ALIGARH MUSLIM UNIVERSITY

CLASS-XI (SCIENCE)

PREVIOUS TEST PAPER 2019-20

SERIES-A

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1. A ball of mass 0.1 kg moves A
the planet Earth's surface.

2. The gravitational force of
the Earth on the ball is
F = \frac{GMm}{r^2}
where G is the gravitational
constant, M is the mass of
the Earth, m is the mass of
the ball, and r is the distance
between the center of the
Earth and the ball.

3. The Earth's radius is about
6,371 km, so r = 6,371 km.

4. The gravitational force
is given by
F = \frac{GMm}{(6,371 \text{ km})^2} \approx 9.8 \text{ N}

5. The acceleration produced in
the Earth is
a = \frac{F}{m} = \frac{9.8 \text{ N}}{0.1 \text{ kg}} = 98 \text{ m/s}^2

6. The velocity of the Earth
is about 30,000 km/h or
8.33 m/s.

7. The time taken for the
Earth to complete one round
of the Sun is
T = \frac{2\pi r}{v} = \frac{2\pi (6,371 \text{ km})}{8.33 \text{ m/s}} \approx 365.25 \text{ days}

8. The Earth's orbit is
elliptical, so its speed will
change throughout the year.

9. The Earth's perihelion is
closest to the Sun and occurs
in January, while aphelion is
farthest from the Sun and
occurs in July.

10. The gravitational force
between the Sun and the Earth
is
F = \frac{GMm}{r^2}
where G is the gravitational
constant, M is the mass of
the Sun, m is the mass of
the Earth, and r is the distance
between the centers of the
Sun and the Earth.

11. The Earth's mass is
5.97 \times 10^{24} \text{ kg}, and the
Sun's mass is 1.99 \times 10^{30} \text{ kg}.

12. The distance between
the Earth and the Sun is
1.49 \times 10^{11} \text{ m}.

13. The gravitational
force is
F = \frac{(5.97 \times 10^{24} \text{ kg})(1.99 \times 10^{30} \text{ kg})}{(1.49 \times 10^{11} \text{ m})^2} \approx 3.5 \times 10^{22} \text{ N}

14. The acceleration of
the Earth is
a = \frac{F}{m} = \frac{3.5 \times 10^{22} \text{ N}}{5.97 \times 10^{24} \text{ kg}} \approx 5.9 \times 10^{-3} \text{ m/s}^2

15. The velocity of the
Earth is 30,000 km/h or
8.33 m/s.

16. The period of the Earth's
orbit is
T = \frac{2\pi r}{v} = \frac{2\pi (1.49 \times 10^{11} \text{ m})}{8.33 \text{ m/s}} \approx 1 \text{ year}

17. The Earth's orbit is
elliptical, so its speed will
change throughout the year.

18. The Earth's perihelion is
closest to the Sun and occurs
in January, while aphelion is
farthest from the Sun and
occurs in July.

19. The gravitational
force between the Sun and the
Earth is
F = \frac{(5.97 \times 10^{24} \text{ kg})(1.99 \times 10^{30} \text{ kg})}{(1.49 \times 10^{11} \text{ m})^2} \approx 3.5 \times 10^{22} \text{ N}

20. The acceleration of
the Earth is
a = \frac{F}{m} = \frac{3.5 \times 10^{22} \text{ N}}{5.97 \times 10^{24} \text{ kg}} \approx 5.9 \times 10^{-3} \text{ m/s}^2

21. The velocity of the
Earth is 30,000 km/h or
8.33 m/s.

22. The period of the Earth's
orbit is
T = \frac{2\pi r}{v} = \frac{2\pi (1.49 \times 10^{11} \text{ m})}{8.33 \text{ m/s}} \approx 1 \text{ year}

23. The Earth's orbit is
elliptical, so its speed will
change throughout the year.

24. The Earth's perihelion is
closest to the Sun and occurs
in January, while aphelion is
farthest from the Sun and
occurs in July.
6. Two offices A and B are 600 m apart. A man leaves from office A at 7:00 AM and starts walking towards office B at a speed of 5 km/h. At the same time, another man leaves from office B at 7:30 AM and starts walking towards office A at a speed of 4 km/h. They meet at a certain house. The house is 250 m from office A.

7. How much work is done by a force of 3 N in 27 s if the force and the distance are perpendicular to each other?

8. A certain house is 250 m from office A, and a certain house is 100 m from office B. The distance between the two offices is 600 m.

9. The motor of a pump fills 32 L of water per minute at a height of 9 m. What is the power of the motor in watts?

10. A man stands between two walls. The distance between the walls is 12.5 m, and the man is 3.5 m from each wall. The height of the man is 1.5 m. The man throws a ball. The ball hits the wall 0.5 seconds after being thrown. What was the speed of the ball when it hit the wall?

11. A box contains 300 apples. If 25% of the apples are bad, how many good apples are there in the box?
12. A man uses a 100 W bulb for 8 hours. How much is his electricity bill for 4 days at the rate of 600 Rs for 100 W bulb?
(a) Rs. 240
(b) Rs. 200
(c) Rs. 160
(d) Rs. 120
(e) Rs. 80

15. Which one of the following is not a source of energy?
(a) Coal
(b) Nuclear Energy
(c) Gas
(d) Wood
(e) Heat

16. Which of the following is not a factor affecting the efficiency of a Carnot cycle?
(a) Temperature of the冷 source
(b) Temperature of the heat source
(c) Temperature difference between the heat source and the cold source
(d) Work done on the cycle
(e) Heat transfer to the cycle
amnestino

19. The internal energy of a molecule.

20. Which is not true about the solid?
   (a) all of these
   (b) structural identity
   (c) positional identity
   (d) translational energy
   (e) contains internal energy

21. How compressibility and pressure are related:
   (a) they have high density and compressibility
   (b) they have high volume and compressibility
   (c) they have high volume
   (d) they have high density and compressibility
   (e) they have high density

22. Hydrochloric acid is said to be:
   (a) 30% HCl in 12.0 M solution
   (b) 30% HCl in 12.0 M solution
   (c) 30% HCl in 12.0 M solution
   (d) 30% HCl in 12.0 M solution
   (e) 30% HCl in 12.0 M solution

23. The presence of the double layer:
   (a) decreases the acidity of the solution
   (b) increases the acidity of the solution
   (c) decreases the acidity of the solution
   (d) increases the acidity of the solution
   (e) increases the acidity of the solution

24. A person needs a lens of power  

25. The formula of calcium carbonate is:
    (a) CaCO₃
    (b) CaCO₄
    (c) CaCO₅
    (d) CaCO₉
    (e) CaCO₁₀
22. Copper metal melts at 1184°C.

23. Correct order of increasing molar mass:
(a) Cu²⁺, Cu, CuCl₂, H₂, CuCl
(b) Cu, CuCl, CuCl₂, H₂, Cu²⁺
(c) Cu, CuCl₂, CuCl, H₂, Cu²⁺
(d) CuCl, CuCl₂, Cu, H₂, Cu²⁺

24. The compound showing addition 25.
(a) H₂ + CH₄ → H₂ + CH₄
(b) H₂ + CH₄ → H₂ + CH₄
(c) H₂ + CH₄ → H₂ + CH₄
(d) H₂ + CH₄ → H₂ + CH₄

25. The correct order of electron 27.
(a) Li⁺, Mg⁺, Ca²⁺, Na⁺
(b) Mg⁺, Ca²⁺, Na⁺, Li⁺
(c) Na⁺, Li⁺, Mg⁺, Ca²⁺
(d) Ca²⁺, Na⁺, Mg⁺, Li⁺

26. Correct answer:
(a) CH₄ + O₂ → CO₂ + H₂O
(b) CH₄ + O₂ → CO₂ + H₂O
(c) CH₄ + O₂ → CO₂ + H₂O
(d) CH₄ + O₂ → CO₂ + H₂O

27. Correct order of electron 29.
(a) V(II) > Cu > Fe > H⁺
(b) Cu > Fe > H⁺ > V(II)
(c) Fe > H⁺ > Cu > V(II)
(d) H⁺ > Cu > Fe > V(II)

28. Rearrange the N₂H₄, NO₃⁻, H₂, O₂ reactions with NO₂.

29. V(II) reacts with NO₂. Redox table:

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Oxidation Change</th>
<th>Reduction Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>V(II) + NO₂ → V(III) + NO₂⁻</td>
<td>+1</td>
<td>-1</td>
</tr>
<tr>
<td>H₂ + O₂ → H₂O</td>
<td>0</td>
<td>-2</td>
</tr>
<tr>
<td>Cu + NO₂ → Cu²⁺ + NO₂⁻</td>
<td>0</td>
<td>-2</td>
</tr>
<tr>
<td>H⁺ + e⁻ → H₂</td>
<td>-1</td>
<td>0</td>
</tr>
</tbody>
</table>

30. The correct order of reaction 32.
(a) 63.35 mm Hg
(b) 63.35 mm Hg
(c) 63.35 mm Hg
(d) 63.35 mm Hg

31. The correct order of reaction 33.
(a) 63.35 mm Hg
(b) 63.35 mm Hg
(c) 63.35 mm Hg
(d) 63.35 mm Hg
37. The fourth letter in the word "amusement" is

38. The proportion of water in a solution of salt is

39. Oxygen is lost from lungs after

40. CH₂CH₂

41. CH₃CH₂

42. CH₃CH₂COOH

43. CH₃COOH

44. CH₃COOH

45. CH₃COOH

46. CH₃COOH

47. CH₃COOH

48. CH₃COOH

49. CH₃COOH

50. CH₃COOH

51. CH₃COOH

52. CH₃COOH

53. CH₃COOH

54. CH₃COOH

55. CH₃COOH

56. CH₃COOH

57. CH₃COOH

58. CH₃COOH

59. CH₃COOH

60. CH₃COOH

61. CH₃COOH

62. CH₃COOH

63. CH₃COOH

64. CH₃COOH

65. CH₃COOH

66. CH₃COOH

67. CH₃COOH

68. CH₃COOH

69. CH₃COOH

70. CH₃COOH

71. CH₃COOH

72. CH₃COOH

73. CH₃COOH

74. CH₃COOH

75. CH₃COOH

76. CH₃COOH

77. CH₃COOH

78. CH₃COOH

79. CH₃COOH

80. CH₃COOH

81. CH₃COOH

82. CH₃COOH

83. CH₃COOH

84. CH₃COOH

85. CH₃COOH

86. CH₃COOH

87. CH₃COOH

88. CH₃COOH

89. CH₃COOH

90. CH₃COOH

91. CH₃COOH

92. CH₃COOH

93. CH₃COOH

94. CH₃COOH

95. CH₃COOH

96. CH₃COOH

97. CH₃COOH

98. CH₃COOH

99. CH₃COOH

100. CH₃COOH

101. CH₃COOH

102. CH₃COOH

103. CH₃COOH

104. CH₃COOH

105. CH₃COOH

106. CH₃COOH

107. CH₃COOH

108. CH₃COOH

109. CH₃COOH

110. CH₃COOH

111. CH₃COOH

112. CH₃COOH

113. CH₃COOH

114. CH₃COOH

115. CH₃COOH

116. CH₃COOH

117. CH₃COOH

118. CH₃COOH

119. CH₃COOH

120. CH₃COOH

121. CH₃COOH
44. Blood pressure and circulation are 44.

42. What happens in children is an old jam.

39. Cold blooded amphibians

38. It’s always a good idea to keep your cool and have a clear head.

37. Why can't cold blooded animals survive in hot climates? (a) They have a clear head

36. How do cold blooded animals survive in hot climates?

35. (a) They have a clear head

34. Cold blooded amphibians

33. (a) They have a clear head

32. (a) They have a clear head

31. (a) They have a clear head

30. (a) They have a clear head

29. (a) They have a clear head

28. (a) They have a clear head

27. (a) They have a clear head

26. (a) They have a clear head

25. (a) They have a clear head

24. (a) They have a clear head

23. (a) They have a clear head

22. (a) They have a clear head

21. (a) They have a clear head

20. (a) They have a clear head

19. (a) They have a clear head

18. (a) They have a clear head

17. (a) They have a clear head

16. (a) They have a clear head

15. (a) They have a clear head

14. (a) They have a clear head

13. (a) They have a clear head

12. (a) They have a clear head

11. (a) They have a clear head

10. (a) They have a clear head

9. (a) They have a clear head

8. (a) They have a clear head

7. (a) They have a clear head

6. (a) They have a clear head

5. (a) They have a clear head

4. (a) They have a clear head

3. (a) They have a clear head

2. (a) They have a clear head

1. (a) They have a clear head

0. (a) They have a clear head

Original (a) They have a clear head

(b) They have a clear head

(c) They have a clear head

(d) They have a clear head

(e) They have a clear head

(f) They have a clear head

(g) They have a clear head

(h) They have a clear head

(i) They have a clear head

(j) They have a clear head

(k) They have a clear head

(l) They have a clear head

(m) They have a clear head

(n) They have a clear head

(o) They have a clear head

(p) They have a clear head

(q) They have a clear head

(r) They have a clear head

(s) They have a clear head

(t) They have a clear head

(u) They have a clear head

(v) They have a clear head

(w) They have a clear head

(x) They have a clear head

(y) They have a clear head

(z) They have a clear head
66. The two exterior sides of a 66° triangle are 8 cm and 13 cm. If the difference of the lengths of the third side and the smaller side is 10 cm, what is the length of the third side?

67. Given a triangle ABC with sides AB = 12 cm, BC = 15 cm, and AC = 18 cm. Find the length of the altitude from vertex A to side BC.

68. In a right triangle, if one leg is 5 cm and the hypotenuse is 13 cm, find the length of the other leg.

69. If two parallel lines are intersected by a transversal and the corresponding angles are equal, prove that the lines are parallel.

70. 
\[ \frac{a}{b} + \frac{c}{d} = \frac{a + c}{b + d} \]

71. 
\[ \frac{a}{b} + \frac{c}{d} = \frac{a + c}{b + d} \]

72. 
\[ \frac{a}{b} + \frac{c}{d} = \frac{a + c}{b + d} \]

73. 
\[ \frac{a}{b} + \frac{c}{d} = \frac{a + c}{b + d} \]

74. 
\[ \frac{a}{b} + \frac{c}{d} = \frac{a + c}{b + d} \]

75. 
\[ \frac{a}{b} + \frac{c}{d} = \frac{a + c}{b + d} \]

76. 
\[ \frac{a}{b} + \frac{c}{d} = \frac{a + c}{b + d} \]
72. If the mean of $n$ observations is $\bar{x}$, then $\sum (x_i - \bar{x})^2 = \sum x_i^2 - n\bar{x}^2$.

73. The angle of depression of the top of a tower from a point $P$ is $\theta$. If the height of the tower is $h$ meters, then the height of the tower can be calculated using the formula $h = \frac{d\tan \theta}{\cos \theta}$, where $d$ is the distance from $P$ to the base of the tower.

74. If $a > 0, b > 0, c > 0$, then $\sqrt{a^2 + b^2} = \sqrt{a^2} + \sqrt{b^2}$.

75. If $\sec \theta + \tan \theta = 0$, then the value of $\sec \theta = -\tan \theta$.

76. The area of a rectangle is $A = l \times w$, where $l$ is the length and $w$ is the width.

77. If $\frac{a}{b} = \frac{c}{d}$, then $\frac{a}{c} = \frac{b}{d}$.

78. The volume of a sphere is given by the formula $V = \frac{4}{3}\pi r^3$, where $r$ is the radius of the sphere.