Appendix-i

Personal Information

Name of the Student : 

Name of the School : 

Class & Section : 9th Standard _____ Section

Sex : Male/ Female

Parents’ Educational Qualification : Illiterate/ 1st to 5th Standard/ 6th to 10th Standard/ 11th and 12th Standard/ Under Graduate Degree/ Post Graduate Degree

Parents’ Occupation : Government/ Private/ Self-employed/ Agriculture/ Others

Parents’ Income : Below 60,000/ 60,000 to 1,00,000/

Above 1,00,000

Locality : Urban/ Rural

Study habit : Self study/ Group study

Chances for using Internet : Yes/ No

Experience in using Internet : Yes/ No
Appendix-ii

An Achievement test for Advanced Visualization Tools Validation
Science

Class: IX Standard                          Marks: 30

Choose the best answer and mention the option in the given Box.

For Example, (a) 30 X 1 = 30

1. If an object covers unequal distance in equal intervals of time,
   It is said to be _______
   (a) Uniform motion     (b) Motion
   (c) Non uniform motion  (d) Speed

2. Speed of light ____________
   (a) 5.0 m / s    (b) 90 km / h    (c) 1.8 km / h    (d) 3x10^8 m / s

3. Equation for velocity at a time is___________
   (a) v = u + at    (b) v = u – at    (c) -v = u + at    (d) v = 0

4. Equal displacement covered by a body in equal intervals of
time is known as ____________
   (a) Uniform velocity (b) Non-Uniform Velocity
   (c) Displacement     (d) Acceleration

5. The unit of angular velocity is _____________
   (a) radian / second   (b) degree / second
   (c) second            (d) None of these

6. Relative density of a liquid = ______
   (a) m_3 - m_1 / m_1 - m_2   (b) m_1 - m_3 / m_1 - m_2
   (c) m_1 - m_2 / m_2 - m_1   (d) m_2 - m_3 / m_2 - m_1
7. The density of water = __________
   (a) 1 g cm\(^{-3}\)  (b) 2 g cm\(^{-3}\)  (c) 1 g cm\(^{2}\)  (d) 1 g cm\(^{-4}\)

8. Relative density of cork = __________
   (a) \(\frac{m_1-m_2}{m_2-m_1}\)  (b) \(\frac{m_2-m_1}{m_3-m_2}\)
   (c) \(\frac{m_2-m_1}{m_2-m_3}\)  (d) \(\frac{m_1-m_2}{m_1-m_3}\)

9. A Common hydrometer used to test the purity of milk by noting, its specific gravity is called __________
   (a) Hydrometer  (b) Lactometer
   (c) Centimeter  (d) None of these

10. Equation for Displacement is __________
    (a) \(s = ut + at^2\)  (b) \(s = ut + \frac{1}{2}at^2\)
    (c) \(s = ut - \frac{1}{2}at^2\)  (d) \(s = ut - at^2\)

11. Specific gravity of the liquid is ______
    (a) \(\frac{h_1}{h_2}\)  (b) \(\frac{h_1}{h_3}\)  (c) \(\frac{h_2}{h_1}\)  (d) \(\frac{h_3}{h_1}\)

12. In uniform circular motion, the magnitude of the velocity is ______ at all points.
    (a) Zero  (b) Positive  (c) Negative  (d) Constant

13. Angle is measured in __________
    (a) Degree  (b) Meter
    (c) Second  (d) None of these

14. Angular displacement is measured in __________
    (a) Degree  (b) Meter  (c) Second  (d) Radian

15. Linear velocity = __________
    (a) Displacement / Time  (b) Time / Displacement
    (c) Speed / Time  (d) Time / Speed
16. The area under the velocity time graph represents
the _________ the moving object.
   (a) Velocity of  (b) Displacement covered by  (c) Acceleration of  (d) Speed of

17. The most frequently used addiction drug in tobacco is ______
   (a) Nicotine  (b) Iodine  (c) Sodium  (d) Collier

18. Which part of brain is affected due to alcoholism?
   (a) Cerebrum  (b) Cerebellum  (c) Back brain  (d) Spinal

19. When a body rotating along the circular path has unit linear velocity,
   its angular velocity is equal to ______ of the circular path.
   (a) Reciprocal of the radius  (b) The radius  (c) Square of the radius  (d) Square root of the radius

20. The study about fascinating and frustrating is ______
    (a) Addiction  (b) Ethanol  (c) Alcoholism  (d) Genetic

21. Cigarette smoking results in ______ formation.
    (a) Wall  (b) Plaque  (c) Vitamin  (d) Protein

22. Smoking destroys ______ present in the upper respiratory track.
    (a) Cilia  (b) Urotrobin  (c) Metatrobin  (d) Kineno

23. Smoking reduces ______ in both men and women.
    (a) Fertility  (b) Heredity  (c) Hierarchy  (d) Freesias

24. Which one of the following increases the cholesterol in blood?
    (a) Beef  (b) Chicken  (c) Lamb  (d) Idly
25. Bones accelerates the process of ______
   (a) Teprosis  (b) Octovanic  (c) osteoporosis  (d) none

26. The following symbol represents
   ![No smoking symbol]
   (a) No alcohol    (b) No drugs
   (c) No smoking    (d) Avoided drinking

27. Heroin, Opium, Cocaine are some of the drugs called as ______
   (a) Narcotics  (b) Medicine
   (c) Injection  (d) None of these

28. Tobacco smoke contains more than _______ substances which cause cancer.
   (a) 10  (b) 30  (c) 50  (d) 60

29. Women genital hormone is
   (a) Androgen    (b) Estrogen
   (c) Adrenalin   (d) Hypothalamus

30. The term ________ is used to describe a compulsion by an individual to engage in some specify activity.
   (a) Addiction    (b) Psychoactive
   (c) Drug active  (d) None of these
Appendix-iii

Key to the Achievement test for Advanced Visualization Tools

Validation

1. (c) Non uniform motion

2. (d) $3 \times 10^8$ m / s

3. (a) $v = u + at$

4. (a) Uniform velocity

5. (a) radian / second

6. (b) $m_1 - m_3 / m_1 - m_2$

7. (a) $1 \text{ g cm}^{-3}$

8. (c) $m_2 - m_1 / m_2 - m_3$

9. (b) Lactometer

10. (b) $s = ut + \frac{1}{2} at^2$

11. (a) $h_1 / h_2$

12. (d) Constant

13. (a) Degree

14. (d) Radian

15. (a) Displacement / Time

16. (b) Displacement covered by

17. (a) Nicotine

18. (b) Cerebellum

19. (a) Reciprocal of the radius

20. (c) Alcoholism

21. (b) Plaque

22. (a) Cilia
23. (a) Fertility
24. (a) Beef
25. (c) Osteoporosis
26. (c) No smoking
27. (a) Narcotics
28. (d) 60
29. (b) Estrogen
30. (a) Addiction
### Appendix-iv

**MC GUIGAN’S GAIN SCORE RATIO**

Gain Score \(=\) \[
\frac{\text{Post-test score} - \text{Pre-test score}}{\text{Maximum score} - \text{Pre-test score}} \times 100
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Maximum marks = 30
90 % of marks = 27
Total number of Students = 40
90 % of total students = 36
The range of marks obtained by 37 students = 27 to 30
Appendix-v
Achievement test (Preliminary draft)
Science

Class: IX Standard                                                Marks: 70

Choose the best answer and mention the option in the given Box.

For Example, 70 X 1 = 70

1. The shortest distance travelled along a straight line, is known as
   (a) Density   (b) Displacement   (c) Time   (d) Velocity

2. Speed is measured by___________
   (a) ms⁻¹   (b) ms²   (c) s⁻¹   (d) m²s⁻¹

3. A car takes six hours to cover a distance of 300 km, then the speed is _____________
   (a) 50 km / h   (b) 60 km / h
   (c) 65 km / h   (d) 15 km / h

4. If an object covers unequal distance in equal intervals of time, it is said to be _______
   (a) Uniform motion   (b) Motion
   (c) Non uniform motion   (d) Speed

5. Velocity = _________________
   (a) Rate of change   (b) Time / Speed
   (c) Displacement / Time   (d) Distance / Time

6. If the velocity of the body increase with time, the acceleration is _______________
   (a) Negative   (b) Zero   (c) Positive   (d) None of these
7. Speed of light \[\text{___________}\]
   \[\begin{array}{llll}
   (a) & 5.0 \text{ m/s} & (b) & 90 \text{ km/h} \\
   (c) & 1.8 \text{ km/h} & (d) & 3 \times 10^8 \text{ m/s}
   \end{array}\]

8. Acceleration, \[a = \text{___________}\]
   \[\begin{array}{llll}
   (a) & \frac{u-v}{t} & (b) & u-v \\
   (c) & (v-u)/t & (d) & v-u
   \end{array}\]

9. Speed of sound, \[t = \text{___________}\]
   \[\begin{array}{llll}
   (a) & 340 \text{ m/s} & (b) & 34.0 \text{ m/s} \\
   (c) & 32.4 \text{ m/s} & (d) & 324 \text{ m/s}
   \end{array}\]

10. Equation for velocity at a time is \[\text{___________}\]
    \[\begin{array}{llll}
    (a) & v = u + at & (b) & v = u - at \\
    (c) & -v = u + at & (d) & v = 0
    \end{array}\]

11. The velocity of the body gradually decreases and becomes \[\text{___________}\] at a maximum height.
    \[\begin{array}{llll}
    (a) & \text{Zero} & (b) & \text{Positive} \\
    (c) & \text{Negative} & (d) & \text{None of these}
    \end{array}\]

12. Equal displacement covered by a body in equal intervals of time is known as \[\text{___________}\]
    \[\begin{array}{llll}
    (a) & \text{Uniform velocity} & (b) & \text{Non-Uniform Velocity} \\
    (c) & \text{Displacement} & (d) & \text{Acceleration}
    \end{array}\]

13. The average value of ‘g’ is \[\text{___________}\]
    \[\begin{array}{llll}
    (a) & 9.0 \text{ m/s}^2 & (b) & 9.8 \text{ m/s}^2 \\
    (c) & 9 \text{ m/s}^2 & (d) & 9.8 \text{ m/s}^2
    \end{array}\]

14. Movement of a car in a crowded street is \[\text{___________}\] motion.
    \[\begin{array}{llll}
    (a) & \text{Uniform} & (b) & \text{Non-Uniform} \\
    (c) & \text{Accelerated} & (d) & \text{Decelerated}
    \end{array}\]

15. Angular velocity \[W = \text{___________}\]
    \[\begin{array}{llll}
    (a) & \Theta & (b) & \Theta/t \\
    (c) & \Theta \ t & (d) & \Theta/t
    \end{array}\]

16. The unit of angular velocity is \[\text{___________}\]
    \[\begin{array}{llll}
    (a) & \text{Radian / second} & (b) & \text{Degree / second} \\
    (c) & \text{Second} & (d) & \text{None of these}
    \end{array}\]
17. Centripetal force, \( F = \)__________
   
   (a) \( mrw^2 \)  (b) \( mr / w^2 \)  (c) \( mv^2 / t \)  (d) \(-mrw^2\)  

18. When a car takes a turn on the road, the frictional force between the tires and the road provides the__________
   
   (a) Centrifugal force  (b) Acceleration  (c) Centripetal force  (d) Motion  

19. Density \( = \)__________
   
   (a) Volume / Mass  (b) Volume x Mass  (c) Mass / Volume  (d) None of these  

20. Relative density of a liquid =______
   
   (a) \( m_3-m_1 / m_1-m_2 \)  (b) \( m_1-m_3 / m_1-m_2 \)  
   (c) \( m_1-m_2 / m_2-m_1 \)  (d) \( m_2-m_3 / m_2-m_1 \)  

21. The density of water =__________
   
   (a) 1 g cm\(^{-3}\)  (b) 2 g cm\(^{-3}\)  (c) 1 g cm\(^{-2}\)  (d) 1 g cm\(^{-4}\)  

22. Relative density of cork =__________
   
   (a) \( m_1-m_2 / m_2-m_1 \)  (b) \( m_2-m_1 / m_3-m_2 \)  
   (c) \( m_2-m_1 / m_2-m_3 \)  (d) \( m_1-m_2 / m_1-m_3 \)  

23. Unit of density is__________
   
   (a) kg m\(^{-3}\)  (b) kg m\(^{-3}\)  (c) kg m\(^{2}\)  (d) kg m\(^{2}\)  

24. The density of mercury is__________
   
   (a) 2600 kg m\(^{-3}\)  (b) 1360 kg m\(^{-3}\)  
   (c) 136 kg m\(^{-3}\)  (d) 13600 kg m\(^{-3}\)  

XIII
25. A Common hydrometer used to test the purity of milk by noting, its specific gravity is called ____________
   (a) Hydrometer (b) Lactometer (c) Centimeter (d) None of these

26. Equation for Displacement is ____________
   (a) \( s = ut+at^2 \) (b) \( s = ut+1/2 at^2 \) (c) \( s = ut-1/2 at^2 \) (d) \( s = ut-at^2 \)

27. Oscillation of pendulum of a wall clock is _____ motion movement.
   (a) Uniform (b) Non-Uniform (c) Accelerated (d) Decelerated

28. Specific gravity of the liquid is__________
   (b) \( h_1 / h_2 \) (b) \( h_1 / h_3 \) (c) \( h_2 / h_1 \) (d) \( h_3 / h_1 \)

29. The upward force exerted on a body by a liquid is known as_____
   (a) Upthrust (b) Pressure (c) Mass (d) Weight

30. In uniform circular motion, the magnitude of the velocity is ________ at all points.
   (a) Zero (b) Positive (c) Negative (d) Constant

31. The velocity of a car changes from 10 m/s to 50 m/s in 10 seconds.
    What will be its acceleration?
    (a) 2 m / s^2 (b) 50 m / s^2 (c) 4 m / s^2 (d) 6 m / s^2

32. Displacement = ____________
    (a) Velocity x Time (b) Velocity x Mass (c) Mass x Time (d) None of these
33. The movement of an object in a circular path is called ____________
   (a) Circular motion      (b) Uniform motion
   (c) Accelerated motion   (d) Non-Uniform motion

34. Angle is measured in ____________
   (a) Degree       (b) Meter     (c) Second    (d) None of these

35. Angular displacement is measured in ____________
   (a) Degree       (b) Meter     (c) Second    (d) Radian

36. In a 100 m race, the winner takes 10s to reach the finishing point.
    the average speed of the winner is ________________
    (a) 5 m / s     (b) 10 m / s  (c) 20 m / s    (d) 40 m / s

37. The following figure shows.
   (a) Uniformly accelerated motion
    (b) Non-uniformly accelerated motion
    (c) Un-accelerated motion
    (d) None of these

38. The following figure depicts the rolling ball stages. The ball
    follows ________ kind of motion.
    (a) Circular Motion     (b) Uniform Motion
    (c) Non–Uniform Motion  (d) None of these
39. The part which mentioned in the following common hydrometer is __________

(a) Stem  (b) Tube  (c) Bulb with mercury  (d) Water

40. Consider the motion of an ant along a straight line path. The ant starts its journey from ‘O’. Let ‘A’ and ‘C’ represent the position of the ant at different instances. At first, the ant moves through C and reaches A. Then it moves back along the same path and reaches C. The distance and displacement travelled by the ant is _______ & _______

(a) 15 cm, 10 cm  (b) 10 cm, 15 cm
(c) 5 cm, 10 cm  (d) 15 cm, 5cm

41. Linear velocity = ___________

(a) Displacement / Time  (b) Time / Displacement
(c) Speed / Time  (d) Time / Speed

42. The area under the velocity time graph represents the ______ the moving object.

(a) Velocity of  (b) Displacement covered by
(c) Acceleration of  (d) Speed of

43. Draw a semicircle of radius 10cm. Measure the path ABC(distance) and AOC(displacement). You can observe that distance_____________ and displacement ______

(a) 1.4 cm, 20 cm  (b) 3.14 cm, 20 cm
(c) 314 cm, 200 cm  (d) 30 cm, 20 cm
Every year, there are about_________ deaths because of liver cirrhosis.
(a) 25000  (b) 26000  (c) 27000  (d) 2700

The most frequently used addiction drug in tobacco is _____
(a) Nicotine  (b) Iodine  (c) Sodium  (d) Collier

For all heart disease _____ is the main reason.
(a) Swimming  (b) Drinking  (c) Walking  (d) Smoking

Smoking cause damages to the male _____
(a) Digestive system  (b) Blood system
(c) Nerves system  (d) Reproductive system

Which part of brain is affected due to alcoholism?
(a) Cerebrum  (b) Cerebellum
(c) Back brain  (d) Spinal

When a body rotating along the circular path has unit linear velocity,
its angular velocity is equal to_________ of the circular path.
(a) Reciprocal of the radius  (b) The radius
(c) Square of the radius  (d) Square root of the radius

The medicine helps in the recovery from alcoholism is _____
(a) Lodaz  (b) Resfyl
(c) Olsartan  (d) Benzodiazepines

90% of lung cancer occurs due to ______
(a) Alcoholism  (b) Accident  (c) Smoking  (d) Dust

The study about fascinating and frustrating is__________
(a) Addiction  (b) Ethanol  (c) Alcoholism  (d) Genetic

Which is able to regenerate its own cells?
(a) Kidney  (b) Lungs
(c) Heart  (d) Liver
54. Cigarette smoking results in _______ formation.
   (a) Wall     (b) Plaque    (c) Vitamin     (d) Protein

55. Smoking contains a toxic substances like ____________
   (a) Arsanic    (b) Nicotine    (c) Iodine    (d) Potassium

56. Smoking destroys ______ present in the upper respiratory track.
   (a) Cilia    (b) Urotrobin
   (c) Metatrobin    (d) Kineno

57. When does the bone become thin and easy to fracture?
   (a) Osteoporosis    (b) Stegnogrophsis
   (c) Ancestrosis    (d) Ostophensis

58. Which one of the following is a drug?
   (a) Aspirin    (b) Urotrobin
   (c) Heroine    (d) Claynes

59. Smoking reduces ______ in both men and women
   (a) Fertility    (b) Heredity    (c) Hierarchy    (d) Freesias

60. Eating fish twice a week helps to prevent blood clot formation in arteries as it contains ____________
   (a) Omega – 3 fatty acids    (b) Citric Acid
   (c) Carbonic Acid    (d) None of these

61. Which one of the following increases the cholestrol in blood?
   (a) Beef    (b) Chicken    (c) Lamb    (d) Idly

62. Bones accelerates the process of ______
   (a) Teprosis    (b) Octovanic    (c) Osteoporosis    (d) none
63. What does the following figure means?

(a) Drug addicted person meet death very soon
(b) Alcohol addicted person meet death very soon
(c) Smoke addicted person meet death very soon
(d) None of these

64. The following symbol represents

(a) No alcohol  (b) No drugs
(c) No smoking  (d) Avoided drinking

65. Following figure depicts

(a) Health disorder cycle  (b) Mental disorder cycle
(c) Addiction cycle  (d) Healthy lifestyle cycle

66. Heroin, Opium, Cocaine are some of the drugs called as ______.

(a) Narcotics  (b) Medicine
(c) Injection  (d) None of these
67. The following figure is____________

(a) Liver cirrhosis   (b) Lungs Cancer
(c) Heart attack     (d) None of these

68. Tobacco smoke contains more than ________ substances which cause cancer.

   (a) 10   (b) 30   (c) 50   (d) 60

69. The following symbol represents

(a) Smoking   (b) Alcoholism
(c) Drug      (d) None of these

70. The term ________ is used to describe a compulsion by an individual to engage in some specify activity.

   (b) Addiction   (b) Psychoactive   (c) Drug active   (d) None of these
Appendix-vi

Achievement test (Preliminary draft) key

1. (b) Displacement
2. (a) ms$^{-1}$
3. (a) 50 km / h
4. (c) Non uniform motion
5. (c) Displacement / Time
6. (c) Positive
7. (d) $3 \times 10^8$ m / s
8. (c) $(v - u) / t$
9. (a) 340 m / s
10. (a) $V = u + at$
11. (a) Zero
12. (a) Uniform velocity
13. (d) 9.8 m / s$^2$
14. (b) Non-Uniform
15. (b) Θ/t
16. (a) radian / second
17. (a) mrw$^2$
18. (c) Centripetal force
19. (c) Mass / Volume
20. (b) $m_1 - m_3 / m_1 - m_2$
21. (a) 1 g cm$^{-3}$
22. (c) $m_2 - m_1 / m_2 - m_3$
23. (a) Kg m$^{-3}$
24. (d) 13600 kg m$^{-3}$
25. (b) Lactometer
26. (b) $s = ut + \frac{1}{2} at^2$
27. (a) Uniform
28. (a) $h_1 / h_2$
29. (a) Upthrust
30. (d) Constant
31. (c) $4m / s^2$
32. (a) Velocity $\times$ Time
33. (a) Circular motion
34. (a) Degree
35. (d) Radian
36. (b) 10 m / s
37. (b) Non-uniformly accelerated motion
38. (c) Non–Uniform Motion
39. (c) Bulb with mercury
40. (d) 15 cm, 5cm
41. (a) Displacement / Time
42. (b) Displacement covered by
43. (b) 3.14 cm, 20 cm
44. (c) 27000
45. (a) Nicotine
46. (d) Smoking
47. (d) Reproductive system
48. (b) Cerebellum
49. (a) Reciprocal of the radius
50. (d) Benzodiazepines
51. (c) Smoking
52. (c) Alcoholism
53. (d) Liver
54. (b) Plaque
55. (b) Nicotine
56. (a) Cilia
57. (a) Osteoporosis
58. (c) Heroine
59. (a) Fertility
60. (a) Omega – 3 fatty acids
61. (a) Beef
62. (c) Osteoporosis
63. (a) Drug addicted person meet death very soon
64. (c) No smoking
65. (c) Addiction cycle
66. (a) Narcotics
67. (a) Liver cirrhosis
68. (d) 60
69. (b) Alcoholism
70. (a) Addiction
**Appendix-vii**

**Difficulty Value and Discriminative Index of Preliminary Draft of Achievement Test in Science (ATS)**

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Items</th>
<th>Difficulty Value</th>
<th>Discriminative Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The shortest distance travelled along a straight line, is known as</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Density              (b) Displacement       (c) Time       (d) Velocity</td>
<td>50.82*</td>
<td>0.32</td>
</tr>
</tbody>
</table>
| 2        | Speed is measured by___________  
|          | (a) ms\(^{-1}\)            (b) ms\(^{-2}\)         (c) s\(^{-1}\)    (d) m\(^{2}\)s\(^{-1}\) | 73.52*           | 0.36                 |
| 3        | A car takes six hours to cover a distance of 300 km, then the speed is 
|          | (a) 50 km / h             (b) 60 km / h          (c) 65 km / h      (d) 15 km / h | 58.52*           | 0.38                 |
| 4        | If an object covers unequal distance in equal intervals of time, It is said to be 
|          | (a) Uniform motion       (b) Motion           (c) Non uniform motion  (d) Speed | 58.92            | 0.12                 |
| 5        | Velocity = ____________ 
|          | (a) Rate of change      (b) Time / Speed    (c) Displacement / Time  (d) Distance / Time | 56.28*           | 0.31                 |
| 6        | If the velocity of the body increase with time, the acceleration is 
|          | (a) Negative           (b) Zero            (c) Positive           | 64.70*           | 0.34                 |
| 7        | Speed of light__________  
|          | (a) 5.0 m / s            (b) 90 km / h       (c) 1.8 km / h      (d) 3x10\(^{8}\) m / s | 12.71            | 0.29                 |
| 8        | Acceleration,  a = ____________  
|          | (a) u – v / t              (b) u – v            (c) (v – u) / t   (d) v - u | 58.82*           | 0.35                 |
| 9        | Speed of sound, t = ____________  
|          | (a) 340 m / s             (b) 34.0 m / s      (c) 32.4 m / s     (d) 324 m / s | 55.88*           | 0.31                 |
| 10       | Equation for velocity at a time is ____________  
|          | (a) v = u + at           (b) v = u – at       (c) -v = u + at    (d) v = 0 | 52.94*           | 0.26                 |
| 11       | The velocity of the body gradually decreases and becomes ____________ at a maximum height. 
<p>|          | (a) Zero                (b) Positive            (c) Negative           | 79.41*           | 0.30                 |</p>
<table>
<thead>
<tr>
<th>Question Number</th>
<th>Question</th>
<th>Options</th>
<th>Correct Option</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Equal displacement covered by a body in equal intervals of time is known as ____________</td>
<td>(a) Uniform velocity (b) Non-Uniform Velocity (c) Displacement (d) Acceleration</td>
<td>(a)</td>
<td>52.94</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.18</td>
</tr>
<tr>
<td>13</td>
<td>The average value of ‘g’ is</td>
<td>(a) 9.0 m / s² (b) 9.8 m / s⁴ (c) 9 m / s² (d) 9.8 m / s²</td>
<td>(d)</td>
<td>58.82*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.26</td>
</tr>
<tr>
<td>14</td>
<td>Movement of a car in a crowded street is _____ motion.</td>
<td>(a) Uniform (b) Non-Uniform (c) Accelerated (d) Decelerated</td>
<td>(c)</td>
<td>79.41*</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.35</td>
</tr>
<tr>
<td>15</td>
<td>Angular velocity  ( W = ) ___________</td>
<td>(a) ( \Theta ) (b) ( \Theta /t ) (c) ( \Theta t ) (d) ( t / \Theta )</td>
<td>(d)</td>
<td>55.88*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.29</td>
</tr>
<tr>
<td>16</td>
<td>The unit of angular velocity is ______________</td>
<td>(a) radian / second (b) degree / second (c) second (d) None of these</td>
<td>(b)</td>
<td>61.76*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.34</td>
</tr>
<tr>
<td>17</td>
<td>Centripetal force,  ( F = ) ____________</td>
<td>(a) ( mrw^2 ) (b) ( mr / w^2 ) (c) ( mv^2 / t ) (d) -mrw²</td>
<td>(c)</td>
<td>88.82*</td>
</tr>
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<td></td>
<td>0.26</td>
</tr>
<tr>
<td>18</td>
<td>When a car takes a turn on the road, the frictional force between the tires and the road provides the __________.</td>
<td>(a) Centrifugal force (b) Acceleration (c) Centripetal force (d) Motion</td>
<td>(c)</td>
<td>67.76*</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>0.29</td>
</tr>
<tr>
<td>19</td>
<td>Density  ( = ) ____________</td>
<td>(a) Volume / Mass (b) Volume x Mass (c) Mass / Volume (d) None of these</td>
<td>(b)</td>
<td>52.94*</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>0.28</td>
</tr>
<tr>
<td>20</td>
<td>Relative density of a liquid = __________</td>
<td>(a) ( m_3 - m_1 / m_1 - m_2 ) (b) ( m_1 - m_3 / m_1 - m_2 ) (c) ( m_1 - m_2 / m_2 - m_1 ) (d) ( m_2 - m_3 / m_2 - m_1 )</td>
<td>(b)</td>
<td>52.94*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.28</td>
</tr>
<tr>
<td>21</td>
<td>The density of water = ____________</td>
<td>(a) 1 g cm⁻³ (b) 2 g cm⁻³ (c) 1 g cm² (d) 1 g cm⁻⁴</td>
<td>(b)</td>
<td>23.52</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.29</td>
</tr>
<tr>
<td>22</td>
<td>Relative density of cork = __________</td>
<td>(a) ( m_1 - m_2 / m_2 - m_1 ) (b) ( m_2 - m_1 / m_3 - m_2 ) (c) ( m_2 - m_1 / m_3 - m_2 ) (d) ( m_1 - m_2 / m_1 - m_3 )</td>
<td>(d)</td>
<td>41.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.16</td>
</tr>
<tr>
<td>23</td>
<td>Unit of density is ___________</td>
<td>(a) kg m⁻³ (b) kg m⁻³ (c) kg m² (d) kg m²</td>
<td>(a)</td>
<td>70.58*</td>
</tr>
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<td></td>
<td></td>
<td>0.26</td>
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<td>Question Number</td>
<td>Question</td>
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<td>Score</td>
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<td>-------------------------------------------------------------------------</td>
<td>----------------</td>
<td>-------</td>
</tr>
<tr>
<td>24</td>
<td>The density of mercury is _________</td>
<td>(a) 2600 kg m⁻³ (b) 1360 kg m⁻³ (c) 136 kg m⁻³ (d) 13600 kg m⁻³</td>
<td>(b)</td>
<td>58.82*</td>
</tr>
<tr>
<td>25</td>
<td>A Common hydrometer used to test the purity of milk by noting, its specific gravity is called ____________</td>
<td>(a) Hydrometer (b) Lactometer (c) Centimeter (d) None of these</td>
<td>(b)</td>
<td>67.44*</td>
</tr>
<tr>
<td>26</td>
<td>Equation for Displacement is ____________</td>
<td>(a) s = ut+at² (b) s = ut+1/2 at² (c) s = ut-1/2 at² (d) s = ut-at²</td>
<td>(d)</td>
<td>58.12</td>
</tr>
<tr>
<td>27</td>
<td>Oscillation of pendulum of a wall clock is ____ motion movement.</td>
<td>(a) Uniform (b) Non-Uniform (c) Accelerated (d) Decelerated</td>
<td>(b)</td>
<td>67.76*</td>
</tr>
<tr>
<td>28</td>
<td>Specific gravity of the liquid is_________</td>
<td>(a) h₁ / h₂ (b) h₁ / h₃ (c) h₂ / h₁ (d) h₃ / h₁</td>
<td>(b)</td>
<td>52.94</td>
</tr>
<tr>
<td>29</td>
<td>The upward force exerted on a body by a liquid is known as____</td>
<td>(a) Upthrust (b) Pressure (c) Mass (d) Weight</td>
<td>(a)</td>
<td>73.52*</td>
</tr>
<tr>
<td>30</td>
<td>In uniform circular motion, the magnitude of the velocity is ________ at all points.</td>
<td>(a) Zero (b) Positive (c) Negative (d) Constant</td>
<td>(a)</td>
<td>56.14</td>
</tr>
<tr>
<td>31</td>
<td>The velocity of a car changes from 10 m/s to 50 m/s in 10 seconds. What will be its acceleration?</td>
<td>(a) 2 m / s² (b) 50 m / s² (c) 4 m / s² (d) 6 m / s²</td>
<td>(d)</td>
<td>70.55*</td>
</tr>
<tr>
<td>32</td>
<td>Displacement =__________</td>
<td>(a) Velocity x Time (b) Velocity x Mass (c) Mass x Time (d) None of these</td>
<td>(d)</td>
<td>64.70*</td>
</tr>
<tr>
<td>33</td>
<td>The movement of an object in a circular path is called__________</td>
<td>(a) Circular motion (b) Uniform motion (c) Accelerated motion (d) Non-Uniform motion</td>
<td>(b)</td>
<td>58.82*</td>
</tr>
<tr>
<td>34</td>
<td>Angle is measured in__________</td>
<td>(a) Degree (b) Meter (c) Second (d) None of these</td>
<td>(d)</td>
<td>12.71</td>
</tr>
</tbody>
</table>
Angular displacement is measured in __________
(a) Degree (b) Meter (c) Second (d) Radian  

In a 100 m race, the winner takes 10s to reach the finishing point. the average speed of the winner is ________________
(a) 5 m / s (b) 10 m / s (c) 20 m / s (d) 40 m / s  

The following figure shows.
(a) Uniformly accelerated motion (b) Non-uniformly accelerated motion (c) Un-accelerated motion (d) None of these  

The following figure depicts the rolling ball stages. The ball follows ________ kind of motion.
(a) Circular Motion (b) Uniform Motion (c) Non–Uniform Motion (d) None of these  

The part which mentioned in the following common hydrometer is __________
(a) Stem (b) Tube (c) Bulb with mercury (d) Water  

Consider the motion of an ant along a straight line path. The ant starts its journey from ‘O’. Let ‘A’ and ‘C’ represent the position of the ant at different instances. At first, the ant moves through C and reaches A. Then it moves back along the same path and reaches C. The distance and displacement travelled by the ant is __________ & __________
(a) 15 cm, 10 cm (b) 10 cm, 15 cm (c) 5 cm, 10 cm (d) 15 cm, 5cm
<table>
<thead>
<tr>
<th>Question</th>
<th>Statement</th>
<th>Options</th>
<th>Correct Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Linear velocity = ___________</td>
<td>(a) Displacement / Time  (b) Time / Displacement  (c) Speed / Time  (d) Time / Speed</td>
<td>12.71 0.29</td>
</tr>
<tr>
<td>42</td>
<td>The area under the velocity time graph represent the ________ the moving object.</td>
<td>(a) Velocity of  (b) Displacement covered by  (c) Acceleration of  (d) Speed of</td>
<td>41.77 0.16</td>
</tr>
<tr>
<td>43</td>
<td>Draw a semicircle of radius 10cm. Measure the path ABC(distance) and AOC(displacement). You can observe that distance_____________ and displacement _______</td>
<td>(a) 1.4 cm, 20 cm  (b) 3.14 cm, 20 cm  (c) 314 cm, 200 cm  (d) 30 cm, 20 cm</td>
<td>66.83* 0.37</td>
</tr>
<tr>
<td>44</td>
<td>Every year, there are about_________ deaths because of liver cirrhosis.</td>
<td>(a) 25000  (b) 26000  (c) 27000  (d) 2700</td>
<td>62.26* 0.33</td>
</tr>
<tr>
<td>45</td>
<td>The most frequently used addiction drug in tobacco is _____</td>
<td>(a) Nicotine  (b) Iodine  (c) Sodium  (d) Collier</td>
<td>61.17* 0.28</td>
</tr>
<tr>
<td>46</td>
<td>For all heart disease _____ is the main reason.</td>
<td>(a) Swimming  (b) Drinking  (c) Walking  (d) Smoking</td>
<td>67.64* 0.24</td>
</tr>
<tr>
<td>47</td>
<td>Smoking cause damages to the male _____</td>
<td>(a) Digestive system  (b) Blood system  (c) Nerves system  (d) Reproductive system</td>
<td>55.80* 0.23</td>
</tr>
<tr>
<td>48</td>
<td>Which part of brain is affected due to alcoholism?</td>
<td>(a) Cerebrum  (b) Cerebellum  (c) Back brain  (d) Spinal</td>
<td>58.82* 0.35</td>
</tr>
<tr>
<td>49</td>
<td>When a body rotating along the circular path has unit linear velocity, its angular velocity is equal to________  of the circular path.</td>
<td>(a) Reciprocal of the radius  (b) The radius  (c) Square of the radius  (d) Square root of the radius</td>
<td>23.52 0.29</td>
</tr>
<tr>
<td>50</td>
<td>The medicine helps in the recovery from alcoholism is _____</td>
<td>(a) Lodaz  (b) Resfyl  (c) Olsartan  (d) Benzodiazephines</td>
<td>79.41* 0.35</td>
</tr>
<tr>
<td>Q</td>
<td>Question</td>
<td>Options</td>
<td>Marks</td>
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</tr>
<tr>
<td>51</td>
<td>90% of lung cancer occurs due to _______</td>
<td>(a) Alcoholism (b) Accident (c) Smoking (d) Dust</td>
<td>55.88*</td>
</tr>
<tr>
<td>52</td>
<td>The study about fascinating and frustrating is___________</td>
<td>(a) Addiction (b) Ethanol (c) Alcoholism (d) Genetic</td>
<td>41.77</td>
</tr>
<tr>
<td>53</td>
<td>Which is able to regenerate its own cells?</td>
<td>(a) Kidney (b) Lungs (c) Heart (d) Liver</td>
<td>86.47*</td>
</tr>
<tr>
<td>54</td>
<td>Cigarette smoking results in _______ formation.</td>
<td>(a) Wall (b) Plaque (c) Vitamin (d) Protein</td>
<td>58.92</td>
</tr>
<tr>
<td>55</td>
<td>Smoking contains a toxic substances like ____________</td>
<td>(a) Arsanic (b) Nicotine (c) Iodine (d) Potassium</td>
<td>61.76*</td>
</tr>
<tr>
<td>56</td>
<td>Smoking destroys _______ present in the upper respiratory track.</td>
<td>(a) Cilia (b) Urotrobin (c) Metatrobin (d) Kineno</td>
<td>64.70*</td>
</tr>
<tr>
<td>57</td>
<td>When does the bone become thin and easy to fracture?</td>
<td>(a) Osteoporosis (b) Stegnogrophsis (c) Ancestrosis (d) Ostophensis</td>
<td>61.76*</td>
</tr>
<tr>
<td>58</td>
<td>Which one of the following is a drug?</td>
<td>(a) Aspirin (b) Urotrobin (c) Heroine (d) Claynes</td>
<td>46.23*</td>
</tr>
<tr>
<td>59</td>
<td>Smoking reduces _______ in both men and women</td>
<td>(a) Fertility (b) Heredity (c) Hierarchy (d) Freesias</td>
<td>12.71</td>
</tr>
<tr>
<td>60</td>
<td>Eating fish twice a week helps to prevent blood clot formation in arteries as it contains ____________</td>
<td>(a) Omega – 3 fatty acids (b) Citric Acid (c) Carbonic Acid (d) None of these</td>
<td>52.92*</td>
</tr>
<tr>
<td>61</td>
<td>Which one of the following increases the cholestrol in blood?</td>
<td>(a) Beef (b) Chicken (c) Lamb (d) Idly</td>
<td>76.42*</td>
</tr>
<tr>
<td>62</td>
<td>Bones accelerates the process of _______</td>
<td>(a) Teprosis (b) Octovanic (c) osteoporosis (d) none</td>
<td>56.14</td>
</tr>
</tbody>
</table>

XXIX
### Question 63
**What does the following figure mean?**

- (a) Drug addicted person meet death very soon
- (b) Alcohol addicted person meet death very soon
- (c) Smoke addicted person meet death very soon
- (d) None of these

- **Answer**: (a) Drug addicted person meet death very soon

- **Score**: 70.55* 0.32

### Question 64
**The following symbol represents**

- (a) No alcohol
- (b) No drugs
- (c) No smoking
- (d) Avoided drinking

- **Answer**: (c) No smoking

- **Score**: 68.28* 0.30

### Question 65
**Following figure depicts**

- (a) Health disorder cycle
- (b) Mental disorder cycle
- (c) Addiction cycle
- (d) Healthy lifestyle cycle

- **Answer**: (c) Addiction cycle

- **Score**: 41.17* 0.24

### Question 66
**Heroin, Opium, Cocaine are some of the drugs called as ______**

- (a) Narcotics
- (b) Medicine
- (c) Injection
- (d) None of these

- **Answer**: (a) Narcotics

- **Score**: 58.92 0.12

### Question 67
**The following figure is ________**

- (a) Liver cirrhosis
- (b) Lungs Cancer
- (c) Heart attack
- (d) None of these

- **Answer**: (b) Lungs Cancer

- **Score**: 56.82* 0.35

### Question 68
**Tobacco smoke contains more than ________ substances which cause cancer.**

- (a) 10
- (b) 30
- (c) 50
- (d) 60

- **Answer**: (c) 50

- **Score**: 56.14 0.12
<table>
<thead>
<tr>
<th>69</th>
<th>The following symbol represents:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image" alt="Symbol" /></td>
</tr>
<tr>
<td></td>
<td>(a) Smoking   (b) Alcoholism  (c) Drug  (d) None of these</td>
</tr>
<tr>
<td></td>
<td>61.17* 0.35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>70</th>
<th>The term _______ is used to describe a compulsion by an individual to engage in some specific activity.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(a) Addiction  (b) Psychoactive  (c) Drug active  (d) None of these</td>
</tr>
<tr>
<td></td>
<td>55.88* 0.28</td>
</tr>
</tbody>
</table>

* Items selected for the achievement test (Final test).
Appendix-viii
Achievement test (Final draft)
Science

Class: IX Standard                  Marks: 50

Choose the best answer and mention the option in the given Box.

For Example,  \[
\begin{array}{|c|}
\hline
(a) \\
\hline
\end{array}
\]
\[
50 \times 1 = 50
\]

1. The shortest distance travelled along a straight line, is known as
   (a) Density     (b) Displacement     (c) Time     (d) Velocity

2. Speed is measured by _________
   (a) ms\(^{-1}\)     (b) ms\(^{-2}\)     (c) s\(^{-1}\)     (d) m\(^2\)s\(^{-1}\)

3. A car takes six hours to cover a distance of 300 km, then the speed is _________
   (a) 50 km / h     (b) 60 km / h
   (c) 65 km / h     (d) 15 km / h

4. Velocity is expressed as ____________
   (a) Rate of change     (b) Time / Speed
   (c) Displacement / Time     (d) Distance / Time

5. If the velocity of the body increase with time, the acceleration is _________
   (a) Negative     (b) Zero     (c) Positive     (d) None of these

6. Acceleration, \[ a = \] _________
   (a) \( u - v / t \)     (b) \( u - v \)     (c) \( (v - u) / t \)     (d) \( v - u \)

7. Speed of sound, \[ t = \] _________
   (b) 340 m / s     (b) 34.0 m / s     (c) 32.4 m / s     (d) 324 m / s
8. Equation for velocity at a time is___________

(a) \( v = u + at \)  (b) \( v = u - at \)  (c) \(-v = u + at\)  (d) \( v = 0\)

9. The velocity of the body gradually decreases and becomes_________ at a maximum height.

(a) Zero  (b) Positive  (c) Negative  (d) None of these

10. The average value of ‘g’ is

(a) 9.0 m / s^2  (b) 9.8 m / s^4  (c) 9 m / s^2  (d) 9.8 m / s^2

11. Movement of a car in a crowded street is _____ motion.

(a) Uniform  (b) Non-Uniform  (c) Accelerated  (d) Decelerated

12. Angular velocity \( \omega = \)__________

(a) \( \omega \)  (b) \( \omega / t \)  (c) \( \omega t \)  (d) \( t / \omega \)

13. The unit of angular velocity is __________

(a) Radian / second  (b) degree / second  (c) Second  (d) None of these

14. Centripetal force, \( F = \)_____________

(a) \( mrw^2 \)  (b) \( mr / w^2 \)  (c) \( mv^2 / t \)  (d) \(-mrw^2\)

15. When a car takes a turn on the road, the frictional force between the tires and the road provides the__________

(a) Centrifugal force  (b) Acceleration  (c) Centripetal force  (d) Motion

16. Density = __________

(a) Volume / Mass  (b) Volume x Mass  (c) Mass / Volume  (d) None of these
17. Unit of density is __________
   (a) kgm$^{-3}$   (b) kgm$^{3}$   (c) kgm$^{2}$   (d) kgm$^{-2}$

18. The density of mercury is __________
   (a) 2600 kg m$^{-3}$   (b) 1360 kg m$^{-3}$
   (c) 136 kg m$^{-3}$   (d) 13600 kg m$^{-3}$

19. A Common hydrometer used to test the purity of milk by noting,
   its specific gravity is called __________
   (a) Hydrometer   (b) Lactometer
   (c) Centimeter   (d) None of these

20. Oscillation of pendulum of a wall clock is _____ motion movement.
   (a) Uniform   (b) Non-Uniform
   (c) Accelerated   (d) Decelerated

21. The upward force exerted on a body by a liquid is known as____
   (a) Upthrust   (b) Pressure   (c) Mass   (d) Weight

22. The velocity of a car changes from 10 m/s to 50 m/s in 10 seconds.
   What will be its acceleration?
   (a) 2 m / s$^{2}$   (b) 50 m / s$^{2}$   (c) 4 m / s$^{2}$   (d) 6 m / s$^{2}$

23. Displacement = __________
   (a) Velocity x Time   (b) Velocity x Mass
   (c) Mass x Time   (d) None of these

24. The movement of an object in a circular path is called __________
   (a) Circular motion   (b) Uniform motion
   (c) Accelerated motion   (d) Non-Uniform motion
25. In a 100 m race, the winner takes 10s to reach the finishing point. the average speed of the winner is _______________________

(a) 5 m / s   (b) 10 m / s   (c) 20 m / s   (d) 40 m / s

26. The following figure shows

(a) Uniformly accelerated motion
(b) Non-uniformly accelerated motion
(c) Un-accelerated motion
(d) None of these

27. The following figure depicts the rolling ball stages. The ball follows ______ kind of motion.

(a) Circular Motion   (b) Uniform Motion
(c) Non–Uniform Motion (d) None of these

28. The part which mentioned in the following common hydrometer is ________

(a) Stem   (b) Tube   (c) Bulb with mercury   (d) Water
29. Consider the motion of an ant along a straight line path. The ant starts its journey from ‘O’. Let ‘A’ and ‘C’ represent the position of the ant at different instances. At first, the ant moves through C and reaches A. Then it moves back along the same path and reaches C. The distance and displacement travelled by the ant is ______ & ______
   (a) 15 cm, 10 cm        (b) 10 cm, 15 cm
   (c) 5 cm, 10 cm          (d) 15 cm, 5 cm

30. Draw a semicircle of radius 10cm. Measure the path ABC(distance) and AOC(displacement). You can observe that distance ______ and displacement ______
   (a) 1.4 cm, 20 cm        (b) 3.14 cm, 20 cm
   (c) 314 cm, 200 cm        (d) 30 cm, 20 cm

31. Every year, there are about ________ deaths because of liver cirrhosis.
   (a) 25000  (b) 26000  (c) 27000  (d) 2700

32. The most frequently used addiction drug in tobacco is _____
   (a) Nicotine  (b) Iodine  (c) Sodium  (d) Collier

33. For all heart disease _____ is the main reason.
   (a) Swimming  (b) Drinking  (c) Walking  (d) Smoking

34. Smoking cause damages to the male _____
   (a) Digestive system  (b) Blood system
   (c) Nerves system  (d) Reproductive system

35. Which part of brain is affected due to alcoholism?
   (a) Cerebrum  (b) Cerebellum
   (c) Back brain  (d) Spinal
36. The medicine helps in the recovery from alcoholism is ______
   (a) Lodaz   (b) Resfyl
   (c) Olsartan   (d) Benzodiazepines

37. 90% of lung cancer occurs due to ______
   (a) Alcoholism    (b) Accident   (c) Smoking   (d) Dust

38. Which is able to regenerate its own cells?
   (a) Kidney   (b) Lungs
   (c) Heart   (d) Liver

39. Smoking contains a toxic substances like ____________
   (a) Arsanic   (b) Nicotine   (c) Iodine   (d) Potassium

40. Smoking destroys _____ present in the upper respiratory track.
   (a) Cilia   (b) Urotrobin
   (c) Metatrobin   (d) Kineno

41. When does the bone become thin and easy to fracture?
   (a) Osteoporosis   (b) Stegnogrophsis
   (c) Ancestrosis   (d) Ostophensis

42. Which one of the following is a drug?
   (a) Aspirin   (b) Urotrobin
   (c) Heroine   (d) Claynes

43. Eating fish twice a week helps to prevent blood clot formation in arteries as it contains ____________
   (a) Omega – 3 fatty acids   (b) Citric Acid
   (c) Carbonic Acid   (d) None of these

44. Which one of the following increases the cholesterol in blood?
   (a) Beef   (b) Chicken   (c) Lamb   (d) Idly
45. What does the following figure mean?

(a) Drug addicted person meet death very soon
(b) Alcohol addicted person meet death very soon
(c) Smoke addicted person meet death very soon
(d) None of these

46. The following symbol represents

(a) No alcohol (b) No drugs
(c) No smoking (d) Avoided drinking

47. Following figure depicts

(a) Health disorder cycle (b) Mental disorder cycle
(c) Addiction cycle (d) Healthy lifestyle cycle

48. The following figure is___________

(a) Liver cirrhosis (b) Lungs Cancer
(c) Heart attack (d) None of these
49. The following symbol represents

(a) Smoking   (b) Alcoholism

(c) Drug   (d) None of these

50. The term ________ is used to describe a compulsion by an individual to engage in some specify activity.

(a) Addiction   (b) Psychoactive   (c) Drug active   (d) None of these
Appendix-ix
Achievement test (Final draft) key

1. (b) Displacement
2. (a) ms\(^{-1}\)
3. (a) 50 km / h
4. (c) Displacement / Time
5. (c) Positive
6. (c) \((v - u) / t\)
7. (a) 340 m / s
8. (a) \(V = u + at\)
9. (a) Zero
10. (d) 9.8 m / s\(^2\)
11. (b) Non-Uniform
12. (b) \(\Theta/t\)
13. (a) radian / second
14. (a) mrw\(^2\)
15. (c) Centripetal force
16. (c) Mass / Volume
17. (a) Kg m\(^3\)
18. (d) 13600 kg m\(^3\)
19. (b) Lactometer
20. (a) Uniform
21. (a) Upthrust
22. (c) 4m / s\(^2\)
23. (a) Velocity \times Time
24. (a) Circular motion

XL
25. (b) 10 m / s
26. (b) Non-uniformly accelerated motion
27. (c) Non–Uniform Motion
28. (c) Bulb with mercury
29. (d) 15 cm, 5cm
30. (b) 3.14 cm, 20 cm
31. (c) 27000
32. (a) Nicotine
33. (d) Smoking
34. (d) Reproductive system
35. (b) Cerebellum
36. (d) Benzodiazepines
37. (c) Smoking
38. (d) Liver
39. (b) Nicotine
40. (a) Cilia
41. (a) Osteoporosis
42. (c) Heroine
43. (a) Omega – 3 fatty acids
44. (a) Beef
45. (a) Drug addicted person meet death very soon
46. (c) No smoking
47. (c) Addiction cycle
48. (a) Liver cirrhosis
49. (b) Alcoholism
50. (a) Addiction
Appendix-x
Science Interest Inventory (SII)

Dear students,

In the following pages, I have given number of statements. Each statement contains three components like A, B, C. Read them carefully. You have to select one component for each statement, by putting a tick mark in the bracket, as shown in the example.

This is NOT A TEST. Therefore you can make your responses without any fear. Your views will be kept confidentially. And I assure you that it will be used for this research purpose only.

Example:-

1. A. Listening to political discourses.  
   B. Listening to discourses on scientific things.  
   C. Listening to religious discourses.

   From the above example it is understood that you like listening to religious discourses only. Because you have put a tick mark in the bracket for the one which is liked by you.

Yours Sincerely,
<table>
<thead>
<tr>
<th>S. No</th>
<th>Statements</th>
</tr>
</thead>
</table>
| 1     | A. Examining the nature of blood using a microscope.  
      | B. Examining the salient features of the constitution of India.  
      | C. Finding out the new trends in Tamil literature.  |
| 2     | A. Arranging home utensils.  
      | B. Growing fish in glass-tanks.  
      | C. Arranging books in Cup-board.  |
| 3     | A. Maintain a garden in the house.  
      | B. Making books and other useful things.  
      | C. Arranging the fire wood in the kitchen.  |
| 4     | A. Listening political discourses.  
      | B. Listening the discourses on scientific things.  
      | C. Listening to religious discourses.  |
| 5     | A. Seeing films.  
      | B. Visiting to factories.  
      | C. Seeing dance programmes.  |
| 6     | A. Reading short stories.  
      | B. Reading detective novels.  
      | C. Reading books on first aid.  |
| 7     | A. Collecting different types of feathers.  
      | B. Collecting greeting cards of different kinds.  
      | C. Collecting different types of coins.  |
| 8     | A. Joining the N.C.C.  
      | B. Joining the science clubs.  
      | C. Joining the social service league.  |
| 9     | A. Reading dailies.  
      | B. Reading novels.  
      | C. Reading science magazines.  |
| 10    | A. Making science models.  
      | B. Making models of forts.  
      | C. Making models of temples.  |
| 11    | A. Organizing social meetings.  
      | B. Conducting scientific experiments.  
      | C. Doing physical exercise.  |
| 12    | A. Helping in arranging for a feast.  
      | B. Helping in the conduct of science exhibitions.  
      | C. Helping in organizing variety entertainments.  |
| 13    | A. Reading the biographies of national leaders.  
      | B. Reading the biographies of religious leaders.  
      | C. Reading the biographies of scientists.  |
| 14 | A. Learning to cook.  
B. Learning to bind books.  
C. Learning to use scientific equipments. | [ A / B / C ] |
|---|---|---|
| 15 | A. Visiting science exceptions.  
B. Visiting arts exception.  
C. Visiting hand loom exhibition. | [ A / B / C ] |
| 16 | A. Listing to a Radio-talk on scientific thing.  
B. Listening to a Radio lesson in Hindi.  
C. Listening to light music in Radio. | [ A / B / C ] |
| 17 | A. Reading an account of the climbing of Mount Everest.  
B. Reading a book dealing with Olympic games.  
C. Reading a book on an Atom bomb. | [ A / B / C ] |
| 18 | A. Learning to assemble a transistor.  
B. Learning to string a Racket.  
C. Learning to weave a mat. | [ A / B / C ] |
| 19 | A. Examine the sky through telescope.  
B. Playing on a musical instrument.  
C. Seeing wrestling matches. | [ A / B / C ] |
| 20 | A. Making crystals grow.  
B. Washing clothes.  
C. Stitching clothes. | [ A / B / C ] |
| 21 | A. Participating in the literary meets.  
B. Participating in the political meetings.  
C. Participating in science congress. | [ A / B / C ] |
| 22 | A. Writing an essay on scientific inventions.  
B. Writing an essay on new literary works.  
C. Writing an essay on the administration of our country. | [ A / B / C ] |
| 23 | A. Examining the articles made in the craft class.  
B. Examining the equipment in the science laboratory.  
C. Examining the sports materials in the school. | [ A / B / C ] |
| 24 | A. Doing research on the origin of religions.  
B. Doing research on controlling various diseases.  
C. Doing research on the growth of various political parties. | [ A / B / C ] |
| 25 | A. Doing experiments suggested in the science text-books.  
B. Drawing the maps of various countries.  
C. Drawing the flags of various nations. | [ A / B / C ] |
| 26 | A. Learning about different countries with the help of globe.  
B. Learning about the working of various machines.  
C. Learning the rules of various games through books. | [ A / B / C ] |
| 27 | A. Listening to the descriptions of notorious crime.  
B. Listening to descriptions on scientific progress.  
C. Listening to descriptions on the progress of human civilizations. | [ A / B / C ] |
| 28 | A. Studying the history of the origin of life.  
B. Studying the history of the origin of different political institutions.  
C. Studying the history of origin of various religions. | [ A / B / C ] |
| 29 | A. Looking at famous paintings.  
B. Looking at models of Car, Aero plane and Space-Craft.  
C. Looking at pictures of famous political leaders. | [ A / B / C ] |
| 30 | A. Growing different kinds of plants.  
B. Flying a kite.  
C. Preparing windows screens. | [ A / B / C ] |
| 31 | A. Conversing with scientists.  
B. Conversing with administrators.  
C. Conversing with religious leaders. | [ A / B / C ] |
| 32 | A. Learning the technique of painting.  
B. Learning the technique of making paints.  
C. Learning the use of different types of brushes. | [ A / B / C ] |
Appendix-xi
Pupils’ attitude towards Advanced Visualization Tools Scale

Please read the following statements carefully. Depending upon your decision, put a (√) mark in the appropriate box against each statement. Only one marking should be done for each statement.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Statements</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ontology is used to the students to learn their subjects very easily.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>The learning capacity of the students is increased, When ontology is used.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>It is difficult to learn in ontology by large students at a time.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Ontology explains in a simple way even very complex concepts.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>Learning through ontology takes long time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Ontology easily clears the doubts of the students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Since learning through ontology is mechanical, it gives bore to the students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Ontology is suitable to learn whenever students want to learn.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Ontology is suitable for self-paced learning.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td>Already recorded lessons cannot be changed by the ontology to learn.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11</td>
<td>Ontology blocks the growth of creativity of the students.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>12</td>
<td>In the modern scientific world, learning through ontology is the best.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Since there is an immediate action effect in an ontology, more chances are there for effective learning.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I can learn more from books than from ontology.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Average students can learn effectively through ontology.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>The role of ontology in developing the writing skill is less.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>In the present education system, Ontology cannot be used for learning.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>18</td>
<td>Learning by ontology removes self-bias.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>19</td>
<td>I enjoy lessons when they are given in ontology visualization.</td>
<td></td>
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<tr>
<td>20</td>
<td>Ontology helps to receive higher subject matter through many kinds of stimulus.</td>
<td></td>
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<tr>
<td>21</td>
<td>Due to the self-learning in Ontology, students’ unrest may increase.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>22</td>
<td>Ontology shall make the students unwillingness to do the handwork.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Students’ interest decreases towards the things like text book etc, when they learn through ontology.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>The direct contact between the teacher and the students is reduced when learning occurs through ontology.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>25</td>
<td>To cope up the scientific world, the students should be ready to learn the subjects through ontology.</td>
<td></td>
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<td>26</td>
<td>It is difficult to learn all the subjects through ontology.</td>
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<td>27</td>
<td>Special training is needed to handle ontology software.</td>
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<td>28</td>
<td>Ontology prevents the thinking ability of the students.</td>
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<td>29</td>
<td>It is proud to learn through ontology in India.</td>
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<td>30</td>
<td>Ontology develops the self-confidence of the students.</td>
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