NAME: _____

YEAR: 12 _____

# BA PROVINCIAL FREE BIRD INSTITUTE

# TERM ONE END EXAMINATION 2021

# YEAR 12 PHYSICS

# ANSWER BOOKLET

**HAND IN THIS ANSWER BOOKLET TO THE SUPERVISOR
BEFORE YOU LEAVE THE EXAMINATION ROOM**

**Mark
Gained:**

100

**STRAND 1**  MECHANICS  [80 marks]

| | | | | |
|---|---|---|---|---|
| 1 | A | B | C | D |
| 2 | A | B | C | D |
| 3 | A | B | C | D |
| 4 | A | B | C | D |
| 5 | A | B | C | D |
| 6 | A | B | C | D |
| 7 | A | B | C | D |
| 8 | A | B | C | D |

| | | | | |
|---|---|---|---|---|
| 9 | A | B | C | D |
| 10 | A | B | C | D |
| 11 | A | B | C | D |
| 12 | A | B | C | D |
| 13 | A | B | C | D |
| 14 | A | B | C | D |
| 15 | A | B | C | D |
| 16 | A | B | C | D |

**(16 marks)**

17)
  (i) Name

**(1 mark)**

  (ii) Part

**(1 mark)**

  (iii) Uncertainty

**(1 mark)**

18)
  (i) Perimeter

**(2 marks)**

(ii) Area

**(2 marks)**

19)

(i) Relationship

**(1 mark)**

(ii) Shape

**(1 mark)**

(iii) Value of $E$

**(1 mark)**

20) Change in velocity

**(2 marks)**

21)

   (i) Time

**(1 mark)**

   (ii) Distance, d

**(1 mark)**

   (iii) Angle

**(1 mark)**

22) Velocity

**(2 marks)**

23) Speed

**(2 marks)**

24)

   (i) Force, F

**(2 marks)**

   (ii) Tension

**(1 mark)**

25)

   (i)

20 kg

**(1 mark)**

   (ii) Net force

**(1 mark)**

   (iii) Acceleration

**(1 mark)**

   (iv) Tension

**(1 mark)**

26)

   (i)  Sliding force

                                      **(1 mark)**

   (ii) Acceleration

                                      **(2 marks)**

27)

   (i)  Principle

                                      **(1 mark)**

   (ii) Distance, X

                                      **(2 marks)**

28)

   (i)  Total anti-clockwise moment

                                      **(1 mark)**

   (ii) Force at A

                                      **(2 marks)**

(iii)Force at B

**(2 marks)**

29)

   (i) Acceleration

**(1 mark)**

   (ii) Time

**(1 mark)**

30)

   (i) Type of motion

**(1 mark)**

   (ii) Acceleration

**(1 mark)**

   (iii)Final velocity

**(1 mark)**

31)

(i) Horizontal velocity

**(1 mark)**

(ii) Vertical velocity

**(1 mark)**

(iii) Time

**(1 mark)**

(iv) Horizontal distance

**(1 mark)**

32)

(i) Vertical velocity

**(1 mark)**

(ii) Horizontal velocity

**(1 mark)**

(iii) Time

**(1 mark)**

(iv) Maximum height

**(1 mark)**

(v) Range

**(1 mark)**

33)

   (i) Change in momentum

**(1 mark)**

   (ii) acceleration

**(2 marks)**

34)

   (i) Total momentum before collision

**(1 mark)**

(ii) Final speed

**(2 marks)**

(iii)Kinetic energy and elastic or inelastic

**(2 marks)**

35)

   (i) Period

**(1 mark)**

   (ii) Centripetal force

**(2 marks)**

36) Gravitational force

(2 marks)

**STRAND 2**          **ENERGY**          **[20 marks]**

| 1 | A | B | C | D |
|---|---|---|---|---|
| 2 | A | B | C | D |

| 3 | A | B | C | D |
|---|---|---|---|---|
| 4 | A | B | C | D |

(4 marks)

5) Heat energy

(2 marks)

6)

   (i) Heat energy

(1½ marks)

   (ii) Power

(1½ marks)

7)

   (i) Example

(1 mark)

   (ii) One consequence

(1 mark)

   (iii)One solution

(1 mark)

8)

(i) Potential energy at A

(1 mark)

(ii) Kinetic energy at A

(1 mark)

(iii) Potential energy at B

(1 mark)

(iv) Kinetic energy at B

(1 mark)

(v) Velocity at B

(1 mark)

9)

(i) Kinetic energy at X

(1½ marks)

(ii) distance

(1½ marks)

THE END