

<b>Date of Examination</b>



<b>No of Questions</b>	xx
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**GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY**  
SELECTION TEST FOR THE ENROLLMENT OF DAY SCHOLARS – INTAKE 39  
**BSc. in Engineering Degree Programme**  
**SUBJECT RELATED KNOWLEDGE**  
**(MODEL PAPER)**

**Instructions:**

Answer all questions

Mark the correct answers on MCQ answer sheet, which is provided

**Duration:**

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1. How long is an IPv4 address?  
a. 32 bits-      b. 128 bytes      c. 64 bits      d. 128 bits
  2. Electrons in the outer orbit are called  
a. Waves      b. Nuclei      c. Shells      d. Valences
  3.  $ML^2T^{-2}$  is the dimensional formula for  
a. Moment of inertia  
b. Pressure  
c. Elasticity  
d. Couple acting on a body
  4. How should a fuse be installed in a circuit to insure proper operation?  
a. Parallel to the load  
b. Series with the load  
c. In any way possible  
d. At the ground point
  5. If  $n$  is an odd integer, which of the following must be an odd integer  
a.  $n - 1$     b.  $n + 1$     c.  $3n + 1$     d.  $4n + 1$
  6. A body is projected vertically upwards. The times corresponding to height  $h$  while ascending and while descending are  $t_1$  and  $t_2$  respectively. The velocity of projection is ( $g$  is acceleration due to gravity)  
a.  $g\sqrt{t_1 t_2}$       b.  $\frac{g\sqrt{t_1 t_2}}{2}$       c.  $\frac{g(t_1 + t_2)}{2}$       d.  $\frac{gt_1 t_2}{t_1 + t_2}$

7.  $\text{H}_2\text{S}_{(g)}$  reacts with  $\text{O}_{2(g)}$  to give only water vapour ( $\text{H}_2\text{O}_{(g)}$ ) and  $\text{SO}_{2(g)}$ , as products. When  $4 \text{ dm}^3$  of  $\text{H}_2\text{S}_{(g)}$  reacts with  $10 \text{ dm}^3$  of  $\text{O}_{2(g)}$  at a constant pressure and  $250^\circ\text{C}$ , the final volume of the mixture is,

- a.  $6 \text{ dm}^3$       b.  $8 \text{ dm}^3$       c.  $10 \text{ dm}^3$       d.  $12 \text{ dm}^3$

8. The enthalpy change of vaporization and the entropy change of vaporization of a liquid are,  $45.00 \text{ kJ mol}^{-1}$  and  $90.0 \text{ J K}^{-1} \text{ mol}^{-1}$  respectively. The boiling point of the liquid is,

- a.  $227^\circ\text{C}$       b.  $62.7^\circ\text{C}$       c.  $45^\circ\text{C}$       d.  $100^\circ\text{C}$

9. Identify the wrong statement in the following

- a. Atomic radius of the elements increases as one moves down the first group of the periodic table  
b. Atomic radius of the elements decreases as one moves across from left to right in the 2nd period of the periodic table  
c. Amongst isoelectronic species, smaller the positive charge on the cation, smaller is the ionic radius  
d. Amongst isoelectronic species, greater the negative charge on the anion, larger is the ionic radius

10. Radii of capillary tubes of two mercury-in-glass thermometers A and B having equal  $r$  volumes of mercury inside their bulbs are  $r$  and  $\frac{r}{3}$  respectively. When the temperatures of the

bulbs are increased by  $1^\circ\text{C}$ , the ratio

Change in length of mercury in column A \_\_\_\_\_ is approximately, (Neglect expansion of glass)  
Change in length of mercury in column B

- a.  $\frac{1}{9}$       b.  $\frac{1}{3}$       c. 1      d. 9

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End of the Question Paper **There**  
**will be 25 questions for the paper.**