

**PHYSICS (M. Marks : 07; Time : 20 mts.)**

1. State the principle involved in the working of ships and submarines. (½)
2. Why does an egg sink in fresh water but floats in salty water? (½)
3. Define density. Give one application of knowledge of density. (1)
4. You find your weight to be 65 kgwt on a weighing machine. Is your weight more or less than 65 kgwt? Justify. (1)
5. Define Kinetic Energy and derive its formula? What happens to Kinetic Energy if the speed of body is increased by ten times? (2)
6. What do you mean by negative work. Calculate work done to change the speed of body of mass 20 kg from 5 m/s to 2 m/s. (2)

**CHEMISTRY (M. Marks : 07; Time : 20 mts.)**

1. Define the following terms : (1)
 

a) Atomic mass unit	b) Poly atomic ions
c) Chemical formula	d) Atomicity
2. Write the name of given compounds (1)
 

a) $Al(OH)_3$	b) $Na_2SO_4$
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3. Write any four postulates of Dalton's atomic theory. (1)
4. Write the chemical formulae of the given compounds (1)
 

a) Calcium Phosphate	b) Zinc Carbonate
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5. In a reaction 5.3g of Sodium Carbonate reacted with 6g of ethanoic acid. The products were 2.2g of carbondioxide, 0.9g of water and 8.2g of Sodium ethanoate. Show that these observations are in agreement with the Law of conservation of mass. (1)
6. Find out the formula unit mass of the following : (2)
 

a) $Fe_2(CO_3)_3$	b) $H_2SO_4$
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 Atomic mass Fe-56, C-12, O-16, H-1, S-32

**BIOLOGY (M. Marks : 06; Time : 20 mts.)**

1. Why there is a need to classify organisms? (any two points) (1)
2. Differentiate between monocots & dicots. (any two points) (1)
3. Explain Binomial nomenclature with the help of an example. (2)
4. Explain : (½x4=2)
  - i) Symbiotic association between algae & fungi;
  - ii) In kingdom Monera – organisms are prokaryotics;
  - iii) Fungi are saprophytic;
  - iv) Pteridophytes are included in crypto gameae.