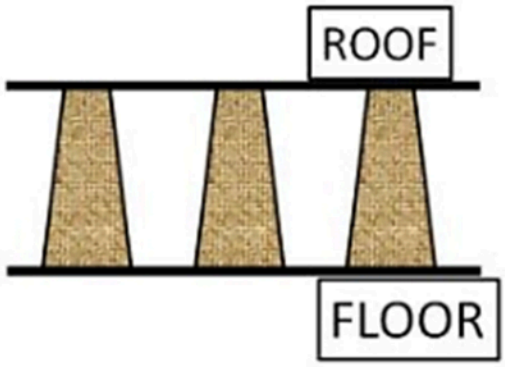
Q18. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

A hall with a high roof is supported by an array of identical columns such that, to a person lying on the floor and looking at the ceiling, the columns appear parallel to each other. Which of the following designs conforms to this?

1.



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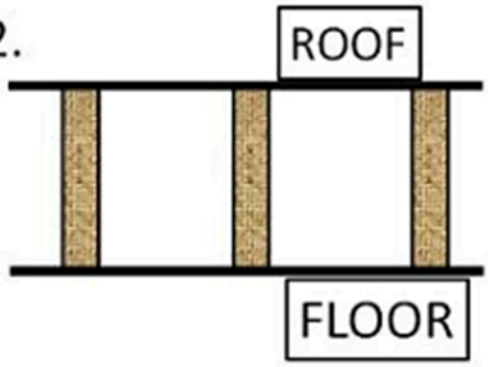

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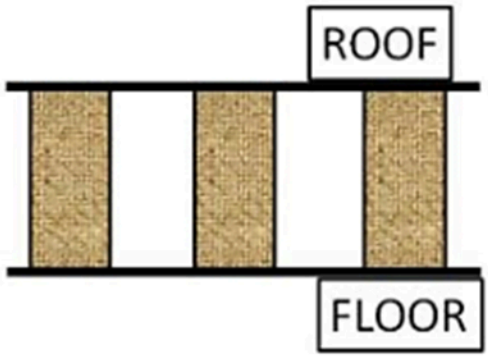

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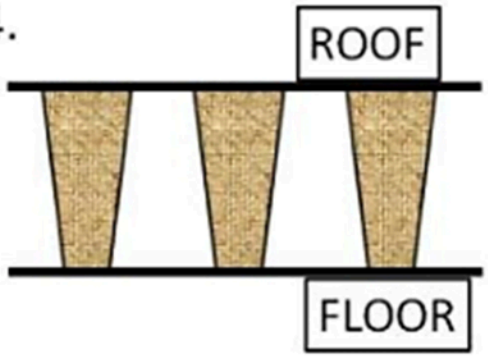
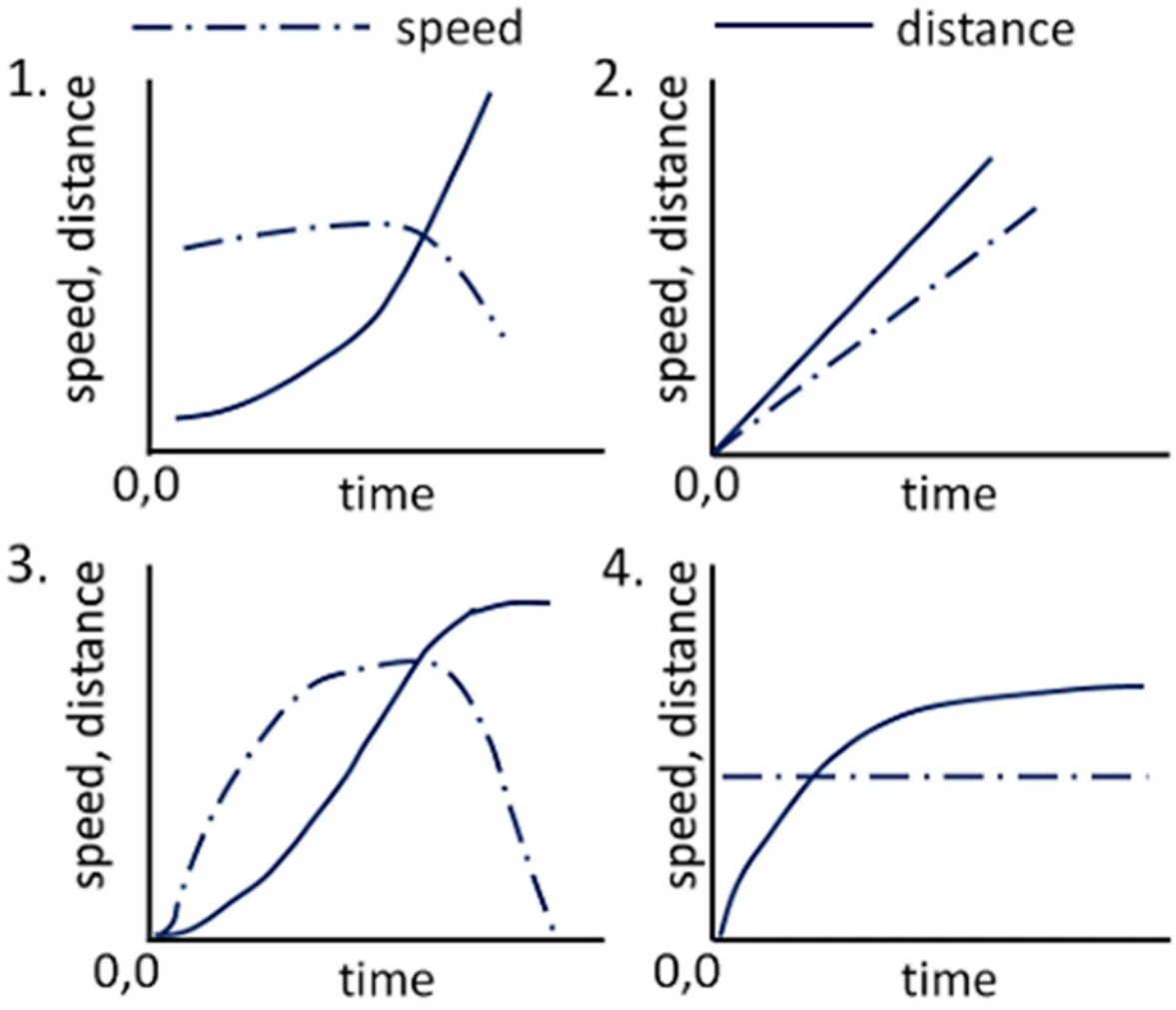


Q19. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

Which of the following graphs correctly shows the speed and the corresponding distance covered by an object moving along a straight line?



Q20. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

Two iron spheres of radii 12 cm and 1 cm are melted and fused. Two new spheres are made without any loss of iron. Their possible radii could be

1. 9 and 4 cm
2. 9 and 10 cm
3. 8 and 5 cm
4. 2 and 11 cm

Q21. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

The distance between X and Y is 1000 km . A person flies from X at 8 AM local time and reaches Y at 10 AM local time. He flies back after a halt of 4 hours at Y and reaches X at 4 PM local time on the same day. What is his average speed for the duration he is in the air?

1. 500 km/hour
2. 250 km/hour
3. 750 km/hour
4. cannot be calculated with the given information

Q22. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

If a person travels $x\%$ faster than normal, he reaches y minutes earlier than normal. What is his normal time of travel?

1. $\left(\frac{100}{x}+1\right) y$ minutes
2. $\left(\frac{x}{100}+1\right) y$ minutes
3. $\left(\frac{y}{100}+1\right) x$ minutes
4. $\left(\frac{100}{y}+1\right) x$ minutes

Q23. [Dec 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 Dec	2M

A and B walk up an escalator one step at a time, while the escalator itself moves up at a constant speed. A walks twice as fast as B. A reaches the top in 40 steps and B in 30 steps. How many steps of the escalator can be seen when it is not moving?

1. 30

2. 40

3. 50

4. 60

Q24. [June 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 June	2M

It takes 5 days for a steamboat to travel from A to B along a river. It takes 7 days to return from B to A . How many days will it take for a raft to drift from A to B (all speeds stay constant)?

1. 13
2. 35
3. 6
4. 12

Q25. [June 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 June	2M

Brothers Santa and Chris walk to school from their house. The former takes 40 minutes while the latter, 30 minutes. One day Santa started 5 minutes earlier than Chris. In how many minutes would Chris overtake Santa?

1. 5
2. 15
3. 20
4. 25

Q26. [June 2016] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2016 June	2M

A solid contains a spherical cavity. The cavity is filled with a liquid and includes a spherical bubble of gas. The radii of cavity and gas bubble are 2 mm and 1 mm , respectively. What proportion of the cavity is filled with liquid?

1. $\frac{1}{8}$
2. $\frac{3}{8}$
3. $\frac{5}{8}$
4. $\frac{7}{8}$

Q27. [Dec 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 Dec	2M

The distance from Nehrunagar to Gandhinagar is $27km$. A and B start walking from Nehrunagar towards Gandhinagar at speeds of $5\,\mathrm{km/hr}$ and $7\,\mathrm{km/hr}$, respectively. B reaches Gandhinagar, returns immediately, and meets A at Indiranagar. What is the distance between Nehrunagar and Indiranagar? (Assume all three cities to be in one straight line)

1. 12.5 km
2. 22.5 km
3. 4.5 km
4. 13.5 km

Q28. [Dec 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 Dec	2M

A leaf appears green in daylight. If this leaf were observed in red light, what colour would it appear to have?

1. Green
2. Black-Brown
3. Red
4. Blue

Q29. [Dec 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 Dec	2M

Approximately how much blood flows per day through a normal human heart beating 70 times per minute, having a relaxed volume of 110 cc and compressed volume of 70 cc ?

1. 7150 litres
2. 4000 litres
3. 28000 litres
4. 11100 litres

Q30. [Dec 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 Dec	2M

The molar fraction of hydrochloric acid in an extremely dilute' aqueous solution is doubled. The pH of the resulting solution is

1. approximately doubled
2. approximately halved
3. Increased
4. reduced

Q31. [Dec 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 Dec	2M

There are two gas parcels of equal volume, A and B at the same temperature and pressure. Parcel A is one mole of water vapour, while parcel B is one mole of dry air. Which of the following is TRUE?

1. Parcel A is heavier than Parcel B
2. Parcel B is heavier than Parcel A
3. Both parcels are equally heavy
4. Without temperature and pressure data, their relative masses cannot be determined

Q32. [Dec 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 Dec	2M

A bird flies along the three sides of a field in the shape of an equilateral triangle at speeds of 2,4,8 km/hr, respectively. The average speed of the bird is

1. $\frac{24}{7}\ km/hr$
2. $\frac{14}{3}\ km/hr$
3. $\frac{22}{7}\ km/hr$
4. 4 km/hr

Q33. [June 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 June	2M

An ant starts at the origin and moves along the y-axis and covers a distance l. This is its first stage in its journey. Every subsequent stage requires the ant to turn right and move a distance which is half of its previous stage. What would be its coordinates at the end of its 5^{th} stage?

1. $\left(\frac{3l}{8}, \frac{13l}{16}\right)$
2. $\left(\frac{13l}{16}, \frac{3l}{8}\right)$
3. $\left(\frac{13l}{8}, \frac{3l}{16}\right)$
4. $\left(\frac{3l}{16}, \frac{13l}{8}\right)$

Q34. [June 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 June	2M

A bread contains 40% (by volume) edible matter and the remaining space is filled with air. If the density of edible matter is $2\ \mathrm{g/cc}$, what will be the bulk density of the bread (in $\mathrm{g/cc}$) ?

1. 0.4
2. 0.8
3. 1.2
4. 1.6

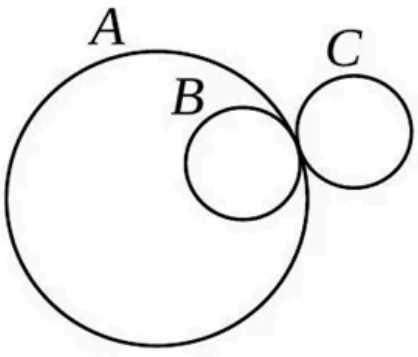
Q35. [June 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 June	2M

Two identical wheels B and C move on the periphery of circle A. Both start at the same point on A and return to it, B moving inside A and C outside it. Which is the correct statement?

1. B wears out π times C
2. C wears out π times B
3. B and C wear out about equally
4. C wears out two times B



Q36. [June 2017] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2017 June	2M

A 100 m long train crosses a bridge 200 m long and 20 m wide bridge in 20 seconds. What is the speed of the train in $\mathrm{km/hr}$?

1. 45
2. 36
3. 54
4. 57.6

Q37. [Dec 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 Dec	2M

The diameters of the pinholes of two otherwise identical cameras A and B are $500\mu m$ and $200\mu m$, respectively. Then the image in camera A will be

1. sharper than in B
2. darker than in B
3. less sharp and brighter than in B
4. sharper and brighter than in B

Q38. [Dec 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 Dec	2M

A circular running track has six lanes, each $1m$ wide. How far ahead (in meters) should the runner in the outermost lane start from, so as to cover the same distance in one lap as the runner in the innermost lane?

1. 6π
2. 10π
3. 12π
4. 36π

Q39. [Dec 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 Dec	2M

A tourist drives 20 km towards east, turns right and drives 6 km , then drives 6 km towards west. He then turns to his left and drives $4km$ and finally turns right and drives $14km$. Where is he from his starting point?

1. 6 km towards east
2. 20 km towards west
3. 14 km towards north
4. 10 km towards south

Q40. [Dec 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 Dec	2M

An ideal pendulum oscillates with angular amplitude of 30^0 from the vertical. If it is observed at a random instant of time, its angular deviation from the vertical is most likely to be

1. 0^0
2. $\pm 10^0$
3. $\pm 20^0$
4. $\pm 30^0$

Q41. [Dec 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 Dec	2M

Two solutions X and Y containing ingredients A, B and C in proportions $a: b: c$ and $c: b: a$, respectively, are mixed. For the resultant mixture to have A, B and C in equal proportion, it is necessary that

1. $b = \frac{c-a}{2}$
2. $c = \frac{a+b}{2}$
3. $c = \frac{a-b}{2}$
4. $b = \frac{c+a}{2}$

Q42. [Dec 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 Dec	2M

The lift (upward force due to air) generated by the wings and engines of an aircraft is

1. positive (upwards) while landing and negative (downwards) while taking off.
2. negative (downwards) while landing and positive (upwards) while taking off.
3. negative (downwards) while landing as well as while taking off.
4. positive (upwards) while landing as well as while taking off.

Q43. [June 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 June	2M

In a $100m$ race A beats B by $10m$. B beats C by $5m$. By how many meters does A beat C ?

1. 15.0 m
2. 5.5 m
3. 10.5 m
4. 14.5 m

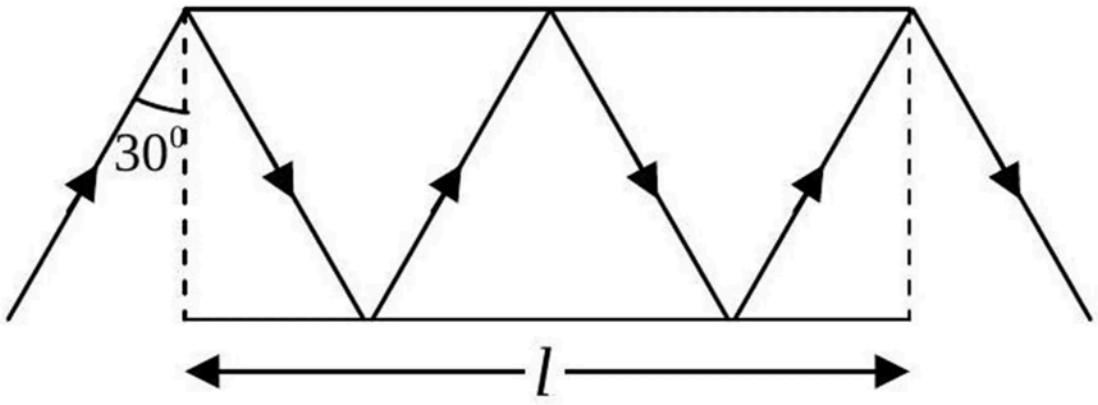
Q44. [June 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 June	2M

Path of a ray of light between two mirrors is shown in the diagram. If the length of each mirror is ' l ', what is the total path length of the ray between the mirrors?

1. $\frac{3}{4}l$
2. $\frac{4}{3}l$
3. $\frac{3}{2}l$
4. $2l$



Q45. [June 2018] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2018 June	2M

How much gold and copper (in g), respectively, are required to make a 120g bar of 22 carat gold?

1. 90 and 30
2. 100 and 20
3. 110 and 10
4. 120 and 0

Q46. [Dec 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 Dec	2M

An ice cube of volume $10\ \mathrm{cm}^3$ is floating over a glass of water of $10\ \mathrm{cm}^2$ cross-section area and $10cm$ height. The level of the water is exactly at the brim of the glass. Given that the density of ice is 10% less than that of water, what will be the situation when ice melts completely?

1. The level falls by 10% of the side of the cube.
2. The level falls by 10% of the original height of the water column
3. The level increases by 10% of the side of the cube and water spills out
4. There is no change in the level of the water.

Q47. [Dec 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 Dec	2M

A cyclist covers a certain distance at a constant speed. If a jogger covers half the distance in double the time as the cyclist, the ratio of the speed of the jogger to that of the cyclist is

1. 1: 4
2. 4: 1
3. 1: 2
4. 2: 1

Q48. [Dec 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 Dec	2M

Karan's house is 20 m to the east of Rahul's house. Mehul's house is 25 m to the North-East of Rahul's house. With respect to Mehul's house in which direction is Karan's house?

1. East
2. South
3. North-East
4. West

Q49. [Dec 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 Dec	2M

A four-wheeled cart is going around a circular track. Which of the following statements is correct, if the four wheels are free to rotate independent of each other and the cart negotiates the track stably?

1. All wheels rotate at the same speed
2. The four wheels have different speeds each
3. The wheels closer to the inside of the track move slower than the outer-side wheels
4. The wheels closer to the inside of the track move faster than the outer-side wheels

Q50. [June 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 June	2M

In a bacterial cell, a protein is synthesized at random location in the cytoplasm. The protein has to reach one pole of the cell for its appropriate function. The protein reaches the pole by

1. chemical attraction
2. random movement
3. enzymatic action
4. attraction between opposite charges

Q51. [June 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 June	2M

Two runners starting together run on a circular path taking 6 and 8 minutes, respectively, to complete one round. How many minutes later do they meet again for the first time on the start line, assuming constant speeds

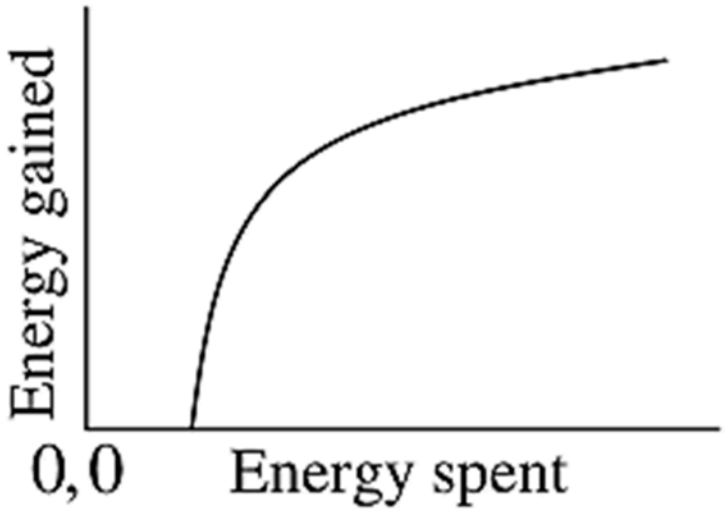
1. 8
2. 24
3. 32
4. 60

Q52. [June 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 June	2M

A monkey climbs a tree to eat fruits. The amount of energy gained from eating fruits and the energy spent in climbing on different branches have a relationship shown in the figure.



The ratio of energy gained to energy spent will be the maximum

1. at a point where the slope of the curve is the maximum
2. at a point where the slope of the curve is unity
3. at a point on the curve where the tangent passes through the origin
4. at the highest point on the curve

Q53. [June 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 June	2M

A long ream of paper of thickness t is rolled tightly. As the roll becomes larger, the length of the paper wrapped in one turn exceeds the length in the previous turn by

1. t
2. $2t$
3. πt
4. $2\pi t$

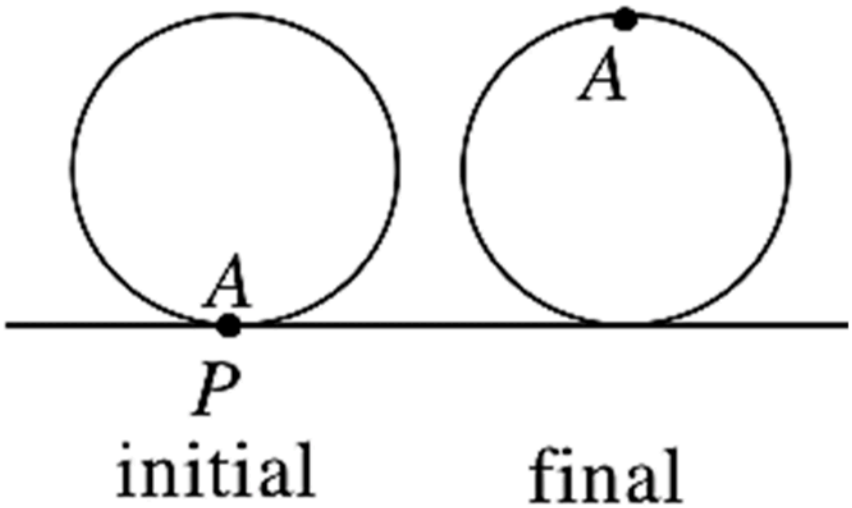
Q54. [June 2019] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2019 June	2M

Point A on a wheel of radius r touches the horizontal plane at point P. It rolls without slipping, till point A is at the highest position in the first turn. What is the final distance AP ?

1. $2r$
2. $r\sqrt{(1+\pi^2)}$
3. $r\sqrt{(4+\pi^2)}$
4. $2r\sqrt{(1+\pi^2)}$



Q55. [June 2020] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2020 June	2M

The maximum tolerable exposure time for noise is given to be about 8 hours at 85 dB and 90 seconds at 110 dB. Assuming linear noise tolerance response of the ear, an increase of 3 dB in noise level in this range would reduce the exposure time by roughly

1. 45 min
2. 60 min
3. 90 min
4. 120 min

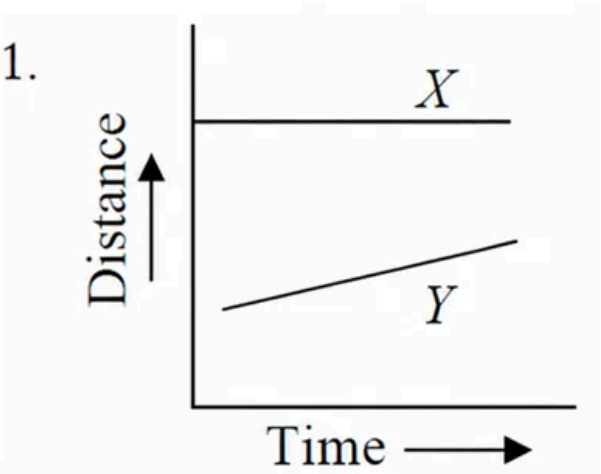
Q56. [June 2020] . 2.0 marks

General Aptitude > Basic Physics

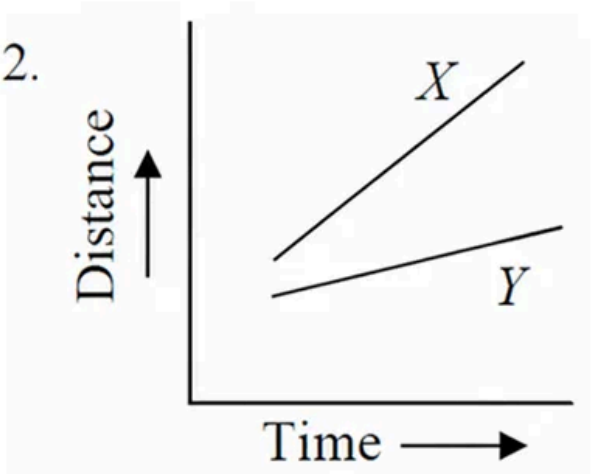
CSIR NET	2020 June	2M

Distance covered by cars, X and Y, with time is given below. Assuming constant acceleration for each car, which of the following graphs shows that X had higher acceleration than Y ?

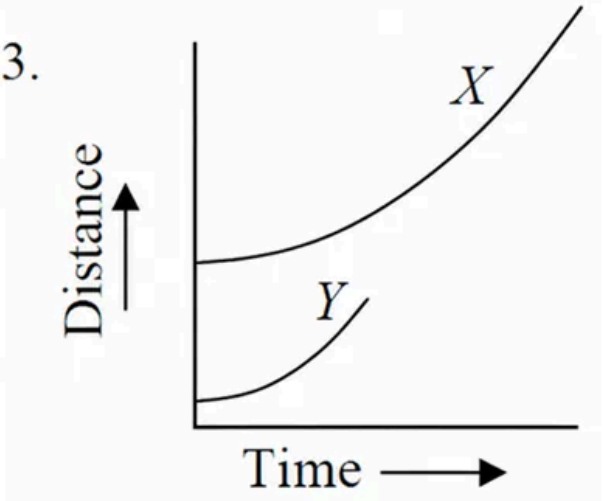
1.



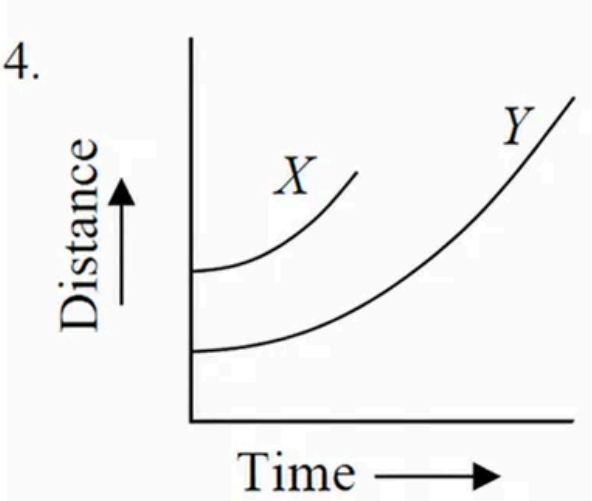
2.



3.



4.



Q57. [June 2020] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2020 June	2M

From an initially full bucket, water is dripping continuously from the bottom. The centre of mass of the bucket with water

1. remains stationary
2. moves upward all the way
3. moves downward all the way
4. moves downward first and then moves up

Q58. [June 2020] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2020 June	2M

Starting from the same point at the same instant of time, three cyclists P, Q and R move on a circular path in the same direction with speeds 18, 27 and $36\ km/h$, respectively. The circumference of the circular path is 5.4 km . After a lapse of how much time would they all meet at the starting point again?

1. 12 min
2. 24 min
3. 36 min
4. 48 min

Q59. [June 2020] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2020 June	2M

In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/h and the time of flight increased by 30 minutes. What was the scheduled duration of the flight?

1. 1 hour
2. 1 hour 30 minutes
3. 2 hours
4. 45 minutes

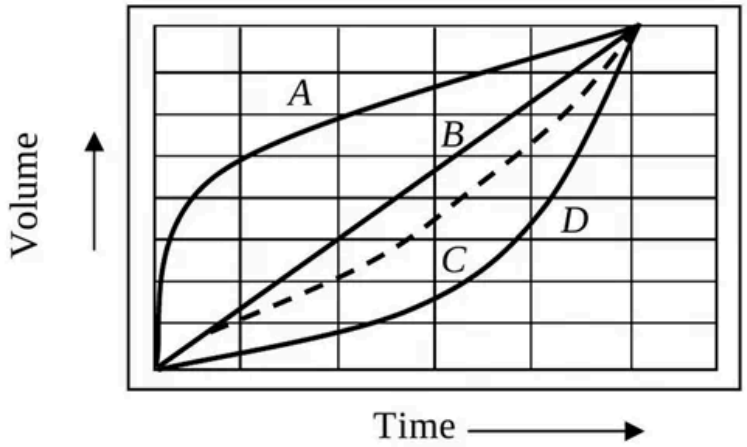
Q60. [June 2021] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2021 June	2M

An inverted cone is filled with water at a constant rate. The volume of water inside the cone as a function of times is represented the curve

1. A
2. B
3. C
4. D



Q61. [June 2021] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2021 June	2M

A spacecraft flies at a constant height R above a planet of radius R. At the instant the spacecraft is over the north-pole, the lowest latitude visible from the spacecraft is:

1. 0° (Equator)
2. 30°N
3. 45°N
4. 60°N

Q62. [June 2021] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2021 June	2M

A and B start from the same point in opposite directions along a circular track simultaneously. Speed of B is $2/3^{rd}$ that of A. How many times will A and B cross each other before meeting at the starting point?

1. 2
2. 3
3. 5
4. 4

Q63. [June 2021] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2021 June	2M

A cylindrical road roller having a diameter of 1.5 m moves at a speed of 3 km/h while levelling a road. How much length of the road will be leveled in 45 minutes?

1. 2.25 km
2. 0.375π km
3. 0.75π km
4. 1.5 km

Q64. [June 2021] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2021 June	2M

An intravenous fluid is given to a child of 7.5 kg, at the rate of 20 drop/minute. The prescribed dose of the fluid is 40 ml per kg of body weight. If the volume of a drop is 0.05 ml, how many hours are needed to complete the dose?

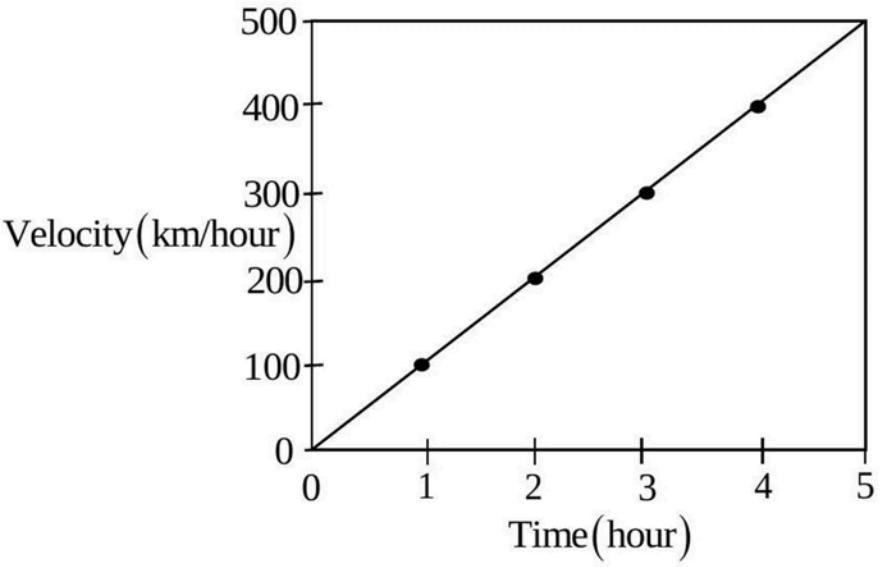
1. 2
2. 3
3. 4
4. 5

Q65. [June 2022] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2022 June	2M

Given plot describes the motion of an object with time.



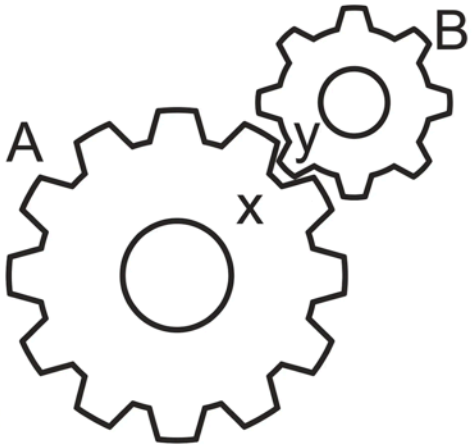
1. The object is moving with a constant velocity.
2. The object covers equal distance every hour.
3. The object is accelerating.
4. Velocity of the object doubles every hour.

Q66. [June 2022] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2022 June	2M

A vehicle has tyres of diameter 1 m connected by a shaft directly to gearwheel A which meshes with gearwheel B as shown in the diagram. A has 12 teeth and B has 8 . If points x on A and y on B are initially in contact, they will again be in contact after the vehicle has travelled a distance (in meters)



1. 2π
2. 3π
3. 4π
4. 12π

Q67. [June 2022] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2022 June	2M

Starting from the top of a page and pointing downward, an ant moves according to the following commands

Start

↓

Repeat actions in curly brackets 3 times

Repeat actions in the box 4 times

Move forward 100 units

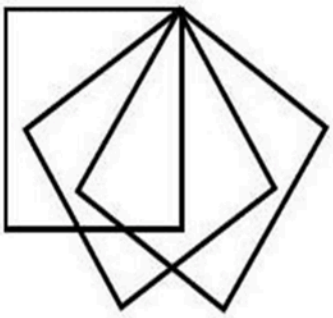
↓

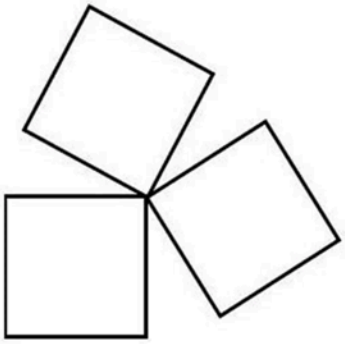
Turn right by 90 degrees

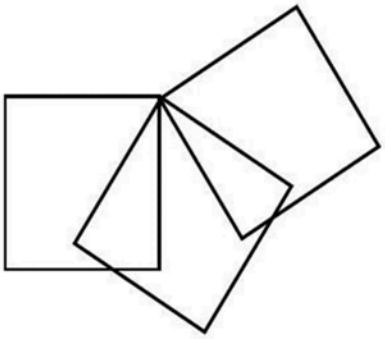
↓

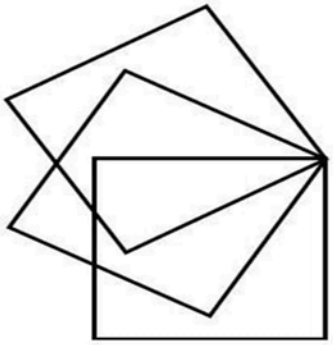
Turn left by 30 degrees

Of the following paths

A 

B 

C 

D 

Which is the correct path of the ant?

1. A
2. B
3. C
4. D

Q68. [Dec 2023] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2023 Dec	2 M

A truck from a post office is sent to collect post from a plane as per schedule. The plane lands ahead of schedule, therefore its contents are transported by a rickshaw. The rickshaw meets the truck 30 minutes after the arrival of plane, and the post is transferred. The truck returns to the post office 20 minutes early. How early did the plane arrive? (Assume all transactions are instantaneous).

1. 10 minutes
2. 20 minutes
3. 30 minutes
4. 40 minutes

Q69. [Dec 2023] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2023 Dec	2 M

The time seen in a mirror placed opposite a numberless analog (with hands) wall clock is 4 h 55 min . What approximately is the correct time?

1. 4 h 55 min
2. 5 h 05 min
3. 7 h 05 min
4. 1 h 35 min

Q70. [Dec 2023] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2023 Dec	2 M

A bird keeps flying continuously between two trains, that are following each other on a straight track. The train behind is slower than the one ahead by $1.5\ \mathrm{km/h}$. If the speed of the bird is $20\ \mathrm{km/h}$, what distance would the bird cover in an hour?

1. 20 km
2. 30 km
3. 50 km
4. 60 km

Q71. [June 2023] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2023 June	2M

At a spot S en-route, the speed of a bus was reduced by 20% resulting in a delay of 45 minutes. Instead, if the speed were reduced at 60 km after S, it would have been delayed by 30 minutes. The original speed, in km/h, was

1. 90
2. 80
3. 70
4. 60

Q72. [June 2023] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2023 June	2M

A 50 litre mixture of paint is made of green, blue, and red colours in the ratio 5: 3: 2. If another 10 litre of red colour is added to the mixture, what will be the new ratio?

1. 5:2:4
2. 4:3:2
3. 2:3:5
4. 5:3:4

Q73. [June 2023] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2023 June	2M

If the sound of its thunder is heard 1 s after a lightning was observed, how far away (in m) was the source of thunder/lightning from the observer (given, speed of sound $= \mathrm{x\ m\ s^{-1}}$, speed of light $= \mathrm{y\ m\ s^{-1}}$)?

1. $\mathrm{x^2/y}$
2. $\mathrm{xy/(y-x)}$
3. $\mathrm{xy/(x-y)}$
4. $\mathrm{y^2/x}$

Q74. [June 2023] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2023 June	2M

Twenty litres of rainwater having a 2.0 μmol/L concentration of sulfate ions is mixed with forty litres water having 4.0 μmol/L sulfate ions. If 50% of the total water evaporated, what would be sulfate concentration in the remaining water

1. 3 μmol/L
2. 3.3 μmol/L
3. 4 μmol/L
4. 6.7 μmol/L

Q75. [Dec 2024] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2024 Dec	2M

Ten litre (L) milk contains 10% water. How much water should be added to increase its proportion to 20% ?

1. 1 L
2. 1.25 L
3. 2 L
4. 2.25 L

Q76. [Dec 2024] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2024 Dec	2M

A lady walks one-tenth of the total distance at 3 km/h, one-sixth she runs at 5 km/h, one-fifth at 6 km/h, and covers the remaining 16 km at 16 km/h by cycle. What is the total distance?

1. 14 km
2. 16 km
3. 24 km
4. 30 km

Q77. [Dec 2024] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2024 Dec	2M

An electric heater uses approximately 1 KWH for increasing temperature of 1 L water by 1°C. If the heating element has a rating of 10 KW , what is the time taken to raise the temperature of 1 L water by 1°C ?

1. 1 hour
2. 15 mins
3. 10 mins
4. 6 mins

Q78. [June 2024] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2024 June	2M

Canals A and B join to form canal C, all having semi-circular cross-sections of radii which are in the ratio $3:4:5$, respectively. Assume smooth merger of A and B, and ignore the possibility of flooding. If the speed s of water is the same and uniform in both A and B then the speed of water flowing in C is

1. s
2. $7s/5$
3. $2s$
4. $5s/7$

Q79. [June 2024] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2024 June	2M

A patient requires administration of 500 ml of an intravenous fluid in 1 hour. What is the approximate drip rate (number of drops per minute) at which the fluid should be administered, if the volume of a drop is 0.05 ml ?

1. 76
2. 152
3. 167
4. 332

Q80. [June 2024] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2024 June	2M

A record player stylus moves along a spiral groove cut on an annular portion of a disc with inner radius 4 cm and outer radius 10 cm . If the record turns 100 times when playing, the stylus travels approximately

1. 2.2 m
2. 4.4 m
3. 22 m
4. 44 m

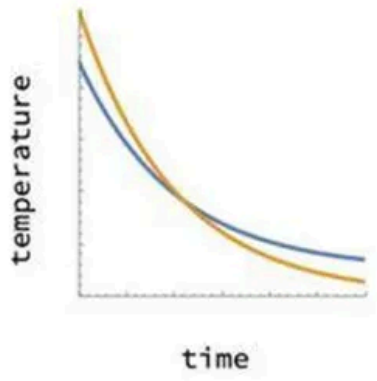
Q81. [Dec 2025] . 2.0 marks

General Aptitude > Basic Physics

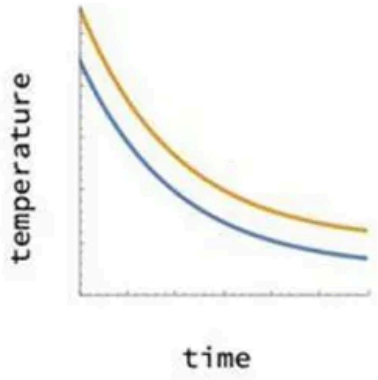
CSIR NET	2025 Dec	2M

Two identical metal bars are heated to different temperatures and allowed to cool in the same surroundings. Which one of the following figures correctly shows their cooling curves?

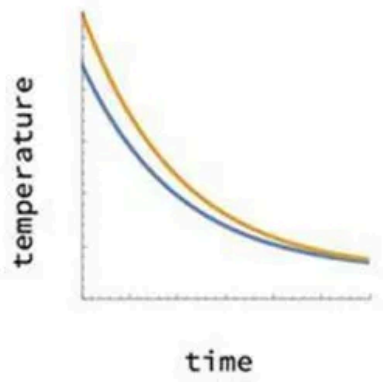
A



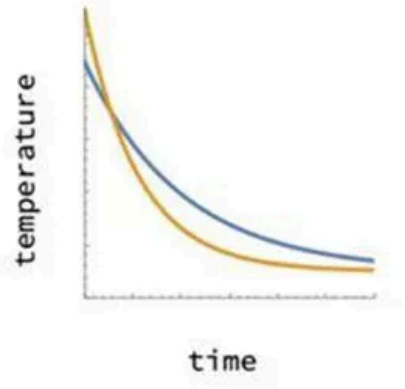
B



C



D



Q82. [Dec 2025] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2025 Dec	2M

The minimum height of a plane vertical mirror that will allow a 6-feet tall person to see himself fully in it

1. depends on the distance between the person and the mirror
2. is 3 feet
3. is 4.5 feet
4. is 6 feet

Q83. [Dec 2025] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2025 Dec	2M

Alloy A is formed by mixing iron (Fe) and nickel (Ni) in the ratio $3:4$, while alloy B is formed by mixing Fe and Ni in the ratio $9:5$. If equal quantities of alloys A and B are melted together to form a new alloy C , what will be the ratio of Fe to Ni in the alloy C ?

1. $4:3$
2. $5:3$
3. $15:13$
4. $13:9$

Q84. [June 2025] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2025 June	2M

A car has wheels of diameter 36 cm . If it runs at a speed of 60 km/h, then the rotation per minute (RPM) will be closest to ___ .

1. 884
2. 898
3. 906
4. 986

Q85. [June 2025] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2025 June	2M

A cylindrical container of radius 20 cm was filled with water up to 25 cm height. A solid spherical ball of radius 7 cm was then immersed in the water. What would be the approximate increase in water level in the container after the ball was fully immersed?

1. 1.14 cm
2. 2.28 cm
3. 5.50 cm
4. 7.00 cm

Q86. [June 2025] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2025 June	2M

Rahul and his father started jogging on a circular track of radius 'r' ($r > 2$). Rahul completed one round and stopped. His father got tired half way into the first round and returned to his starting point along a straight line. What is the ratio of the distances covered by Rahul and his father?

1. $\pi r/(\pi + 2)$
2. $2\pi/(\pi + 2)$
3. 1
4. 2

Q87. [June 2025] . 2.0 marks

General Aptitude > Basic Physics

CSIR NET	2025 June	2M

Kavita starts from her house and walks 200 m northward, then turns 45° right and walks 70 m . After that, she turns 90° right and walks 70 m . Which of the following is the closest value of the shortest distance between Kavita's current location and her house?

1. 296 m
2. 240 m
3. 200 m
4. 223 m

Answer Key

87 questions . Subject and topic for quick revision

Q. No	Subject	Topic	Answer
Q1	General Aptitude	Basic Physics	**1**
Q2	General Aptitude	Basic Physics	**2**
Q3	General Aptitude	Basic Physics	**3**
Q4	General Aptitude	Basic Physics	**2**
Q5	General Aptitude	Basic Physics	**1**
Q6	General Aptitude	Basic Physics	**2**
Q7	General Aptitude	Basic Physics	**4**
Q8	General Aptitude	Basic Physics	**4**
Q9	General Aptitude	Basic Physics	**1**
Q10	General Aptitude	Basic Physics	**1**
Q11	General Aptitude	Basic Physics	**1**
Q12	General Aptitude	Basic Physics	**3**
Q13	General Aptitude	Basic Physics	**2**
Q14	General Aptitude	Basic Physics	**4**
Q15	General Aptitude	Basic Physics	**1**
Q16	General Aptitude	Basic Physics	**1**
Q17	General Aptitude	Basic Physics	**2**
Q18	General Aptitude	Basic Physics	**1**
Q19	General Aptitude	Basic Physics	**3**
Q20	General Aptitude	Basic Physics	**2**
Q21	General Aptitude	Basic Physics	**1**
Q22	General Aptitude	Basic Physics	**1**
Q23	General Aptitude	Basic Physics	**4**
Q24	General Aptitude	Basic Physics	**2**
Q25	General Aptitude	Basic Physics	**2**
Q26	General Aptitude	Basic Physics	**4**
Q27	General Aptitude	Basic Physics	**2**
Q28	General Aptitude	Basic Physics	**2**
Q29	General Aptitude	Basic Physics	**2**
Q30	General Aptitude	Basic Physics	**4**
Q31	General Aptitude	Basic Physics	**2**
Q32	General Aptitude	Basic Physics	**1**
Q33	General Aptitude	Basic Physics	**1**
Q34	General Aptitude	Basic Physics	**2**
Q35	General Aptitude	Basic Physics	**3**
Q36	General Aptitude	Basic Physics	**3**
Q37	General Aptitude	Basic Physics	**3**
Q38	General Aptitude	Basic Physics	**2**
Q39	General Aptitude	Basic Physics	**4**
Q40	General Aptitude	Basic Physics	**4**

Answer Key (cont.)

Q. No	Subject	Topic	Answer
Q41	General Aptitude	Basic Physics	**4**
Q42	General Aptitude	Basic Physics	**4**
Q43	General Aptitude	Basic Physics	**4**
Q44	General Aptitude	Basic Physics	**4**
Q45	General Aptitude	Basic Physics	**3**
Q46	General Aptitude	Basic Physics	**4**
Q47	General Aptitude	Basic Physics	**1**
Q48	General Aptitude	Basic Physics	**2**
Q49	General Aptitude	Basic Physics	**3**
Q50	General Aptitude	Basic Physics	**2**
Q51	General Aptitude	Basic Physics	**2**
Q52	General Aptitude	Basic Physics	**3**
Q53	General Aptitude	Basic Physics	**4**
Q54	General Aptitude	Basic Physics	**3**
Q55	General Aptitude	Basic Physics	**2**
Q56	General Aptitude	Basic Physics	**4**
Q57	General Aptitude	Basic Physics	**4**
Q58	General Aptitude	Basic Physics	**3**
Q59	General Aptitude	Basic Physics	**1**
Q60	General Aptitude	Basic Physics	**2**
Q61	General Aptitude	Basic Physics	**2**
Q62	General Aptitude	Basic Physics	**4**
Q63	General Aptitude	Basic Physics	**1**
Q64	General Aptitude	Basic Physics	**4**
Q65	General Aptitude	Basic Physics	**3**
Q66	General Aptitude	Basic Physics	**1**
Q67	General Aptitude	Basic Physics	**1**
Q68	General Aptitude	Basic Physics	**4**
Q69	General Aptitude	Basic Physics	**3**
Q70	General Aptitude	Basic Physics	**1**
Q71	General Aptitude	Basic Physics	**4**
Q72	General Aptitude	Basic Physics	**4**
Q73	General Aptitude	Basic Physics	**2**
Q74	General Aptitude	Basic Physics	**4**
Q75	General Aptitude	Basic Physics	**2**
Q76	General Aptitude	Basic Physics	**4**
Q77	General Aptitude	Basic Physics	**4**
Q78	General Aptitude	Basic Physics	**1**
Q79	General Aptitude	Basic Physics	**3**
Q80	General Aptitude	Basic Physics	**4**
Q81	General Aptitude	Basic Physics	**3**

Answer Key (cont.)

Q. No	Subject	Topic	Answer
Q82	General Aptitude	Basic Physics	**2**
Q83	General Aptitude	Basic Physics	**3**
Q84	General Aptitude	Basic Physics	**1**
Q85	General Aptitude	Basic Physics	**1**
Q86	General Aptitude	Basic Physics	**2**
Q87	General Aptitude	Basic Physics	**4**

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