

Q.1) Hydra, a multi-cellular invertebrate of phylum cnidaria(coelenterata) can give rise to new offspring by various methods. Choose the method by which the offspring are produced with significant variations.

- a) budding
- b) regeneration
- c) sexual reproduction
- d) asexual reproduction

Q.1) Solution (a)

Explanation:

- Hydras are a type of freshwater cnidarian related to jellyfish, sea anemones and corals. Hydras reproduce asexually by developing small, genetically identical polyps that protrude from the parent. These polyps break off from the parent to form a new organism in a process called "budding."
- Asexual reproduction produces very closely resembling offspring. Asexual reproduction thus results in offspring with minor variations. Sexually reproducing organisms produce offspring with marked, significant and visible variations.

Q.2) Live Vaccines in current use include:

1. BCG which is an attenuated Bovine strain of the tubercle bacillus
2. Oral Polio virus vaccine
3. TAB vaccine
4. Smallpox vaccine prepared from cowpox virus.

Which of the above statements are correct?

- a) 1 and 2
- b) 1,2 and 3
- c) 1,3 and 4
- d) All of the above

Q.2) Solution (a)

TAB vaccine suspension of killed typhoid and paratyphoid A and B bacilli.

Smallpox has been eradicated.

Q.3) Among the following organisms list out the asexually reproducing organisms:

- 1) Paramecium
- 2) Euglena
- 3) Earthworm
- 4) Bird

Choose the appropriate code:

- a) 1 and 3 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 2, 3 and 4 only

Q.3) Solution (b)

Explanation:

- Paramecium and Euglena are the asexually reproducing organisms.

Q.4) Which of the following is a hereditary disease?

- a) Kwashiorkor
- b) Ringworm
- c) Down's syndrome
- d) Polio

Q.4) Solution (c)

Explanation:

Organic diseases or metabolic disorder	Diabetes mellitus, Diabetes insipidus, Coronary heart diseases, Renal failure, Hypertension, Obesity, Alzheimer's disease, Stroke affecting the functions of the brain	
Hereditary diseases or Genetical disorders	Albinism, Haemophilia, Sickle cell anaemia, Thalassemia, Down's syndrome, Bubble boy syndrome	
Nutritional deficiency diseases	Marasmus, Kwashiorkor	
Diseases caused by micro organisms	Viral diseases	Polio, Rabies, Hepatitis, Meningitis, Encephalitis (brain fever)
	Bacterial diseases	Tuberculosis, Leprosy, Cholera, Typhoid, Diphtheria, Tetanus, Plague, Pneumonia, Syphilis, Gonorrhoea
	Fungal diseases	Ringworm, Dandruff, Athletes' foot
	Protozoan diseases	Malaria, Amoebic dysentery, Sleeping sickness,
Diseases caused by macro organisms (Tapeworm, Liver fluke, Round worm, Filarial worm)	Taeniasis, Ascariasis, Filariasis	

Q.5) Which among the following regulates and controls the amount of light entering the eye?

- a) pupil
- b) retina
- c) lens
- d) iris

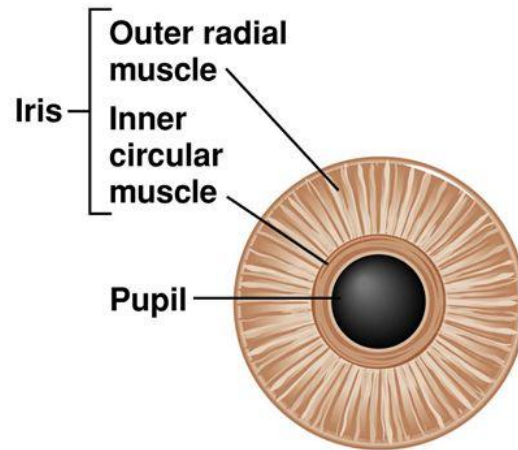
Q.5) Solution (d)

Explanation:

- The iris is the ring of pigmented tissue surrounding the pupil that varies in color. The iris opens and closes to control the amount of light entering the eye through the pupil.
- The pupil is the opening in the center of the iris where light enters the eye. When looking at the eye, the pupil appears black. In dim light, the opening in the center of the iris expands to allow more light to enter the pupil. In bright light, this opening constricts to decrease the amount of light entering the eye to protect it from damage.

Regulation of the Amount of Light Entering the Eye

- The iris controls the amount of light entering the eye cavities
- The contraction of radial or circular smooth muscles located within the iris permit changes in the pupil diameter



(a) Anatomy of iris and pupil

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Q.6) Consider the following Joint Military Exercises and participating countries

1. IBSAMAR :: India Brazil and Argentina
2. Garuda Shakti :: India and Sri Lanka
3. Yudh Abhyas :: India and Nepal
4. Nomadic Elephant :: India and Bhutan

Which of the following is incorrectly matched?

- a) 1,2 and 3
- b) 2 and 3
- c) 1,2 and 4
- d) All of the above

Q.6) Solution (d)

IBSAMAR :: India, Brazil and South Africa

Garuda Shakti :: India and Indonesia

Yudh Abhyas :: India and USA

Nomadic Elephant :: India and Mongolia

Q.7) Consider the following physical quantities

1. Gravitational Potential
2. Impulse
3. Power
4. Change in temperature

Which of the following are vector quantities?

- a) 1 and 2
- b) Only 2
- c) 2 and 4
- d) 1,2 and 3

Q.7) Solution (c)

Scalar is the measurement of a medium strictly in magnitude.

Vector is a measurement that refers to both the magnitude of the medium as well as the direction of the movement the medium has taken.

Impulse is a term that quantifies the overall effect of force acting over time. Since force is a vector quantity, impulse is also a vector in the same direction.

Temperature is a scalar quantity. But **change in anything is a vector quantity** because it can go in any direction. The measurement of the **increase or decrease in the medium's temperature is a vector quantity.**

Gravitational Potential and Power can be fully described by the magnitude or a numerical value alone.

Q.8) Project ReAnima is concerned with which of the following

- a) Revival of brain dead patients
- b) Macrocytic Anaemia
- c) A project of Disney India and Toonz Animation
- d) Retina Display

Q.8) Solution (a)

- It is the **world's first clinical trial on the revival of brain dead patients**
- It is a Joint Venture between US company and a Rudrapur (Uttarakhand) based hospital
- India currently has **no laws for clinical trials on 'living cadaver' or brain dead patients**
→ And since India has no laws, no permissions are required
- It will study the effects of stem cell therapy, Median Nerve Stimulation and a laser therapy on comatose patients

In News – [Click Here](#)

Q.9) Consider following statements with respect to CARTOSAT-2

1. It is an Earth Observation Satellite
2. It's orbit is Polar Sun Synchronous
3. It was launched by GSLV

Which of the statements are correct?

- a) Only 1
- b) 1 and 2
- c) 1 and 3
- d) All of the above

Q.9) Solution (b)

CARTOSAT-2 – [Click Here](#)

In News – [Click Here](#)

Q.10) Consider the following statements with respect to Lithium-ion battery

1. The anode is generally made of carbon and cathode of metal oxide
2. Lithium ions move from cathode to anode during discharge

Select the incorrect statement/s

- a) Only 1
- b) Only 2
- c) Both
- d) None

Q.10) Solution (a)

Generally, the **negative electrode (cathode)** of a conventional lithium-ion cell is made from **carbon**. The **positive electrode (anode)** is a **metal oxide**, and the electrolyte is a lithium salt in an organic solvent.

A lithium-ion battery (sometimes Li-ion battery or LIB) is a member of a family of rechargeable battery types in which **lithium ions move from the negative electrode (cathode) to the positive electrode (anode) during discharge and back when charging**. Li-ion batteries use an intercalated lithium compound as one electrode material, compared to the metallic lithium used in a non-rechargeable lithium battery. The electrolyte, which allows for ionic movement, and the two electrodes are the constituent components of a lithium-ion battery cell.

How Lithium Ion batteries work? – [Click Here](#)

Q.11) The ripening of fruits can be accelerated by:

- a) Decreasing oxygen concentration of the surrounding
- b) Increasing ethylene concentration of the surrounding
- c) Reducing water supply to the plants
- d) Spraying urea during maturation of fruits

Q.11) Solution (b)

Ethylene helps in the ripening of the fruit.

Q.12) The chief poisonous snakes of India are:

- a) Cobra, Krait, Python, Wolf-snake
- b) Sea Snake, Pit Viper, Krait, Cobra, Rat-snake
- c) Pit Viper, Russel's Viper, Cobra, Krait, Sea snake
- d) Python, pit viper, cobra, Krait, Russel's viper

Q.12) Solution (c)

Python and Rat-snake are not poisonous.

Q.13) An antibiotic is:

- a) A chemical compound produced by a living organism that inhibits the growth of the other organisms.
- b) A compound synthesized by a living organisms that inhibits the growth of microbes.
- c) A synthetic compound inhibiting the growth of other organisms
- d) A synthetic compound inhibiting the growth of bacteria

Q.13) Solution (b)

Antibiotics inhibit the growth of microbes not organisms.

Q.14) Which of the following is used as a lubricant in heavy machines?

- a) Bauxite
- b) Sulphur
- c) Phosphorus
- d) Graphite

Q.14) Solution (d)

Graphite has a layered structure where layers can easily slide over each other reducing friction between the moving parts of the machine.

Q.15) A hydrogen filled balloon,

- a) Always rises in air
- b) Rises only if its total weight is much less than the weight of air it displaces
- c) Rises only if its total weight is equal to the weight of air it displaces.
- d) Can never rise in the air

Q.15) Solution (b)

A hydrogen filled balloon works on the principle of Archimedes principle. It will rise as long as the total weight of air displaced by balloon is more than the total weight of balloon.

Q.16) The earth and the moon are about the same distance from the sun, yet on the average the earth is much warmer than the moon. Why?

- a) The moon is much smaller than the earth
- b) Nights on the moon are much longer
- c) The moon has almost no atmosphere
- d) The surface of the moon is darker

Q.16) Solution (c)

Since there is no atmosphere, there is no green house effect to trap the heat.

Q.17) In which of the following cases, a person will feel weightlessness?

1. He is falling freely
2. He is orbiting in a satellite
3. He is in an aeroplane flying at a high altitude
4. He is having ride in a gas filled balloon.

Select the code from the following:

- a) 2 only
- b) 1 and 2
- c) 3 and 4
- d) 1,2 and 3

Q.17) Solution (b)

A person feels weightless during a free fall and in space.

Note: Initially astronauts were trained for weightlessness in free falling lifts.

Q.18) Stars appear to move from East to West because

- a) The universe is moving from east to west.
- b) The earth is revolving round the sun
- c) The earth is rotating from East to West
- d) The Earth is rotating from West to East

Q.18) Solution (d)

Since earth rotates from west to east, relatively stars appear to move from east to west.

Q.19) Compared to the velocity of light, the velocity of radiowaves is:

- a) Smaller
- b) Greater
- c) The same
- d) Depends on the type of radio waves

Q.19) Solution (c)

Both the light waves and radio waves are electromagnetic radiations and move with same velocity.

Q.20) In an electric bulb, a little Nitrogen or Argon is introduced at a low pressure to

- a) Cool the bulb's filament
- b) Prevent the evaporation of the filament
- c) Withstand atmospheric pressure
- d) Increase the brightness of the filament

Q.20) Solution (b)

Nitrogen or Argon is added in the bulb to create an inert environment so that the filament does not react. At this high temperature filament can react with oxygen and evaporate.

Q.21) Consider the following statements:

1. It is used as an ingredient in food preparation and is also utilized as feed for poultry and livestock.
2. It is a feedstock for biofuel.
3. It is used for starch production
4. It is also used as a raw material in distilleries.

Select the correct answer based on the above statements:

- a) Jatropha
- b) Sugar
- c) Maize
- d) Rice straw

Q.21) Solution (c)

It is used for starch production— has high starch content (60%)

Q.22) Which Indian city is known as the 'shrimp capital of India'?

- a) Vishakhapatnam
- b) Goa
- c) Kolkata
- d) Nellore

Q.22) Solution (d)

Nellore in Andhra Pradesh is known as the shrimp capital of India.

Q.23) Where is Shani Shingapur temple located?

- a) West Bengal
- b) Kerala
- c) Maharashtra
- d) Andhra Pradesh

Q.23) Solution (c)

In news: Shani Shingapur (Maharashtra) & Sabrimala Temple (Kerala) — facing challenges related to the restrictions on entry of women in their premises.

Q.24) Where is China planning to build its first African naval base?

- a) Somalia
- b) Djibouti
- c) Tanzania
- d) Kilwa

Q.24) Solution (b)

Djibouti

- A country located in the Horn of Africa
- Located near the world's busiest shipping lanes, controlling access to the Red Sea and Indian Ocean



Q.25) 'Vidya Lakshmi Portal' would serve the purpose of—

- a) Integrating various government incentives for scholarship on one platform for easy access
- b) Being a single window for students to access information & submit applications for educational loans to banks and for availing government scholarships
- c) Being a single window for the interaction between teachers and parents
- d) Helping students participate in the Apprenticeship Scheme of the government

Q.25) Solution (b)

In news: Banks have been asked by the Finance Ministry to integrate with Vidya Lakshmi Portal—to tackle the menace of NPAs in the education sector