

QB365
Model Question Paper 3
9th Standard CBSE

Science

Reg.No. :

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Time : 02:00:00 Hrs

Section-A

- 1) A load is carried through a distance of 5m in the following different ways. In which case the work done is maximum? 1
(a) Pushed over an inclined plane (b) Lifted vertically upward (c) Pushed over smooth rollers
(d) Pushed on a plane horizontal surface
- 2) A wound watch spring has 1
(a) no energy stored in it (b) mechanical P.E. stored in it. (c) mechanical K.E. stored in it.
(d) electrical energy stored in it.
- 3) A body is under the action of the equal and opposite forces, each of 5 N. The body is displaced by 2m. The work done is 1
(a) +10 J (b) -10J (c) zero (d) 25 J
- 4) Work done is measured by 1
(a) mass * velocity (b) mass * acceleration (c) force * distance (d) force * time
- 5) When a body is projected into space, there is an increase in its 1
(a) kinetic energy (b) potential energy (c) momentum (d) mass
- 6) The separation between two successive crests in a wave is 1
(a) λ (b) $\frac{\lambda}{2}$ (c) 2λ (d) $\frac{\lambda}{4}$
- 7) Which of the following is carried by the waves from one place to another? 1
(a) Mass (b) Velocity (c) Wavelength (d) Energy
- 8) Which one of the following diseases is more likely to spread in the absence of safe drinking water? 1
(a) cholera (b) Tuberculosis (c) tetanus (d) Anthrax
- 9) Which one of the following is dangerous for individual health? 1
(a) Garbage thrown in streets (b) Open drainage (c) Stagnant water around our living (d) All of these
- 10) In gases a sound wave is 1
(a) transverse only (b) longitudinal only (c) both transverse and longitudinal
(d) neither transverse nor longitudinal
- 11) Which one of the following factors are not responsible for formation of soil? 1
(a) Sun (b) Wind (c) Lichens and moss (d) Lightning
- 12) Japanese encephalitis is spread by 1
(a) contaminated water (b) air (c) dog bite (d) mosquito

- 13) Ozone hole was first observed over 1
(a) Antarctica (b) Australia (c) Arctic (d) America
- 14) The kharif season crop is 1
(a) paddy (b) maize (c) wheat (d) cotton
- 15) Humus causes the soil to 1
(a) become more porous (b) allow more water to penetrate deep underground
(c) allow air to reach deep underground roots (d) all of the above
- 16) Which one of the following are not involved in nitrogen fixation? 1
(a) Free living bacteria (b) Rhizobium (c) Lightning (d) Parasitic bacteria
- 17) Nitrogen-fixing bacteria are found in the roots of 1
(a) wheat (b) maize (c) pulse (d) sugar-cane
- 18) Which of the following does not contain nitrogen? 1
(a) Nucleic acids (b) Proteins (c) Alkaloids (d) Fats
- 19) For mixed cropping which combination of crop generally not used? 1
(a) Wheat + maize (b) Wheat + gram (c) Wheat + mustard (d) Groundnut + sunflower
- 20) Which one of the following is known as rock bee? 1
(a) Apis cerana (b) Apis dorsata (c) Apis florea (d) Apis mellifera

Section-B

- 21) How is work done by a force measured? A porter lifts a luggage of 20 kg from the ground and puts it on his head 1.7 m above the ground. Find the work done by the porter on the luggage. 2
- 22) Why do terrestrial life forms require fresh water? 2
- 23) Differentiate between layers and broilers. 2
- 24) What is the work done when the direction of displacement and the direction of force F acting on a body are perpendicular to each other? 2
- 25) A body of mass 10 kg is displaced through a distance of 2m under an acceleration of 5 m/s^2 . Calculate the work done. 2
- 26) Does an object in motion have ability to do work? 2
- 27) A child of mass 35 kg is sitting on a trolley of mass 5kg. The trolley is given a push by applying a force so that begins to move with a speed of 4m/s. The trolley comes to rest after covering a distance of 16m. Find (i) the work done on the trolley and (ii) the work done by the trolley before coming to rest. 2
- 28) How is energy stored in a watch? 2
- 29) Define periodic motion. Give examples. 2
- 30) Define the terms compressions and rarefactions of a wave. 2
- 31) State the characteristics of longitudinal waves. 2
- 32) A stone is dropped into a well, 44.1 metres deep. The sound of the splash is heard 3.13 seconds after the stone is dropped. Find the velocity of sound in air. 2
- 33) A sonar device on a submarine sends out a signal and receives an echo 5s later. Calculate the speed of sound in water if the distance of the object from the submarine is 3625m 2

- 34) 'Public cleanliness is important for individual health' comment. 2
- 35) What are acute and chronic diseases? Which one of the two are more harmful and why? Give an example in support of your answer. 2
- 36) How many times did you fall ill in last one year? what were the illnesses? 2
- (a) Think of one change you could make in your habits in order to avoid any of/most of the above illnesses.
- (b) think of one change you would wish for in your surroundings in order to avoid any of/most of the above illness.
- 37) List four common diseases caused by viruses. 2
- 38) Name vector of malaria parasite. 2
- 39) Match the following: 2

Column A	Column B
(i) Tuberculosis	(a) Liver
(ii) Jaundice	(b) Gut lining
(iii) Typhoid	(c) Trypanosoma
(iv) Sleeping sickness	(d) Lungs

- 40) A group of 6 students was discussing some subject matter all of a sudden a student started sneezing and another one started coughing . Rajesh asked both of them to put a handkerchief on their mouth while sneezing or coughing. 2
- Answer the following questions based on the above information:
- (a) Why did Rajesh ask to put handkerchief while sneezing or coughing?
- (b) Which values are displayed by Rajesh?

Section-C

- 41) What causes winds? 5
- 42) Why do organisms need water? 5
- 43) What is the name of the organism found in the nodule of leguminous plants? 5
- 44) What is the importance of greenhouse gases present in the atmosphere? 5
- 45) name the two gases gives out by burning of fossil fuels, which dissolves in rain to form acid rain. 5
- 46) What is the function of ozone layer? 5
- 47) Write the harmful effects of ozone depletion. 5
- 48) What are the different state in which water is found during the water-cycle? 5

Section-A

- 1) (b) Lifted vertically upward 1
- 2) (b) mechanical P.E. stored in it. 1
- 3) (c) zero 1
- 4) (c) force * distance 1
- 5) (b) potential energy 1

- 6) (a) λ 1
- 7) (d) Energy 1
- 8) (a) cholera 1
- 9) (d) All of these 1
- 10) (b) longitudinal only 1
- 11) (d) Lightning 1
- 12) (d) mosquito 1
- 13) (a) Antartica 1
- 14) (c) wheat 1
- 15) (d) all of the above 1
- 16) (d) Parasitic bacteria 1
- 17) (c) pulse 1
- 18) (d) Fats 1
- 19) (a) Wheat + maize 1
- 20) (b) Apis dorsata 1

Section-B

- 21) 2

Work done by a force is measured by the product of force and displacement when they are in same direction or opposite direction.

Given, $m = 20 \text{ kg}$

$\therefore s = 1.7m$ [where, $m = \text{mass of luggage, } g = \text{acceleration due to gravity.}$]

$\therefore W = F_s = mgs$

[$\because F$ and s are in same direction.]

$$= 20 \times 10 \times 1.7 = 340 \text{ J}$$

- 22) 2

The osmotic concentration of terrestrial forms is low. They can neither store nor eliminate high amounts of dissolved salt present in sea water. Therefore, they require fresh water to maintain the balance of salts within the body.

23)	Layers	Broilers	2
	Layers are egg-laying birds, managements for the purpose of getting eggs	Broilers are maintained for getting meat	
	Layers start producing eggs at the age of 20 weeks. so they are kept for layer periods that depends upon laying period	They are raised upto 6-7 weeks in poultry farms and then sent to market to meat production	
	They require enough space and adequate lighting	they require conditions to grow fast and low mortality	
	They require restricted and calculated feed with vitamins minerals and micronutrients	Their daily food requirements is rich in protein and vitamin-A and K.the fat content also should be adequate	

24) 2

Zero.

This is because the component of the force acting on a body in the direction of its displacement is zero in this case. Moreover,

$$W = F s \cos 90^\circ = 0$$

25) Here $m=10 \text{ kg}$, $a=5 \text{ m/s}^2$, $s=2\text{m}$ 2

Work done, $W=F s = ma \cdot s = 10 \cdot 5 \cdot 2 \text{ J} = 100 \text{ J}$

26) Yes, because it possesses kinetic energy. 2

27) Total mass of child and trolley, $m=35+5=40 \text{ kg}$. 2

Initial speed, $u=4 \text{ ms}^{-1}$, Final speed, $v=0$

(i) Work done on the trolley $= \frac{1}{2}mv^2 - \frac{1}{2}mu^2 = \frac{1}{2} \cdot 40 \cdot (0^2 - 4^2) = -320 \text{ J}$

(ii) Work done by the trolley before coming to rest = Decrease in its K.E
 $= +320 \text{ J}$.

28) 2

In winding a watch, work is done in compressing the spring which is stored in it as potential energy. As the spring expands, it does work and moves the hands of the watch.

29) 2

Periodic motion. The motion of a body repeats itself regularly after a fixed interval of time is called a periodic motion.

Examples of periodic motion:

(i) Motion of a planet around the sun.

(ii) Motion of the hands of a clock.

(iii) Motion of a ball being rotated in a circle at the end of a string.

30) 2

When longitudinal waves pass through a medium, these cause pressure variations in different parts of the medium. The regions of increased pressure are called 'compressions' and the region of decreased pressure are called 'rarefactions'.

31)

2

Characteristics of longitudinal waves are as follows:

- (i) In longitudinal waves, the vibrations of the particles of the medium are along the direction of wave motion.
- (ii) Longitudinal waves travel in the form of alternate compressions and rarefactions.
- (iii) These cause changes in pressure in different parts of the medium.
- (iv) These can be transmitted through all the three types of media, viz., solids, liquids and gases.

32) First we calculate time t taken by the stone to reach the water level in the well by using the relation, 2

$$s = ut + \frac{1}{2}gt^2$$

But $s = 44.1 \text{ m}$, $u = 0$, $g = 9.8 \text{ m/s}^2$

$$\therefore 44.1 = 0 + \frac{1}{2} \times 9.8 \times t^2$$

or $t^2 = \frac{44.1 \times 2}{9.8} = 9$

or $t = 3 \text{ s}$

Time taken by sound to reach the mouth of the well,

$$t' = 3.13 - 3 = 0.13 \text{ s}$$

$$\text{Speed of sound} = \frac{\text{Distance}}{\text{Time}} = \frac{44.1 \text{ m}}{0.13 \text{ s}} = 339.23 \text{ m/s.}$$

33) Time between transmission and detection, $t=5\text{s}$ 2

Distance of the SONAR from the submarine, $d=3625\text{m}$

Total distance covered by sound $= 2d = 2 \times 3625 = 7250\text{m}$

$$\text{Speed of sound, } v = \frac{2d}{t} = \frac{7250}{5}$$

$$= 1450 \text{ m s}^{-1}.$$

34) 2

Garbage thrown in open places, overflowing drain water or sewer, accumulation of stagnant water in ditches etc. cause spread of disease. These are the places where disease causing microbes multiply, mosquitoes and flies breed. Thus, diseases may spread in the community and hence affect individual health.

35) 2

S.No	Acute disease	Chronic disease
1	An acute disease is one which comes rapidly and can be dangerous.	A chronic disease is one that lasts for a long time.
2	It overcomes very soon, not having enough time to cause major effects on general health. Example - Common cold.	It is treated in a long time and causes prolonged general poor health. Example - elephantiasis

36)

2

Three times in the last year. Names of disease - malaria, dysentery, viral fever.

Change in habit

(i) avoiding accumulation of stagnant water to avoid mosquito breeding.

(ii) use of spray and other measures to kill mosquitoes.

(iii) Keeping the surrounding clean.

(iv) use of nourishing food and safe water. Avoiding exposed food and unfiltered water.

(v) personal hygiene.

(b) One change in surroundings: Avoiding accumulation of garbage and stagnant water in the surroundings.

37) (i) common cold

2

(ii) dengue fever

(iii) influenza

(iv) AIDS

38) Females of certain mosquitoes

2

Column A	Column B
(i) Tuberculosis	(d) Lungs
(ii) Jaundice	a) Liver
(iii) Typhoid	b) Gut lining
(iv) Sleeping sickness	(c) Trypanosoma

2

40)

2

While sneezing or coughing the little droplets are thrown out which are carried by air to persons sitting or standing nearby. These infection carrying droplets are inhaled by the persons. Thus, air borne diseases such as common cold, influenza (Flu), small pox, tuberculosis, etc spread in the community.

All the diseases which come out of the nose or throat are being received in handkerchief which can be well washed by soap and anti-infectious substance.

(b) (1) Creating sensitivity about spreading of air borne diseases. (2) Environmental protection.

Section-C

41)

5

The air above the land gets heated faster and being light start rising. As the air rises, a region of low pressure is created. Due to this air over the sea moves into this area of low pressure. The movement of air from one region to the other creates wind.

42) Organisms need water for

5

(i) cellular processes which take place in a water medium.

(ii) transportation of substances from one part of the body to other.

43) Rhizobium bacteria.

5

44)

5

Greenhouse gases such as CO₂, methane (CH₄), prevent the escape of reflected heat (Infrared radiation) from the earth. Thus, help in to keep the average temperature of the atmosphere/ the earth constant. But it is essential that their concentration in the atmosphere remain within the limits.

- 45) Sulphur dioxide (SO₂) and oxides of nitrogen. 5
- 46) The ozone layer protects the earth from the harmful effects of ultraviolet radiation from the sun. 5
- 47) 5
- harmful effects of ozone depletion.
- (i) Due to depletion of ozone layer more ultraviolet (UV) radiation will reach the earth. UV radiations cause skin cancer, damage to eyes and immune system.
- (ii) UV radiation kills microorganisms, such as bacteria, even useful ones.
- (iii) Ozone (causes greenhouse house effect) layer depletion may lead to variation in rainfall, ecological disturbances and dwindling of global food supply.
- 48) Water is found during the watr-cycle in three states, namely solid (ice or snow), liquid and gaseous. 5

