

KLINE MEMORIAL SCHOOL OF UBS, PUNE

WORKSHEET 2 – 2020 – 2021

SUBJECT: PHYSICS

Topic : Work, Power and Energy – Part A

Class : X

Date : 18-05-2020

Instructions:

*Answers to all worksheets must be written in **Physics notebook** along with the questions.*

Part A

- 1. A coolie carrying a load on his head and moving on a frictionless horizontal platform does no work. Explain the reason, why? [Year 2011]**
- 2. How is work related to the applied force? [Year 2002]**
- 3. Define work. [Year 2002]**
- 4. How is work done by a force measured when the force:
(i) is in the direction of displacement.
(ii) is at an angle to the direction of displacement. [Year 2015]**
- 5. Explain briefly why the work done by a fielder when he takes a catch in a cricket match is negative. [Year 2015]**
- 6. (i) When does a force do work?
(ii) What is the work done by the moon when it revolves around the earth? [Year 2014]**
- 7. A man having a box on his head, climb up a slope and another man having an identical box walks the same distance on a leveled road. Who does more against the force of gravity and why? [Year 2014]**
- 8. A body is acted upon by a force. State two conditions under which the work done could be zero. [Year 2010]**
- 9. State the amount of work done by an object, when it moves in a circular path for one complete rotation. Give your reason to justify your answer. [Year 2006]**
- 10. What should the angle between forces and displacement be to get the
(i) minimum work? (ii) maximum work? [Year 2005]**
- 11. Define joule the S.I. unit of work and establish a relationship between the S.I. and C.G.S. units of work. [Year 2008]**

12. (i) Define a kilowatt. How is it related to the joule?
(ii) How can the work done be measured when force is applied at an angle to the direction of displacement? [Year 2007]
13. 1kWh _____ J. [[Year 2015]
14. If the power of a motor be 100 kW, at what speed can it raise a load of 50,000N? [Year 2017]
15. If the power of a motor is 40 kW, at what speed does it raises a load of 20,000N? [Year 2003]
16. A machine raises a load of 750 N through a height of 16 m in 5 s. Calculate the power at which the machine works. [Year 2002]
18. (i) State and define the S.I. unit of power.
(ii) How is the unit horse power related to the S.I. unit of power? [Year 2018]
19. A boy weighing 40 kg climbs up a stair of 30 steps each 20 cm high in 4 minutes and a girl weighing 30 kg does the same in 3 minutes. Compare
(i) The work done by them. (ii) The power developed by them. [Year 2016]
20. Rajan exerts a force of 150 N in pulling a cart at a constant speed of 10 ms^{-1} . Calculate the power exerted. [Year 2015]