Model Question paper 2021-22
Class 11
Agricultural Physics & Climatology
(Paper-III)

Time – 3:15 Hrs. **M.M. 50**

Note – First 15 minutes are allotted for the candidates to read the question paper.

Instructions:-

(i) All the questions are compulsory.
(ii) Question numbers 1 to 5 are Multiple Choice Type. Question Numbers 6 to 10 are Definite Answer Type and Question Numbers 11 to 15 are Very Short Answer type, each of which is required to be answered within 50 words. Question Numbers 16 to 18 are Short Answer Type, each of which is required to be answered within 150 words. Question Numbers 19 to 21 are Long Answer Type, each of which is required to be answered within 300 words.
(iii) Marks allotted to the questions are mentioned against them.

(Multiple Choice Type Questions)

Four options are given for each question. Write the correct answer in your answer book.

1. Which one of the following length is equal to 10^{-14} metre? 1
   i. 1 micron
   ii. 1 angstrom
   iii. 1 X-Ray unit
   iv. 1 mm
2. When a sound wave travels from one medium to another, the quantity that remains unchanged is - 1

   i. Velocity
   ii. Wavelength
   iii. Frequency
   iv. Wave number
3. The weight of a wooden block is 'w'. When it is floated in water, what will be its virtual weight - 1
   i. W
   ii. More than W
   iii. Less than W
   iv. Zero

4. Refractive Index of glass is maximum for- 1
   i. Green colour
   ii. Yellow colour
   iii. Red colour
   iv. Violet colour
5. A bulb is marked '220 v – 100w'. Its resistance is – 1
   i. 100 ohm
   ii. 220 ohm
   iii. 484 ohm
   iv. 440 ohm

(Definite Answer Type Question)

6. Write the direction in which centrifugal force acts. 1
7. What is the nature of reflector mirror used with bulbs on the cross roads? 1
8. The time period of a sound wave is 0.02 second, find its frequency. 1
9. Write the value of absolute zero temperature in degree celsius(^{0}C). 1
10. What is the rate of flow of electric charges called? 1

(Very Short Answer Type Questions)

11. An aeroplane is moving in a circular path with the speed of 1000 km/hr. Find the value of change in velocity after- 2
    i. half revolution
    ii. one complete revolution
12. Find the relation between focal length (f) and the radius of curvature (R) of a concave mirror . 2
13. Write the laws of reflection of light. 2
14. Cloudy night is hotter than a clear sky night? Explain. 2
15. When a cell of emf 1.2 volt is connected to the resistance of 5 ohm , current of 0.1 ampere flows, find the internal resistance of the cell. 2

(Short Answer Type Questions)

16. The specific heat capacity of water is high. What is the meaning of this statement? 2 + 2
    The Ratio of heat capacity of two utensils made of same material is 2:5. Find the ratio of their masses.

17. A body of mass 50 kg is situated at the height of 10 metres from the earth surface. If the body is falling downwards, find the velocity and kinetic energy of the body just before it strikes the earth surface. Also write the name of the principle involved. 2+1+1

18. Compare between ammeter and voltmeter. How can a galvanometer be converted into an ammeter? Derive the necessary formula. 2+1+1

(Long Answer Type Questions)

19. When ice is heated the temperature of ice remains constant till it melts completely. Give reason. 2
What is the energy released by 50 gram of 100 ^{0}C steam that con denses at 85 degree celsius. Latent heat of steam is 540 cal/g. 4

OR

Write the principle & condition for conservation of linear momentum.

A stone of mass 20 kg falling from a hill with the speed of 15 metre/second gets divided into two pieces of 15 kg and 5 kg. If the velocity of big piece is zero, find out the velocity of the small piece. 2+4

20. Write two conditions in which the potential difference between the plates of a cell becomes equal to EMF of the cell. 2
If two bulbs of 25 and 200 watts are connected to main power supply in series & parallel combination respectively, which bulb will glow brighter Explain giving proper reason. 2+2

OR

What is relative density? Give its unit. 1+1
Explain Archimedes principle. The relative density of ice & sea water is 0.9 & 1.03 respectively. Find the part of floating ice which will remain immersed in sea water. 2+2

21. What is myopia? What is the cause of it? How is this defect of vision corrected? 2+2+2

OR

a. What is the difference between ohmic & non-ohmic conductors. 2
b. What do you mean by internal resistance of a cell? What are the factors on which the internal resistance of a cell depend? 1+3