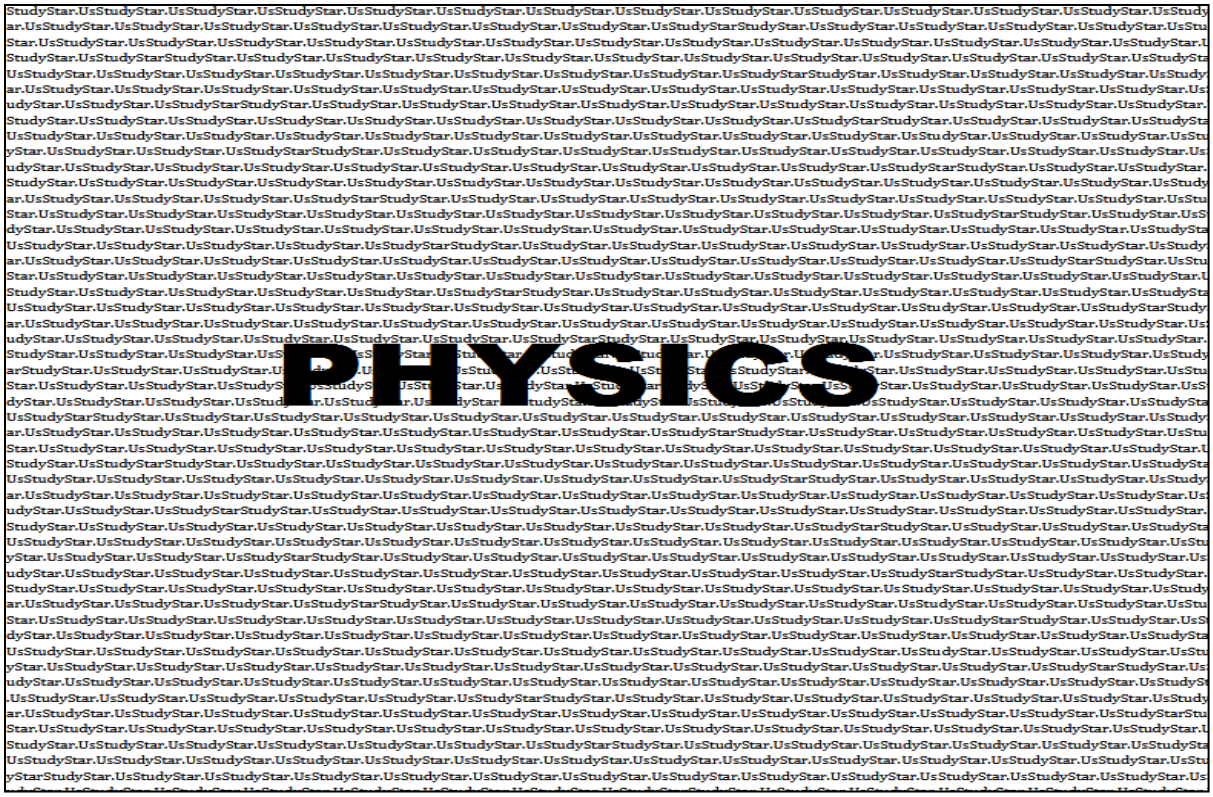

GAS LAWS

Total Marks: 25

Duration: 0 hours, 25 minutes

Instructions to test takers

1. Answer all the questions in this paper
2. All the answers for the questions in this paper will be found on **Study Star** (www.studystar.me)
3. Using the answers on the website, mark yourself truthfully and carefully.

Turn this page, time yourself and begin the test

Section A [10 marks]

1. V α $\frac{1}{P}$, this equation shows?
    a. Boyle's law
    b. Charles' law
    c. The pressure law
2. The volume of a fixed mass of gas from an applied force is inversely proportional to the pressure provided that the temperature is kept constant. The statement shows _____
    a. Boyle's law
    b. Charles' law
    c. The pressure law
3. The pressure law
    a. Is a combination of boyle's law and charles' law
    b. Has the temperature constant
    c. Has the volume constant
4. A fixed mass of a gas measures 200cm^3 at 17^{o}C. What will be its volume if it is heated to 92^{o}C at constant pressure?
    a. 251.72cm^3
    b. 300cm^3
    c. 273cm^3
5. A gas occupies a volume of 190cm^3 at a pressure of 770mmHg. Calculate its volume when the pressure is raised to 760mmHg at constant temperature.
    a. 153 cm^3
    b. 160 cm^3
    c. 192.5 cm^3
6. A vessel containing 1 Liter of gas at 20^{o}C is heated to 200^{o}C with constant pressure. Calculate its new volume.
    a. 1.61L
    b. 1.62L
    c. 1.63L
7. A gas is compressed in a cylinder from an initial temperature of 10^{o}C and pressure 1.5×10^5 N/m^2 to half of its original volume. Calculate its final pressure.
    a. 300 Pa
    b. 300kPa

c. 30kPa

8. The gas in question 7 is heated at constant pressure until it occupies its original volume. Calculate the final temperature of the gas.
    a. 5.66Pa
    b. 566Pa
    c. 56.6Pa
9. $V_1T_2 = T_1V_2$, this equation shows _____
    a. Boyle's law
    b. Charles' law
    c. The pressure law
10. $V_1P_1T_2 = T_1P_2V_2$, this equation is representing _____
    a. Boyle's law
    b. Charles' law
    c. The pressure law

Section B [5 marks]

11. Which law is gotten from the combination of Boyle's law and Charles' law?
12. Which law requires for temperature to be in kelvin?
13. Which law requires for pressure to be kept constant?
14. Which law is illustrated by $V_1P_1 = V_2P_{2?}$
15. State the factor that must always be constant for Charles' law to occur.

Section C [10 marks]

16. A cylinder contains air at a pressure of $10^5 N/m^2$ a piston is pushed in to compress the air to $\frac{1}{4}$ of its initial volume the temperature being kept constant, what is the new pressure in the cylinder? [2]
17. A gas is compressed in a cylinder from an initial temperature of 10^oC and pressure 1.5×10^5 N/m^2 to half of its original volume. Calculate its final pressure. [2]
18. A volume of $200cm^3$ of nitrogen at 20^oC is heated at constant pressure to a temperature of 313^oC. What is the new volume of nitrogen? [2]
19. To what temperature must 10^oC of gas at $100cm^3$ be heated at constant pressure in order to double its volume? [2]
20. A balloon filled with hydrogen gas has a volume of 5×10^{-4} m^3 to the ground at a temperature of 28^oC and 740mmHg pressure. If its volume reduces to 3×10^{-4} at 5^oC when it ascends to higher ground. Calculate the pressure at this point. [2]