

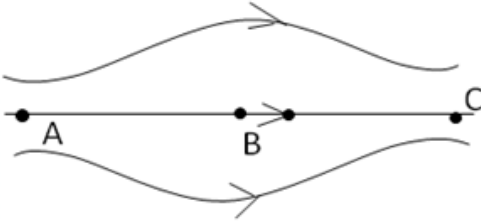
**VITEEE - 2018 - SAMPLE QUESTIONS**

**PHYSICS**

1. If a force  $F = (2x + 3x^2)\hat{i}$  N acts along x-axis on an object and moves it from  $x = 2\hat{i}$  m to  $x = 4\hat{i}$  m, the work done is  
A) 24 J      B) 68 J      C) 86 J      D) 142 J

2. A vessel contains 1 mol of  $O_2$  and 2 mol of He. What is the value of ' $C_p/C_v$ ' of the mixture?  
A) 17/11      B) 71/45      C) 38/15      D) 46/15

3. Figure shows some of the electric field lines corresponding to an electric field. The figure suggests that



- A)  $E_A > E_B > E_C$     B)  $E_A = E_B = E_C$     C)  $E_A = E_C > E_B$     D)  $E_A - E_C < E_B$
4. A carbon resistor has color code as, Red, Black, Blue and Gold. The resistance and tolerance values are  
A)  $20\text{ M}\Omega \pm 5\%$     B)  $20\text{ M}\Omega \pm 10\%$     C)  $20\text{ k}\Omega \pm 5\%$     D)  $20\text{ k}\Omega \pm 10\%$
5. A small circular flexible loop of wire of radius  $r$  carries a current  $I$ . It is placed in a uniform magnetic field  $B$ . The tension in the loop will be doubled if  
A)  $I$  is doubled    B)  $B$  is halved    C)  $r$  is doubled    D) Both  $B$  and  $I$  are doubled
6. What is the self-inductance of a coil when a change of current from 0 to 2 A in 0.05 s induces an *emf* of 40 V in it?  
A) 1 H      B) 2 H      C) 3 H      D) 4 H
7. A light has the wavelength  $6000\text{ \AA}$  in air and  $4500\text{ \AA}$  in water. Then the speed of light in water will be  
A)  $5.0 \times 10^{14}$  m/s    B)  $2.25 \times 10^8$  m/s    C)  $4.0 \times 10^8$  m/s    D)  $1.0 \times 10^8$  m/s
8. In which of the following transitions in hydrogen atom will the wavelength be minimum?  
A)  $n = 5$  to  $n = 4$     B)  $n = 4$  to  $n = 3$     C)  $n = 3$  to  $n = 2$     D)  $n = 2$  to  $n = 1$
9. One gram of Radium, with atomic weight 226, emits  $4 \times 10^{10}$  particles per second. The half-life of Radium is  
A)  $4.6 \times 10^{10}$  s    B)  $4.6 \times 10^9$  s    C)  $4.6 \times 10^{12}$  s    D)  $4.6 \times 10^{14}$  s
10. The minimum number of NAND gates required to implement  $A + A\bar{B} + A\bar{B}C$  is  
A) 3      B) 2      C) 6      D) zero