

1. Which of the following is used to cut a DNA strain at a particular location?

- A. Ligase Enzyme B. Polymerase Enzyme
C. Restrictase Enzyme D. Transferase Enzyme

2. Which of the following is a Programming Software?

- A. Disk Cleanup B. Windows
C. Disk Defragmenter D. Visual Basic

3. Given below are two statements, one is labelled as Assertion (A) and the other as Reason (R):

Assertion (A): Phytoplankton must have light from the sun, so they live in the well-lit surface layers (euphotic zone) of oceans and lakes.

Reason (R): Phytoplankton obtains their energy through photosynthesis, as do trees and other plants on land.

Select the correct answer from the codes given below:

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
B. Both (A) and (R) are true but (R) is not the correct explanation of (A)
C. (A) is true but (R) is false
D. (A) is false but (R) is true

4. The least productive ecosystem is

- A. Ocean B. Desert
C. Forests D. Grassland

5. Which one of the following represents an ecotone between marine and terrestrial ecosystem?

- A. Mangrove B. Grassland
C. Estuary D. River Bank

6. Which of the following directly contribute to increasing in Human Capital?

- 1). Education 2). Vocational training 3). Medical care**

Select the correct answer using the code given below:

- A. 1 and 2 only B. 2 and 3 only
C. 1 and 3 only D. 1, 2 and 3

7. Consider the following statements with reference to poverty:

- 1). Every person living in the same region is equally vulnerable to the impacts of a natural disaster.**
2). Social exclusion can be a cause as well as a consequence of poverty.
3). India has the largest single concentration of the poor in the world.

Which of the statements given above is/are correct?

- A. 1 and 2 only B. 2 and 3 only
C. 2 only D. 1 and 3 only

8. Consider the following statements about MGNREGA:

- 1). It guarantees Right to Work to poor rural households.**

2). It provides at least 150 days of wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work.

3). A job card is issued for the family availing employment under the Act.

Which of the statement given above is/are correct?

- A. 1 only B. 1 and 2 only
C. 2 and 3 only D. 1 and 3 only

9. Which of the following parameters are kept in mind while calculating GDP of a country?

- 1). Value of all final goods and services**
2). Production within a country
3). Production within a particular time framework

Select the correct answer using the code given below:

- A. 1 only B. 1 and 2 only
C. 1 and 3 only D. 1, 2 and 3

10. Consider the following statements:

- 1). Organized sector jobs are registered and regulated by the government through various legislations.**
2). In India most of jobs are in organized sectors.
3). PM Shram Yogi Mandhan Yojana is a pension scheme for those working in unorganized sectors.

Which of the statements given above is/are correct?

- A. 1 and 3 only B. 2 only
C. 2 and 3 only D. 1, 2 and 3

11. An galvanometer can be converted into an ammeter by connecting a low resistance in

- A. Parallel B. Series
C. Series and Parallel both D. None of these

12. Mirage is due to

- A. Total internal reflection B. Refraction
C. Reflection D. None of these

13. Why tyres are made of synthetic rubber?

- A. Its coefficient of friction with road is large
B. Its coefficient of friction is small
C. It can handle high temperature and pressure
D. It is easy to prepare

14. Ideally Superconductivity means ____.

- A. very feeble current
B. very large current
C. current without facing any resistance
D. current due to positive particles

15. Angular momentum is equal to _____?

- A. Moment of inertia \times Angular velocity
B. Mass \times Angular velocity
C. Linear velocity \times Angular velocity
D. Mass \times Linear velocity

16. The movement of an object along the circumference of a circle or rotation along a circular path is called _____.

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A. Oscillatory motion B. Circular motion

C. Rotational motion D. None of these

17. The least distance of distinct vision is

A. 35 cm B. 25 cm C. 45 cm D. 15 cm

18. Tape recorder records in the form of :

A. Sound waves B. Electrical energy

C. Magnetic energy D. Variable resistance

19. Ice is packed in sawdust because _____.

A. saw dust does not stick to the ice

B. saw dust is poor conductor of heat

C. saw dust is a good conductor of heat

D. saw dust will not get melted easily

20. It is easy to burst a gas-filled balloon with a needle than with a nail. It is because _____.

A. Gas is reactive with the needle

B. Nail exerts more pressure than needle on the balloon

C. Needle exerts more pressure than nail on the balloon

D. Nail is more longer than needle.

ANSWER

1. Answer :Option C

Restrictase enzyme or restriction endonuclease or Molecular Scissors are the enzymes that help in cutting DNA into fragments at a pre-designated location known as restriction sites.

Thus, option C is the correct answer.

2. Answer :Option D

• Visual Basic is a third generation event driven programming language from Microsoft.

• Disk Defragmenter is a utility in Microsoft Windows designed to increase data access speed by rearranging files stored on a disk.

• Disk Clean-up is a computer maintenance utility included in Microsoft Windows designed to free up disk space on a computer's hard drive.

3. Answer :Option A

Phytoplankton obtains their energy through photosynthesis, as do trees and other plants on land. This means phytoplankton must have light from the sun, so they live in the well-lit surface layers (euphotic zone) of oceans and lakes. Phytoplankton forms the base of the marine and freshwater food webs and are key players in the global carbon cycle. They account for about half of global photosynthetic activity and about half of the oxygen production, despite amounting to only about 1% of the global plant biomass.

4. Answer :Option B

Globally, patterns of primary productivity vary both spatially and temporally. The least productive ecosystems are those limited by heat energy and water like the deserts and the polar tundra. The most productive ecosystems are systems with high temperatures, plenty of water and lots of available soil nitrogen.

5. Answer :Option A

An ecotone is an area that acts as a boundary or a transition between two ecosystems. A common example could be an area of marshland between a river and its riverbank. Ecotones are of great environmental importance. Because the area is a transition between two ecosystems or biomes, it is natural that it contains a large variety of species of fauna and flora as the area is influenced by both the bordering ecosystems. Examples of ecotones include marshlands (between dry and wet ecosystems), mangrove forests (between terrestrial and marine ecosystems), grasslands (between desert and forest), and estuaries (between saltwater and freshwater). Mountain ranges can also create ecotones due to the changes in the climatic conditions on the slopes.

6. Answer :Option D

Option (d) is correct: Population becomes human capital when there is an investment made in the form of education, training and medical care. In fact, human capital is the stock of skill and productive knowledge embodied in them. Investment in human capital (through education, training, medical care) yields a return just like investment in physical capital. This can be seen directly in the form of higher incomes earned because of the higher productivity of the more educated or the better-trained persons, as well as the higher productivity of healthier people

7. Answer :Option B

Statement 1 is incorrect: Vulnerability is analysed on the basis of the greater risks some social groups face at the time of natural disasters (earthquakes, tsunami), terrorism etc. Vulnerability describes the greater probability of being more adversely affected than other people when bad time comes for everybody, whether a flood or an earthquake or simply a

fall in the availability of jobs. So, if the farm of both rich and poor farmer got flooded, the most likely poor farmer will be more severely affected by it.

Statement 2 is correct: According to concept of Social exclusion, poverty must be seen in terms of the poor having to live only in a poor surrounding with other poor people, excluded from enjoying social equality of better-off people in better surroundings. Social exclusion can be both a cause as well as a consequence of poverty in the usual sense. Broadly, it is a process through which individuals or groups are excluded from facilities, benefits and opportunities that others (their "betters") enjoy.

Statement 3 is correct: India has the largest single concentration of the poor in the world.

8. Answer :Option D

Statement 1 is correct: The Mahatma Gandhi National Rural Employment Guarantee Act 2005 (MGNREGA) guarantees the Right to Work to poor rural households.

Statement 2 is incorrect: It provides at least 100 days of wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work.

Statement 3 is correct: A job card is issued for the family availing employment under the Act.

9. Answer :Option D

The value of final goods and services produced in each sector during a particular year provides the total production of the sector for that year. And the sum of production in the three sectors gives what is called the Gross Domestic Product (GDP) of a country. It is the value of all final goods and services produced within a country during a particular year. GDP shows how big the economy is.

10. Answer :Option A

Statement 1 is correct: Organized sector jobs are registered and regulated by the government through various legislations which are given in various laws such as the

Factories Act, Minimum Wages Act, Payment of Gratuity Act, Shops and Establishments Act etc.

Statement 2 is incorrect: In India the bulk of the jobs are in unorganized sectors.

Statement 3 is correct: PM Shram Yogi Mandhan Yojana is a pension scheme for those working in unorganized sectors.

11. Answer :Option A

A Galvanometer can be converted into an ammeter by connecting a low resistance in parallel. A galvanometer can be converted into a voltmeter by connecting a high resistance in series.

12. Answer :Option A

Mirage is an optical illusion of water appears in desert in a hot summer day. This is due to total internal reflection.

13. Answer :Option A

- Tyres are made of synthetic rubber because its coefficient of friction with the road is larger and therefore large force of friction acts on it, which stops sliding at turns.

14. Answer :Option C

- Superconductivity is a phenomenon of **exactly zero electrical resistance** and expulsion of magnetic flux fields occurring in certain materials, called superconductors.

15. Answer :Option A

- Angular momentum is a **vector quantity** that is a measure of the rotational *momentum* of a rotating body or system.
- **Angular momentum** is equal to the product of the *angular* velocity of the body and its moment of inertia around the axis of rotation.

16. Answer :Option B

- **Circular motion** is a movement of an object along the circumference of a circle or rotation along a circular path.
- Oscillatory motion is the repeated motion in which an object repeats the same movement over and over.
- Rotational motion is the rotation around a fixed axis or about a fixed axis of revolution.

17. Answer :Option B

The focal point (F) and focal length (f) of a positive (convex) lens, a negative (concave) lens, a concave mirror, and a convex mirror. In optometry, the least distance of distinct vision (LDDV) or the reference seeing distance (RSD) is the closest someone with "normal" vision (20/20 vision) can comfortably look at something. In other words, LDDV is the

minimum comfortable distance between the naked human eye and a visible object. The least distance of distinct vision is **25 cm**.

18. Answer :Option C

Magnetic tape is a medium for magnetic recording, made of a thin, magnetizable coating on a long, narrow strip of plastic film. Devices that record and play back audio and video **using magnetic tape are tape recorders** and video tape recorders. A device that stores computer data on magnetic tape is known as a tape drive. Magnetic tape revolutionized broadcast and recording. It allowed radio, which had always been broadcast live, to be recorded for later or repeated airing

19. Answer :Option B

- Sawdust acts as an **insulator against the surrounding temperatures** and helps maintain the low temperatures of ice, so ice is packed in sawdust always or sometimes in layers of sackcloth.

20. Answer :Option C

It is easy to burst a gas-filled balloon with a needle than with a nail. It is because needle exerts more pressure than nail on the balloon.

