



St. Mary's Convent School Gulaothi, U.P. (2026 – 27)
Set - B

MCQ PAPER
Class 10
Physics

T.sign ~~XXXX~~
Time: 45 min.
Max Marks:20

NAME:-

N	I	H	A	L	S	I	R	O	H	I								
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Write name in capital letter
ROLL NO:-

1	8			
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General instructions

- 1.All question are compulsory.
- 2.Write neatly and clearly in given space.
- 3.Do not cut or fill the circle given on upper and bottom of paper.
- 4.Write the answer of each question in the space provided

Write the option in capital letters only)

Section A : Write down the correct option for the given questions.

- ANS 1:

c

 ✓ 0.5 /0.5
- ANS 2:

a

 ✗ 0.0 /0.5
- ANS 3:

b

 ✓ 0.5 /0.5
- ANS 4:

d

 ✓ 0.5 /0.5

Section B Very Short Answer (2 × 1 = 2 marks)
Missing that displacement should be in the direction of force.

ANS 5: 0.5

When someone applies force and displaces any body (vastly or partially) is known as doing work. It is the product of the force applied and displacement done. It's S.I. unit is Joule

ANS 6:

1.0 ✓

The principle of Conservation of Energy states that — energy can never be created nor destroyed it can only be transferred from one state to another.

ANS 7:

Conditions for a body to be in equilibrium:-

① The resultant force should be zero

② The state of the body should not change

Marks	1.0
Teacher's feedback	Partially correct. For equilibrium, both net force must be zero (translational) and net moment/torque about any point must be zero (rotational). You only stated the first condition.

ANS 8:

① Centripetal Force, in uniform circular motion is the force which is directed towards the centre. ✓

② It is a real force ✓✓

① Centrifugal force, in uniform circular motion is the force which is directed away from the centre. ✓

② It is a assumed force

Marks	2.0
Teacher's feedback	Correct distinctions: centripetal is inward and real; centrifugal is outward and fictitious. Well done. ✓✓

ANS 9:

Mass of the boy = $40 \text{ kg} = (40 \times 9.8) \text{ N} = 3920 \text{ N}$

Height = 5 m
 $d = 5 \text{ m}$

Work done = Force $\times$ displacement ✓
 $= 3920 \times 5$
 $= \cancel{2000} \text{ J} = 1960 \text{ J}$

Time taken = 20 s

Power developed = $\frac{W}{t} = \frac{1960}{20} = 98 \text{ W}$

Marks	2.0
Teacher's feedback	Correct work (1960 J) and power (98 W). However, you equated mass with weight; 40 kg is mass, 392 N is weight. Label 392 N as weight/force due to gravity, not mass. ✓

ANS 10:

The relation between work, force and displacement is that work is directly proportional to force and displacement

Example - Let real work be = 50J and Force be 25N and $d = 2m$

Now if we make the distance half = 1m the work will also be halved = 25J

Marks	1.0
Teacher's feedback	State the exact relation: $W = F d$ (or $W = F d \cos\theta$). Proportionalities alone are incomplete. Give one clear example with all quantities; your second example omits the force value.

ANS 11:

Given :-
Force = 50N

displacement = 0m (since it does not displace)

work done = $F d$
 $= 50 \times 0$
 $= 0 J$

no work is done

Marks	2.0
Teacher's feedback	Correct. Since displacement is zero, work done is zero ($W = F \times s = 0$). Explanation is sufficient.

ANS 12:

Since, $K = \frac{p^2}{2m}$ ✓

and, $p = mv$

then, $K = \frac{mv^2}{2} = \frac{mv^2}{2}$ ✓✓

So, $K = \frac{1}{2}mv^2$ ✓

Marks	3.0
Teacher's feedback	Correct result. Derivation is very brief; showing the work-energy steps would make it clearer.

ANS 13:

Force = 200 N

Height = 2 m
d = 2 m

Work done = Fd
 $= 200 \times 2$
 $= 400 \text{ J}$ ✓

Time taken = 5 s
Power developed = $\frac{W}{t} = \frac{400}{5} = 80 \text{ W}$

Marks	3.0
Teacher's feedback	Correct solution. Work and power are calculated accurately.

17.0/20.0