Question Number	**Second term examination – December 2022** **IX th – Physics** Answer key prepared by : NK Ibrahim, HST Physics, Malabar Wafy International School, Kottakkal, Malappuram 1	Marks
1	Momentum = Mass × Velocity	1
2	d. Water stored in a dam. (Others are potential energy due to string)	1
3	c. No change	1
4	a = 1 m/s^2, m = 1 kg F = ma 1 × 1 = 1 N	1
5	m = 100kg Weight = mass × gravity Weight on earth = 100×9.8 = 980N ie. 980/9.8 = 100 kgwt Weight on moon = 100 × 1.62 = 162 N ie. 162/9.8 = 16.53 kgwt	2
6	**Sl.No.** | **Equipment** | **Energy transformation** 1 | Electric iron box | A. Electrical energy →Heat energy 2 | Electric bulb | B. Electrical energy →Light energy 3 | Electric fan | C. Electrical energy → Mechanical energy 4 | Electric generator | D. Mechanical energy →Electrical energy	2
7	Inertia of motion : a, b Inertia of rest : c, d	2
8	No, it is internal force which has no effect	2
9	a. 3rd law b. 1st law (inertia of rest) c. 2nd law (impulse -> Force inversely proportional to time) d. 3rd law	2
10	$F= G\ m_1\ m_2/d^2$ $6.67\times 10^{-11} \times 10000 \times 4000 / 4$ = $\mathbf{6.67 \times 10^{-4}}$ **N**	2
11	a. Those are experienced on different bodies b. Due to absence of reaction	2
12	a. Newton's first law of motion (Here the force is balanced) b. Definition of 1st law	2
13	a. Zero b. When a body is allowed to fall from a height, it falls to the earth due to gravity.	2
14	a. F&G will move forward b. A,B,C & D will move c. Law of conservation of momentum	3

15	m = 4kg, h = 2m , v = 2m/s $U = mgh = 4 \times 10 \times 2 = 80$ J $K = \frac{1}{2} mv^2 = \frac{1}{2} \times 4 \times 2^2 = 8$J Potential energy is more	3
16	a. At pole b. At equator (At centre of earth, weight =0) c. Weight = mg , value of g is maximum at pole and minimum at equator, value of g is zero at centre of earth)	3
17	m = 10kg h = 5+3 = 8m $U = mgh = 10 \times 10 \times 8 = 800$ J	3
18	a. i) Common balance ii) Spring balance b. Spring balance c. 1 kgwt is the force of attraction by the earth on an object of mass 1kg	3
19	a. $a = v-u / t = 20-0 / 10 = 2 m/s^2$ b. $F = ma = 1000 \times 2 = 2000$ N	3
20	a. To increase the force by decreasing time (Force is inversely proportional to time) b. To decrease the force by increasing time c. Inertia of motion d. Inertia increases with increasing mass	4
21	a. The acceleration experienced by an object in a circular motion, along the radius, towards the centre. b. $Fc = mv^2/ r$, here m = 4kg, v = 5m/s, r = 2m $Fc = 4 \times 5^2/ 2 = 50$ N c. The hammer will thrown off along the tangent at that point.	4
22	a. J - joule b. Zero (because h = 0) c. $W = mgh = 5 \times 10 \times 2 = 100$ J d. i. Positive ii. Negative	4
Prepared by NK Ibrahim Wafy, HST physics, Malabar Wafy International School, Kottakkal, Malappuram		IB Adoor, Kannur