Science Annual Exam Revision

1. Define fertilization, ovulation, gestation, implantation, endocrine glands, hormones, metamorphosis, electroplating, galvanization, vulcanization, displacement reaction, neutralization reaction, density, frequency, amplitude, electrolysis, cation, anion, menstruation.

2. Differentiate between (give examples wherever relevant)

    i. Metals and non-metals
    ii. Ultrasonic and infrasonic sound
    iii. Internal fertilization and external fertilization
    iv. Menarche and menopause
    v. Oviparous and Viviparous animals
    vi. Mass and Weight
    vii. Brass and Bronze
    viii. Acids and Bases (with blue and red litmus paper)
    ix. Unisexual and bisexual / hermaphrodite animals
    x. Conductor and electrolyte

3. Diagrams to practice:

    i. Female reproductive system
    ii. Binary fission in Amoeba
    iii. Ear (only labelling and their functions)
    iv. Electrolysis of water

4. Give scientific reasons for the following:

    i. A huge ship floats on water but a small iron nail sinks.
    ii. Articles made of Ag turns black when exposed to air
    iii. Articles made of Cu turns greenish when exposed to air
    iv. Carbon Rods / graphite rods / platinum rods are used as electrodes
    v. Jaltarang have different levels of water in the bottles

5. Name the following:

    i. The part of the human ear that helps in hearing
    ii. Part of an electrolytic cell where Cation gets reduced
    iii. The term for the glands that secrete hormone
    iv. The part of human reproductive system where fertilization takes place
    v. The process of releasing an egg from the ovary
    vi. The part of human reproductive system where implantation takes place
    vii. Animals where both the sexual organs are present in one organism
    viii. Shedding of unfertilized egg and the inner lining of uterus every month
    ix. Frequency range of crackers sound

x. Type of Asexual reproduction in hydra and yeast
xi. Type of Asexual reproduction in Amoeba
xii. Hormone that regulates the amount of sugar in the blood
xiii. Hormone that controls the metabolism of the body
xiv. Hormone that prepares the body to face stress
xv. Nature of oxide when metals combine with oxygen

6. Write balance chemical equations for

   i. Action of dilute nitric acid on zinc
   ii. Reaction between sodium and water
   iii. Reaction of iron and copper sulphate solution
   iv. Action of sulfuric acid on magnesium
   v. Reaction of sulfur dioxide with water

7. The density of butter is 0.9g/cm^3 What is the volume of 800g of butter?
8. What is the mass of 5m^3 of cement of density 3000 kg/m^3
9. The volume of 40g of a block is 20cm^3. The density of water is 1g/cm^3. Will the block sink or float in water? Justify.

10. A submarine emits a sonar pulse which returns from an underwater cliff in 1.02s. If the speed of sound in water is 1531m/s, how far away is the cliff?
    Solution:
    Given speed of sound = 1531m/s, time interval of return echo t=0.2s
    We know 2d=v*t
    Therefore d = vt2=1531*1.022 = 780.81m = 781km

11. A SONAR device on a submarine sends our a signal and receives an echo 5s later. Calculate the speed of sound in water if the distance of the object from the submarine is 3,625m.
    Solution:
    Here t=5s, d = 3625m
    D = vt2
    v = 2dt = 2*3625 = 2*725 = 1450m/s

12.

Which glass will produce sound of low pitch and which one of high pitch? Give reason for your answer.

13. Why does a xylophone have rods of different lengths?

14. What is SONAR? What are its uses?
15. State Archimedes principle.

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