

RAWAL INTERNATIONAL SCHOOL
HOLIDAY HOMEWORK ASSIGNMENT
CLASS : XI - SCIENCE(2021)

SUBJECT : PHYSICS

M.M.-20

Instruction : Q1-4 carry 2 marks each , q5-8carry 3 marks each.

- Q1. What is the ratio of the force of attraction between two bodies kept in air and the same distance apart in water?
- Q2. Earth is continuously pulling the moon towards its centre, still it does not fall to the earth. Why?
- Q3. If the diameter of the earth becomes half its present value but its average density remains unchanged then how would be the weight of an object on the surface of the earth affected?
- Q4. At which place on earth's surface, the value of g is largest and why?
- Q5. Derive expression for escape velocity.
- Q6. Derive expression for orbital velocity of a satellite revolving very close to earth.
- Q7. Find the potential energy of a system of four particles placed at the vertices of a square of side l . Also obtain the potential at the centre of the square.
- Q8. A body weighs 63 N on the surface of the earth. What is the gravitational force on it due to the earth at a height equal to half the radius of the earth?

SUBJECT : CHEMISTRY

M.M.-20

- Q1. What is an alkyl group? Give one example.
- Q2. Arrange the following group in decreasing order of their priority:
-OH, -NH₂, -COOH
- Q3. Write the structure of the entire four butyl group.
- Q4. Draw the structure of (a) 2-chlorohexane (b) Pent-4-en-2-ol
- Q5. Describe position and functional isomerism with an example of each.
- Q6. What are nucleophiles? Give an example.
- Q7. Explain the following : (a) Wurtz reaction (b) Friedel-Craft alkylation

- Q8. Explain Markonikov rule with an example?
- Q9. Explain the following : (a) Nitration (b) Halogenation
- Q10. What do you mean by ozonolysis? Explain with an example.

SUBJECT : MATHEMATICS

M.M.-20

1. Convert -4 radian in degree measures.
2. Find the angle between the minute hand of a clock and the hour hand when the time is 7:20 AM
3. Let A and B are two sets such that $n(A)=20$ and $n(A \cup B)= 42$ and $n(A \cap B)=4$ Find (i) $n(B)$ (ii) $n(A-B)$
4. Prove that $\tan 4x = \frac{4 \tan x (1 - \tan^2 x)}{1 - 6 \tan^2 x + \tan^4 x}$.
5. Solve the following equation $\sin 2x - \sin 4x + \sin 6x = 0$
6. Find the domain and range of $\sqrt{16 - x^2}$
7. Find the value of $\sin 18^\circ$.
8. Prove that $\tan 70^\circ = \tan 20^\circ + 2 \tan 50^\circ$.

SUBJECT : BIOLOGY

M.M.-20

- Q.1 What does the word virus means? Who discovered virus first time? (1)
- Q.2 How important is the presence of air bladder in Pisces? (1)
- Q.3 Differentiate between essential and non essential amino acids. (1)
- Q.4 Why are membranous organelles considered as an endomembrane system? Mention its components. (2)
- Q.5 What is RuBisCo? Write its role in C3 and C4 photosynthesis. (2)
- Q.6 What are the two heart sounds heard through the Stethoscope when placed on the chest. What produces them? (2)
- Q.7 Differentiate between ammonotelic & uricotelic organisms. (2)
- Q.8 Give the schematic representation of an overall view of krebs cycle. (3)
- Q.9 Expand ANF. Where is it secreted from? When is it secreted? What is its function? (3)
- Q.10 Write a brief account on the symmetry of animals. (3)