Q1. Systematics refers to the study of

A) Diversity of kinds of organisms and their relationships
B) Identification and classification of plants and animals
C) Nomenclature and identification of plants and animals
D) Different kinds of organisms and their classification

Q2. Species become extinct most easily by

A) Sliding of hills
B) Heavy rains
C) Deforestation
D) Urbanisation

Q3. Binomial nomenclature means

A) One name given by two scientists
B) One name comprising a generic name and a specific epithet
C) Two names—one scientific and the otherlocal
D) Two names—one latinised and the other of a person

Q4. Gases exert pressure on the walls of the container because the gas molecules:

A) collide one another
B) exert intermolecular attraction
C) possess momentum
D) expand on absorbing heat

Q5. The inability of body to change its state of uniform motion or rest is known as

A) Newton's second law of motion
B) Law of inertia
C) Newton's law of gravitation
D) Newton's third law of motion

Q6. Pyrenoids are characteristically found in the chloroplasts of

A) Fungi

B) Angiosperms
C) Algae
D) Pteridophytes

Q7. In Na_2O oxidation state of oxygen is:

A) -1
B) 0
C) +1
D) +2

Q8. Which of the following is not aromatic?

A) Cyclopropenyl cation
B) Cyclopentadienyl cation
C) Cyclopentadienyl anion
D) Tropylium cation

Q9. Four billiards balls, each of mass 0.5 kg, all are travelling in the same direction on a billiard table, with speeds of 2 m/s, 4 m/s, 8 m/s and 10 m/s. What is the linear momentum of this system?

A) 2 kg-m/s
B) 12 kg-m/s
C) 5 kg-m/s
D) 10 kg-m/s

Q10. A solution of 10% boric acid is to be diluted by adding a 4% boric acid solution to it. The resulting mixture is to be more than 5% but less than 8% boric acid. If we have 750 litres of the 10% solution, then the quantity of the 4% solution that has to be added will lie between

A) 375 litres and 3750 litres
B) 370 litres and 3700 litres
C) 370 litres and 3750 litres
D) 320 litres and 1280 litres

Q11. Reaction of granulated zinc with dil HCl results in formation of:

A) Tritium
B) HD
C) Protium
D) Dihydrogen

Q12. The arithmetic mean between 6 and - 12 is:

A) 9
B) -3
C) -6
D) 6

Q13. In the overall process of photosynthesis, the number of CO_2, water, sugar and 0_2molecules utilised and produced is

A) 13
B) 19
C) 31
D) 12

Q14.The equation of the line parallel to the line 2x – 3y = 1 and passing through the middle point of the line segment joining the points (1, 3) and (1, –7), is:

A) 4x – 6y + 7 = 0
B) 2x – 3y – 8 = 0
C) 2x + 3y – 5 = 0
D) 3x – 2y + 8 = 0

Q15. The first law of thermodynamics

1. Is a restatement of the principle of conservation of energy as applied to heat energy

2. Is the basis for the definition of internal energy

3. Is basis for the definition of temperature

4. asserts the impossibility of achieving an absolute zero temperature.

A) Both 1 and 2
B) Only 1
C) Both 1 and 3
D) 1,2,4

Q16. Any point on the parabola whose focus is (0,1) and the directrix is x + 2 = 0 is given by

A) $(t^2 + 1, 2t - 1)$
B) $(t^2 + 1, 2t + 1)$
C) $(t^2 - 1, 2t + 1)$
D) $(t^2, 2t)$

Q17. An object is situated at a distance of f/2 from a convex lens of focal length f. Distance of image will be

A) -(f/2)
B) +(f/4)
C) +(f/3)
D) -f

Q18. When light goes from an optically rarer to an optically denser medium,

A) angle of incidence < angle of refraction
B) angle of incidence = angle of refraction
C) angle of incidence > angle of reflection
D) angle of incidence > angle of refraction

Q19. A big shiny spoon is a good example of a _____.

A) Plane mirror
B) Concave mirror
C) Spherical mirror
D) Convex mirror