
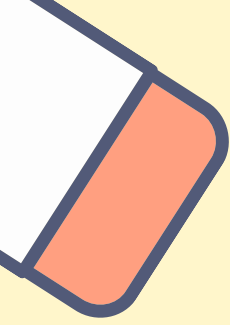






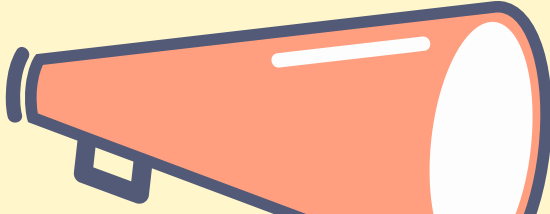

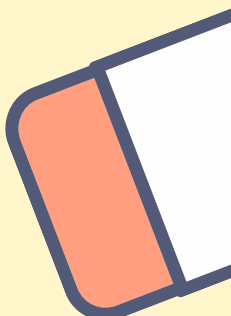


LIST OF DEFINITION IN PHYSICS FORM 4 (KSSM)

**PREPARED BY: NUR SYAFIQAH BINTI
HUSAINI**



CHAPTER 1: MEASUREMENT

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- 
- 
- 
- 
- 1 MEASUREMENT**
Method to determine the value of physical quantity
 - 2 BASE QUANTITIES**
Physical quantities that cannot be defined in terms of other physical quantities
 - 3 DERIVED QUANTITIES**
Physical quantity that is derived by combination of base quantities
 - 4 SCALAR QUANTITIES**
Physical quantity that has only magnitude
 - 5 VECTOR QUANTITIES**
Physical quantity that has both magnitude and direction
- 
- 

CHAPTER 2: FORCE & MOTION I

1 **LINEAR MOTION**
Motion in a straight line

2 **DISTANCE**
Length of the route traveled by an object

3 **DISPLACEMENT**
Shortest distance between the initial and final position in a specific direction

4 **SPEED**
Rate of change of distance

5 **VELOCITY**
Rate of change of displacement

6 **ACCELERATION**
Rate of change of velocity

CHAPTER 2: FORCE & MOTION I

7 **ONE TICK**
Time interval between two adjacent dots

8 **FREE FALL**
Motion of an object is affected by gravitational force

9 **INERTIA**
The tendency of an object to remain at rest or if moving to continue its motion in a straight line at uniform velocity

10 **NEWTON'S FIRST LAW OF MOTION**
An object will remain at rest or move at uniform velocity unless acted upon by an external force

11 **MOMENTUM**
Product of mass and velocity

CHAPTER 2: FORCE & MOTION I

★
12

PRINCIPLE OF CONSERVATION OF MOMENTUM

Total momentum before collision is equal to the total momentum after collision if no external forces is acting on it

13

CONSERVATION OF MOMENTUM IN COLLISION

Total momentum before and after collision is equal

★
14

CONSERVATION OF MOMENTUM IN EXPLOSION

Total momentum before and after explosion is equal (but in different direction)

15

FORCE

An action can change the state of motion of an object

CHAPTER 2: FORCE & MOTION I

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16

NEWTON'S SECOND LAW OF MOTION

Rate of change of momentum is directly proportional to the force and acts in the direction of applied force

IMPULSE

17

Change of momentum

★
18

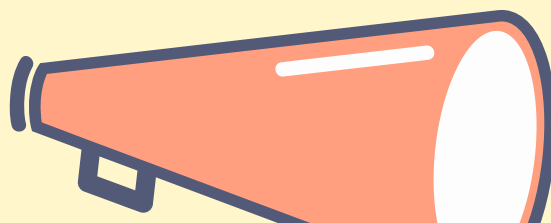
IMPULSIVE FORCE

Rate of change of momentum in a collision or impact in a short period of time

★
19

-NEWTON'S THIRD LAW OF MOTION

For every action there is a reaction of equal magnitude but opposite direction



CHAPTER 2: FORCE & MOTION I

20

WEIGHT

Gravitational force acting on an object

21

GRAVITATIONAL FIELD STRENGTH

Force per unit mass due to gravitational pull

CHAPTER 3: GRAVITATION

1

GRAVITATIONAL FORCE

Gravitational force act between any two bodies in the universe

2

NEWTON'S UNIVERSAL LAW OF GRAVITATION

Gravitational force is directly proportional to the product of masses of two bodies and inversely proportional to the square of the distance between the centers of the two bodies

3

CENTRIPETAL FORCE

Force acts on the body in a direction towards the centre of the circle

4

LINEAR SPEED

The distance traveled by a moving object

CHAPTER 3: GRAVITATION

5

KEPLER'S FIRST LAW

All planets move in elliptical orbits with the Sun at one focus

6

KEPLER'S SECOND LAW

A line that connects a planet to the Sun sweeps out equal areas in equal times

7

KEPLER'S THIRD LAW

The square of the orbital period of any planet is directly proportional to the cube of the radius of its orbit

8

ESCAPE VELOCITY

The minimum velocity needed by an object on the surface of the Earth to overcome gravitational force and escape to outer space

CHAPTER 3: GRAVITATION

9

GEOSTATIONERY

Direction of motion same as the direction of Earth rotation

10

NON GEOSTATIONERY

Direction of motion doesn't have to be the same as the direction of Earth rotation



CHAPTER 4: HEAT



1

THERMAL EQUALIBRIUM

Net heat transfer between the two objects becomes zero



2

THERMOMETRIC PROPERTIES

Physical properties which can be measured which changes with temperature



3

CALIBRATION

Process of making a scale of reading on a thermometer



4

HEAT CAPACITY

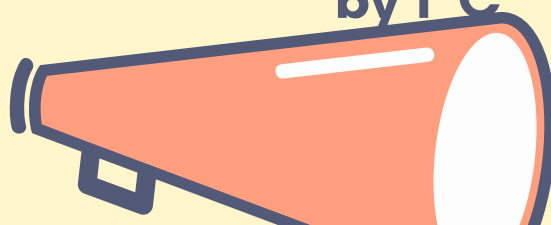

Quantity of heat energy needed to raise the temperature by 1°C



5

SPECIFIC HEAT CAPACITY

Quantity of heat energy needed to raise the temperature of 1kg mass by 1°C



CHAPTER 4: HEAT

6

LATENT HEAT

Heat absorbed during melting and boiling without change in temperature

7

SPECIFIC LATENT HEAT

Quantity of heat that is absorbed or released during a change of phase of 1kg of the substance without any change in its temperature

8

SLH OF FUSION

Quantity of heat that is absorbed during melting released during freezing of 1kg of the substance without any change in its temperature

CHAPTER 4: HEAT

9

SLH OF VAPORISATION

Quantity of heat that is absorbed during boiling or released during condensation of 1kg of the substance without any change in its temperature

10

BOYLE'S LAW

Pressure is inversely proportional to volume for a fixed mass of gas at constant temperature

11


CHARLES' LAW

Volume is directly proportional to absolute temperature for a fixed mass of gas at constant pressure

12

GAY-LUSSAC'S LAW

Pressure is directly proportional to absolute temperature for a fixed mass of gas at constant volume



CHAPTER 5: WAVES



1

OSCILLATION & VIBRATION

Repetitive motions about an equilibrium position in a closed path



2

PROGRESSIVE WAVE

Profile of wave propagates with time along the direction of propagation of wave



3

STATIONERY WAVE

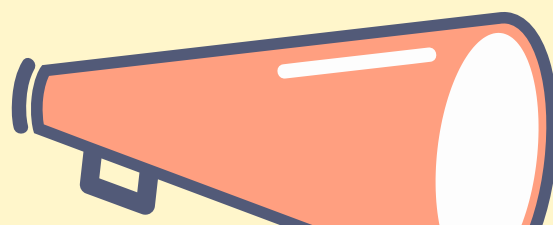
Profile of wave does not propagate with time




4


TRANSVERSE WAVE

Particles of medium vibrates in the direction perpendicular to the direction of propagation of the wave









CHAPTER 5: WAVES



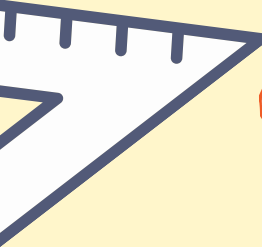
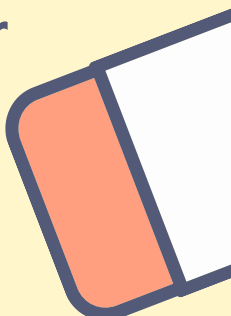
5 **LONGITUDINAL WAVE**
Particles of medium vibrates in the direction parallel to the direction of propagation of the wave



6 **MECHANICAL WAVE**
Requires medium to transfer energy



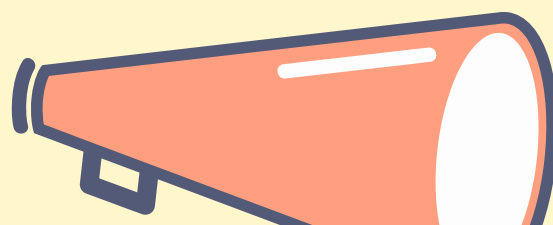
7 **ELECTROMAGNETIC WAVE**
Does not require medium to transfer energy


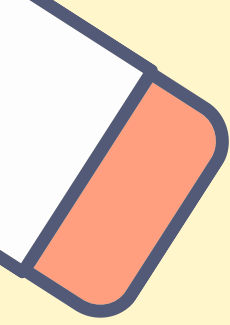


8 **AMPLITUDE**
Maximum displacement of a particle from its equilibrium position



9 **PERIOD**
Time taken by a particle to make a complete oscillation





CHAPTER 5: WAVES



10

FREQUENCY


Number of complete oscillations made by a particle in one second



11

WAVELENGTH

Distance between two consecutive points in phase



12

WAVE SPEED

Distance travelled per second by a wave profile



13

DAMPING

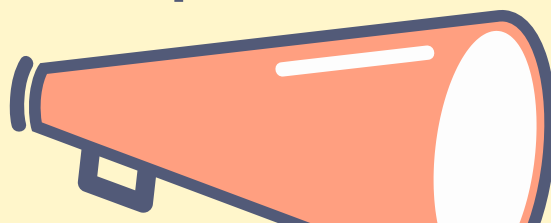

Reduction in amplitude in an oscillating system due to loss of energy


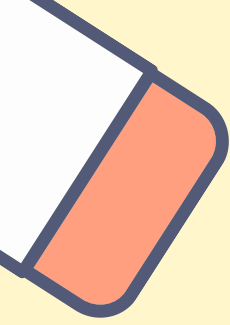


14

INTERNAL DAMPING

Loses energy because of stretching and compression of vibrating particles in a system





CHAPTER 5: WAVES



15

EXTERNAL DAMPING

Loses energy to overcome friction or air resistance



16


NATURAL FREQUENCY

Frequency of oscillating system without external forces



17

RESONANCE



When a periodic force is applied to an oscillating system at its natural frequency



18


WAVEFRONT

The line connecting the points in phase in a wave

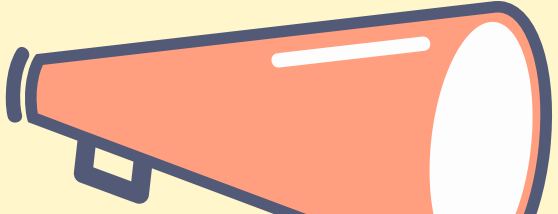



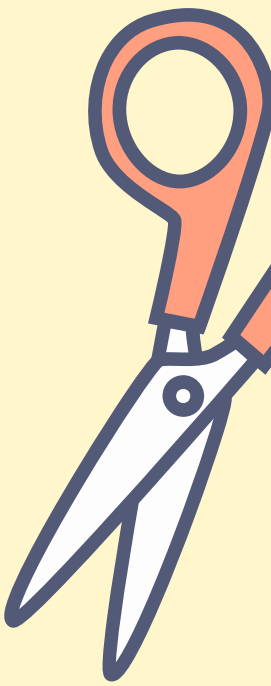
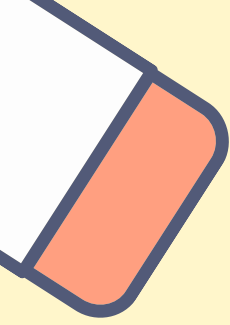
19

REFRACTION OF WAVE



Change in direction of propagation of wave caused by the change in the velocity of waves when the waves propagates from one medium to another





CHAPTER 5: WAVES



20


DIFFRACTION OF WAVE

Spreading of waves when the waves propagate through a slit or side of a barrier



21

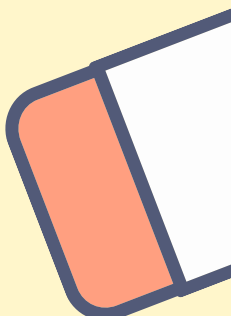
INTERFERENCE OF WAVE

Superposition of two or more waves from a coherent source of wave 



23


PRINCIPLES OF SUPERPOSITION OF WAVE

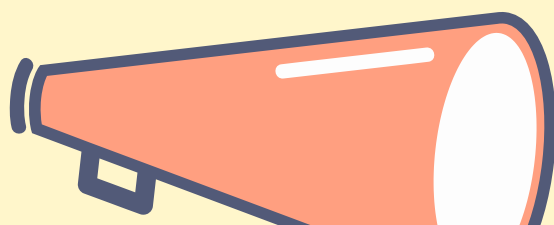
When two waves overlap, the resultant displacement is the sum of individual displacements of the two waves 




24

COHERENT WAVE

Same frequency, phase difference is constant 





CHAPTER 5: WAVES



25

ELECTROMAGNETIC WAVE

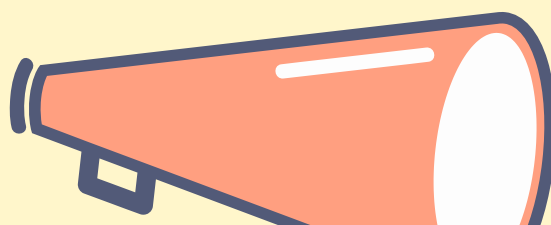
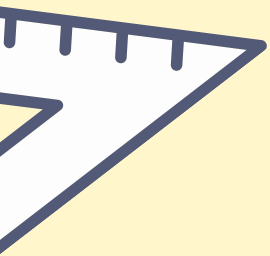
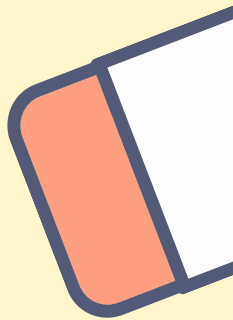

Electric and magnetic fields oscillate perpendicularly to one another



26

CONTINUOUS SPECTRUM

No specific boundary that separates two adjacent types of waves



CHAPTER 6: LIGHT & OPTICS

1

REFRACTION OF LIGHT

Change in velocity of light when travelling through medium of different optical densities

2

REFRACTIVE INDEX

The ratio of speed of light in vacuum to the speed of light in medium

3

TOTAL INTERNAL REFLECTION

Light travels from a medium of high optical density to a medium of low optical density

4

CRITICAL ANGLE

Angle of incidence in the medium of high optical density when the angle of refraction in the medium of lower optical density is equal to 90°

CHAPTER 6: LIGHT & OPTICS

5 **OPTICAL CENTRE**
Point at centre of lens

6 **PRINCIPLE AXIS**
Straight line through optical centre and centre of curvature of both surfaces of lens

7 **AXIS OF LENS**
Straight line through optical centre and perpendicular to principle axis

8 **FOCAL POINT**
Point located at principle axis

9 **OBJECT DISTANCE**
Distance between object and optical centre

CHAPTER 6: LIGHT & OPTICS

★ 10

IMAGE DISTANCE

Distance between image and optical centre

11

FOCAL LENGTH

Distance between focal point and optical centre

12

LINEAR MAGNIFICATION

Ratio of image height to object height

13

CENTRE OF CURVATURE

Centre of sphere which produces a concave or convex mirror

14

RADIUS OF CURVATURE OF MIRROR

Distance between the pole of spherical mirror, P and the centre of curvature, C

The background is a light yellow color with scattered orange and blue stars. Various school supplies are illustrated around the edges: a pencil, a pair of scissors, a ruler, and a megaphone.

THANK YOU!

Good luck and all the best to all SPM
2021 candidates <3

SMK DOKTOR BURHANUDDIN,
TAIPING PERAK