

JINJA JOINT EXAMINATIONS

BOARD

MOCK EXAMINATIONS

535/1 PHYSICS

JJEB 2019

SECTION A

1	D	11	A	21	C	31	A
2	B	12	D 28°C	22	A	32	A
3	C	13	C	23	D/C	33	C
4	B	14	B	24	B	34	B
5	A	15	D B	25	A	35	D
6	B	16	B Beta/ electron	26	C	36	B
7	A	17	A	27	D B	37	A
8	B	18	C	28	D	38	C
9	D B	19	C	29	B	39	D
10	C	20	B D	30	C	40	B

SECTION B

41. a) (i) It states that when a body is in mechanical equilibrium the sum of clockwise moments about a point is equal to the sum of anticlockwise moments about the same point.

(01mk)

- (ii) - The resultant force acting on a body is zero; *Sum of forces in one direction is equal to the sum of forces in opposite direction.*
 - Sum of clockwise moments about any point must be equal to the sum of anticlockwise about the same point.

(02 mks)

- b) Centre of gravity is the point of application of the resultant force due to earth's attraction on it.

(01 mk)

42. a) Archimedes principle states that when a body is wholly or partially immersed in a fluid, it experiences an upthrust equal to the weight of the fluid displaced.

(01 mks)

b) Upthrust = $\rho_a g V = 1.2 \times 10 \times 1000 = 12000\text{N}$
 Weight, $w = 7200 + 0.18 \times 1000 \times 10 = 9000\text{N}$
 Tension in the rope, $T = (12000 - 9000)$
 $T = 3000\text{N}$

(03 mks)

43. a) Gaps allow room for expansion and contraction during hot and cold days.

(1½ mks)

b) Gases expand more than solids because the spaces between the gas molecules are far apart than in solids, so intermolecular forces of gases are weaker and can easily be broken compared to those of solids.

(1½ mks)

c) - Thermostats (in flat iron, fridges, cookers etc)

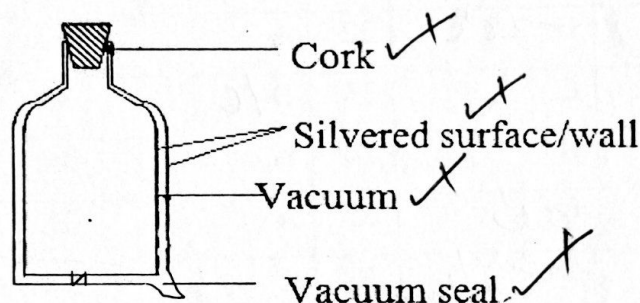
- Ringing alarm bells; making of fire alarms

- used in bimetallic thermometers

- used in making car indicators

(01 mks)

44. a)



- b) (i) - volume of a fixed mass of gas
 - Length of a liquid column in a capillary tube.
 - Electrical resistance of a pure metal
 - Electromotive force induced in a thermocouple.
 - Pressure of a fixed mass of gas.
 - Wavelength etc. / colour of radiation.

(01 mk)

(ii) From $T = \theta + 273$

$$T = -73 + 273$$

$$T = 200\text{K}$$

with or with out unit.
 wrong unit; none.

(01 mk)

45. a) Potential energy – energy a body has because of its position in a gravitational field while kinetic energy is the energy a body has due to its motion.

(02 mks)

b) $m = 2\text{kg}$, $g = 10\text{ms}^{-2}$, $\text{KE} = 900\text{J}$, $h = ?$

$$\text{KE} = mgh$$

$$900 = 2 \times 10 \times h$$

$$h = 45\text{m}$$

45m with unit.

46. a) Transverse wave is one in which the particles of the medium vibrate perpendicularly to the direction of wave motion.

(01 mk)

b) (i) N = Crest

(01 mk)

(ii) M is wavelength = 20cm, $\lambda = 0.2\text{m}$

using $V = f\lambda$

$$18 = 0.2 \times f$$

$$f = 90\text{Hz}$$

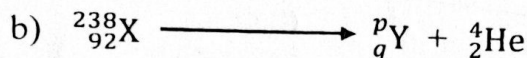
(02 mks)

47.a) (i) Atomic number is the number of protons in the nucleus of an atom of the element.

(01 mk)

(ii) Mass number is the total number of protons and neutrons in the nucleus of an atom of the element.

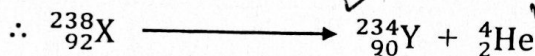
(01 mk)



(01 mk)

$$238 = P + 4 \implies P = 234$$

$$92 = q + 2 \implies 90 = q$$

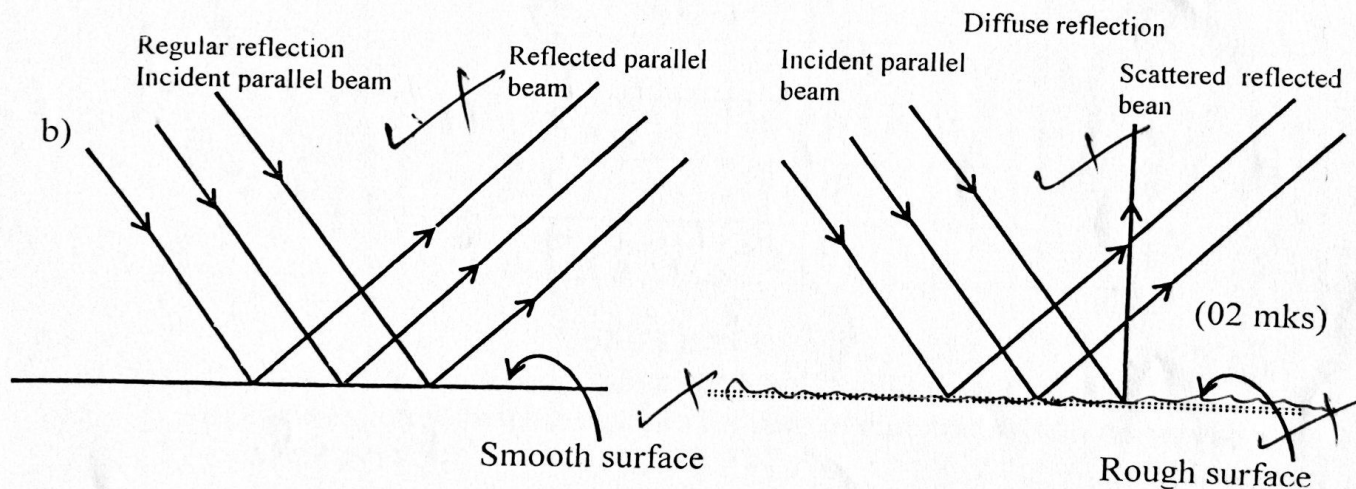


(02 mks)

48. a) - The angle of incidence is equal to the angle of reflection.

(02 mks)

- The incident ray, reflected ray and the normal at the point of incidence all lie in the same plane.



(02 mks)

49. a) A transformer is a device for stepping up or stepping down a.c voltages.

(01 mk)

b) From efficiency = $\frac{P_{out}}{P_{in}} \times 100\%$

$$80/100 = \frac{12I_s}{240 \times 2}$$

$$\therefore I_s = 0.125\text{A}$$

(03 mks)

50. a) - small insects walking on water without sinking (podd skaters)
 - A needle floating on an undisturbed water surface though made of material which is denser than water.

- Liquid drops are almost spherical.
- A liquid surface tends to curve downwards or upwards.
- ~~mercury gathering into small droplets when spilt on a dish~~
- ~~formation of soap bubbles~~

(01 mk)

- b) - Temperature
- ~~Level~~ of impurities.
 - ~~Nature of the liquid.~~

mechanical disturbance of the surface of liquid.

(01 mk)

c) From

$$V = \pi r^2 h$$

$$1.1 \times 10^{-5} = \pi \times 10^2 h$$

$$h = 3.5 \times 10^{-8} \text{ cm}$$

(02 mks)

$$3.5 \times 10^{-8} \text{ m}$$

END