

NAME:		ROLL NO:		TIME:	50: MIN
SUB:	Physics	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 4 (Work, Energy and Power)	T. MARKS	30	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x10=10)

- For freely falling body, in the presence of force of friction the:**

(A) Loss in P.E = Gain in K.E (B) Loss in P.E > Gain in K.E
(C) Loss in P.E < Gain in P.E (D) None of these
- Original source of energy for biomass is:**

(A) Earth (B) Moon (C) Sun (D) Star
- The unit of energy is the same as that of:**

(A) Torque (B) Work (C) Both 'a' and 'b' (D) Power
- The gravitational P.E is always determined relative to some arbitrary position which assigned the value of:**

(A) Minimum P.E (B) Maximum P.E (C) Zero P.E (D) Negative P.E
- If we go above the surface of earth, the gravitational force:**

(A) Remains constant (B) Becomes zero
(C) Varies inversely to the square of the distance (D) Varies directly to the square of the distance
- The consumption of energy by a 40 watt bulb in 2 sec is:**

(A) 0.02 J (B) 30 J (C) 80 J (D) 120 J
- Which one is non-renewable source of energy:**

(A) Wind (B) Biomass (C) Coal (D) Sunlight
- The value of escape velocity is:**

(A) 1.1 km/s (B) 11 km/s (C) 1.1 km/s (D) 1.1 cm/s
- The work done is said to be negative:**

(A) Work is always position (B) $\theta < 90^\circ$
(C) $\theta > 90^\circ$ (D) $\theta = 90^\circ$
- Gravity performs zero work when body moves:**

(A) Vertically (B) Horizontally (C) At 60° with vertical (D) At 45° with horizontal

PART-I

Q. 2 Write Short Answers of the Following Questions (2x6=12)

- Define kWh and show that 1 kWh = 3.6 MJ
- Derive work energy principle.
- A bicycle has a K.E. of 150 J. What K.E. would the bicycle have if it had?
 - Same mass but has speed double?
 - Three times mass and was moving with one half of the speed?
- A light and heavy body has same linear momentum, which one has greater K.E.?
- A motorcycle is running with constant speed on a horizontal track. Is any work being done on the motorcycle, if no net force is acting on it?
- What do you mean by variable force? Give its examples.

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PART-II

Write Answers of the Following Questions in Detail.

- Q. 3 (a) Discuss interconversion of potential energy and kinetic energy. How this conversion in affected in the presence of frictional force. 4
- (b) If mass of the Earth is 6.0×10^{24} kg mass of the sun is 1.99×10^{30} kg. The sun is 160 million km away from the Earth. Find the value of gravitational P.E. of the Earth. 4

Answer Key

1	B	2	C	3	C	4	C
5	C	6	C	7	C	8	B
9	C	10	B				