

# ICMR JRF Previous Year Question Paper

[www.examphase.com](http://www.examphase.com)

# Postgraduate Institute of Medical Education and Research PGIMER, Chandigarh

## Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

<b>Question Paper Name :</b>	Life Science B 12th September 2021 Shift 3
<b>Subject Name :</b>	Life Science B
<b>Creation Date :</b>	2021-09-12 21:46:59
<b>Duration :</b>	120
<b>Total Marks :</b>	125
<b>Display Marks:</b>	Yes
<b>Share Answer Key With Delivery Engine :</b>	Yes
<b>Calculator :</b>	None
<b>Magnifying Glass Required? :</b>	No
<b>Ruler Required? :</b>	No
<b>Eraser Required? :</b>	No
<b>Scratch Pad Required? :</b>	No
<b>Rough Sketch/Notepad Required? :</b>	No
<b>Protractor Required? :</b>	No
<b>Show Watermark on Console? :</b>	Yes
<b>Highlighter :</b>	No
<b>Auto Save on Console? ( SA type of questions will be always auto saved ) :</b>	No

## Life sciences

<b>Group Number :</b>	1
<b>Group Id :</b>	986068545
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	120
<b>Show Attended Group? :</b>	No

<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	125
<b>Is this Group for Examiner? :</b>	No

## Aptitude

<b>Section Id :</b>	986068895
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Number of Questions :</b>	50
<b>Number of Questions to be attempted :</b>	50
<b>Section Marks :</b>	50
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	986068987
<b>Question Shuffling Allowed :</b>	Yes

### Question Number : 1 Is Question Mandatory : No Option Orientation : Vertical

Car B is ahead of Car A by 100m. Car A is moving with constant speed of 10 m/s and car B starts from rest accelerating with an acceleration of  $2 \text{ m/s}^2$ . Find the minimum distance between both the cars.

#### Options :

1. ✘ 100 m
2. ✘ 50 m
3. ✔ 75 m
4. ✘ 0 m

### Question Number : 2 Is Question Mandatory : No Option Orientation : Vertical

Going 40m to South of her house, Mehar turns left and goes another 20 m. Then, turning to the North, she goes 20m, and then starts walking to her house. In which direction, is she walking now?

#### Options :

1. ✔ North-West
2. ✘ North
3. ✘ South-East

4. ✖ East

**Question Number : 3 Is Question Mandatory : No Option Orientation : Vertical**

Which two months in a year have the same calendar?

**Options :**

1. ✔ September- December
2. ✖ April- November
3. ✖ May- August
4. ✖ June- September

**Question Number : 4 Is Question Mandatory : No Option Orientation : Vertical**

At a railway station a 24-hour watch loses 3 minutes in 4 hours. If it is set correctly on Sunday noon, when will the watch show the correct time?

**Options :**

1. ✖ 6 pm after 40 days
2. ✖ 12 noon after 75 days
3. ✖ 12 pm after 100 days
4. ✔ 12 noon after 80 days

**Question Number : 5 Is Question Mandatory : No Option Orientation : Vertical**

How many primary or deciduous teeth does a normal human have?

**Options :**

1. ✖ 32
2. ✔ 20
3. ✖ 16
4. ✖ 22

**Question Number : 6 Is Question Mandatory : No Option Orientation : Vertical**

Find the day of the week on 16th January, 1969?

**Options :**

1. ✖ Monday
2. ✔ Thursday
3. ✖ Wednesday
4. ✖ Tuesday

**Question Number : 7 Is Question Mandatory : No Option Orientation : Vertical**

The theme of World Immunization Week 2021 is:

**Options :**

1. ✓ Vaccines bring us closer
2. ✗ Vaccinate daughter, screen mothers
3. ✗ Vaccines work for all
4. ✗ Protect your world- get vaccinated

**Question Number : 8 Is Question Mandatory : No Option Orientation : Vertical**

One yard is equal to how many inches?

**Options :**

1. ✓ 36
2. ✗ 3
3. ✗ 91.44
4. ✗ 12

**Question Number : 9 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following variant is known as the Delta variant of SARS-CoV-2?

**Options :**

1. ✓ Lineage B.1.617.2
2. ✗ Lineage B.1.1.7
3. ✗ Lineage B.1.351
4. ✗ Lineage P.1

**Question Number : 10 Is Question Mandatory : No Option Orientation : Vertical**

COVID-19 mRNA vaccines give instructions to body's cells to make the "spike protein." Which of the following is an m-RNA vaccine for COVID-19?

**Options :**

1. ✓ Pfizer-BioNTech vaccine
2. ✗ Oxford-Astra Zeneca vaccine
3. ✗ Bharat Biotech vaccine
4. ✗ Russia's Sputnik vaccine

**Question Number : 11 Is Question Mandatory : No Option Orientation : Vertical**

Harvey J Alter, Charles M Rice and Michael Houghton won the Nobel Prize in Medicine in 2020 for:



**Options :**

1. ✓ identification of Hepatitis C virus
2. ✗ work on black holes
3. ✗ developing the CRISPR–Cas9 gene-editing tools
4. ✗ for discoveries about how cells sense and adapt to oxygen availability

**Question Number : 12 Is Question Mandatory : No Option Orientation : Vertical**

The instrument that records the intensity of earthquakes is:

**Options :**

1. ✘ Barometer
2. ✔ Seismograph
3. ✘ Dosimeter
4. ✘ Gyroscope

**Question Number : 13 Is Question Mandatory : No Option Orientation : Vertical**

Which city is known as ‘Gold capital of the world’?

**Options :**

1. ✔ Johannesburg
2. ✘ Paris
3. ✘ Dubai
4. ✘ London

**Question Number : 14 Is Question Mandatory : No Option Orientation : Vertical**

The difference in the duration of day and night increases as one moves from:

**Options :**

1. ✔ Equator to poles
2. ✘ West to East
3. ✘ East and west of the prime meridian
4. ✘ Poles to equator

**Question Number : 15 Is Question Mandatory : No Option Orientation : Vertical**

The World Health Organization (WHO) has certified which country as Malaria free in 2021?

**Options :**

1. ✘ Pakistan
2. ✔ China
3. ✘ Brazil
4. ✘ Canada

**Question Number : 16 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following is not an anti- virus software?

**Options :**

1. ✘ Avira

2. ✘ Bitdefender
3. ✔ Oracle
4. ✘ Panda

**Question Number : 17 Is Question Mandatory : No Option Orientation : Vertical**

Gases usually used for filling an electric bulb are:

**Options :**

1. ✔ Argon and nitrogen
2. ✘ Argon and carbon dioxide
3. ✘ Nitrogen and carbon dioxide
4. ✘ Nitrogen and oxygen

**Question Number : 18 Is Question Mandatory : No Option Orientation : Vertical**

A pea when soaked in water, gains about 40% by weight and 20% by volume. By what factor does the density increase?

**Options :**

1. ✘ 2.15
2. ✔ 1.16
3. ✘ 1.25
4. ✘ 1.1

**Question Number : 19 Is Question Mandatory : No Option Orientation : Vertical**

GPS is an abbreviation for?

**Options :**

1. ✘ Global Poles System
2. ✘ Global Positioning Store
3. ✔ Global Positioning System
4. ✘ Global Positioning Satellite

**Question Number : 20 Is Question Mandatory : No Option Orientation : Vertical**

One light year is equal to:

**Options :**

1. ✘  $9.5 \times 10^6$  km
2. ✔  $9.5 \times 10^{12}$  km



3. ✖  $9.5 \times 10^9$  km

4. ✖  $9.5 \times 10^{18}$  km

**Question Number : 21 Is Question Mandatory : No Option Orientation : Vertical**

The scientific study of dreams is called:

**Options :**

1. ✖ Arachnology

2. ✖ Pomology

3. ✖ Speleology

4. ✔ Oneirology

**Question Number : 22 Is Question Mandatory : No Option Orientation : Vertical**

Nosophobia is:

**Options :**

1. ✖ Fear of not having a working mobile phone

2. ✔ Fear of developing a disease

3. ✖ Fear of nausea or vomiting

4. ✖ Fear of smells

**Question Number : 23 Is Question Mandatory : No Option Orientation : Vertical**

The colour of the onion is pink due to the presence of:

**Options :**

1. ✖ Carotene

2. ✔ Anthocyanin

3. ✖ Xanthophyll

4. ✖ Lycopene

**Question Number : 24 Is Question Mandatory : No Option Orientation : Vertical**

The gas used for artificial ripening of fruits is:

**Options :**

1. ✔ Ethylene

2. ✖ Ethane

3. ✖ Carbon dioxide

4. ✘ Acetylene

**Question Number : 25 Is Question Mandatory : No Option Orientation : Vertical**

The pH of human blood is about:

**Options :**

1. ✔ 7.4

2. ✘ 6.5

3. ✘ 3.7

4. ✘ 9.2

**Question Number : 26 Is Question Mandatory : No Option Orientation : Vertical**

The flower shown in the image is the source of which of the following anticancer drugs?



**Options :**

1. ✓ Vincristine
2. ✗ Cyclosporine
3. ✗ Oxaliplatin
4. ✗ 5-Flourouracil

**Question Number : 27 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following is the best conductor of electricity?

**Options :**

1. ✓ Sea water
2. ✗ Rain water
3. ✗ Boiled water
4. ✗ Distilled water

**Question Number : 28 Is Question Mandatory : No Option Orientation : Vertical**

Anosmia and ageusia is loss of \_\_\_\_\_ and \_\_\_\_\_, respectively.

**Options :**

1. ✓ Smell, Taste
2. ✗ Taste, Smell
3. ✗ Smell, Sight
4. ✗ Sight, Taste

**Question Number : 29 Is Question Mandatory : No Option Orientation : Vertical**

According to Indian law, what is the minimum age of a person for employment in a factory?

**Options :**

1. ✗ 12 years
2. ✓ 14 years
3. ✗ 18 years
4. ✗ 21 years

**Question Number : 30 Is Question Mandatory : No Option Orientation : Vertical**

A trader mixes 26 kg of rice priced at Rs. 20 per kg with 30 kg of rice of other variety priced at Rs. 36 per kg and sells the mixture at Rs. 30 per kg. His profit percent is:

**Options :**

1. ✘ No profit, no loss
2. ✔ 5%
3. ✘ 10%
4. ✘ 8%

**Question Number : 31 Is Question Mandatory : No Option Orientation : Vertical**

What is chemical symbol for Tungsten?

**Options :**

1. ✔ W
2. ✘ T
3. ✘ G
4. ✘ Tn

**Question Number : 32 Is Question Mandatory : No Option Orientation : Vertical**

What type of study is best suited for the initial evaluation of rare diseases?

**Options :**

1. ✘ Intervention studies
2. ✔ Case control studies
3. ✘ Randomized controlled studies
4. ✘ Cohort studies

**Question Number : 33 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following phases of clinical trial evaluates safety and tolerability of a drug in healthy volunteers?

**Options :**

1. ✔ Phase I
2. ✘ Phase IIA
3. ✘ Phase III
4. ✘ Phase IIB

**Question Number : 34 Is Question Mandatory : No Option Orientation : Vertical**

If a diagnostic test is 90% sensitive, what will be the percentage of false negative results?

**Options :**

1. ✘ Cannot be estimated from the information provided
2. ✘ 9%
3. ✘ 19%
4. ✔ 10%

**Question Number : 35 Is Question Mandatory : No Option Orientation : Vertical**

Fertilisation of an ovum by a sperm commonly occurs in which part of the female reproductive system?

**Options :**

1. ✘ Uterine body
2. ✘ Ovary
3. ✘ Vagina
4. ✔ Fallopian tube

**Question Number : 36 Is Question Mandatory : No Option Orientation : Vertical**

Which one of the following is the basis of the modern periodic table?

**Options :**

1. ✘ Atomic volume
2. ✘ Atomic size
3. ✔ Atomic number
4. ✘ Atomic mass

**Question Number : 37 Is Question Mandatory : No Option Orientation : Vertical**

Carbon, diamond and graphite are together called:

**Options :**

1. ✘ Isomers
2. ✘ Isotopes
3. ✘ Isomorphs
4. ✔ Allotrope

**Question Number : 38 Is Question Mandatory : No Option Orientation : Vertical**

Ethyl mercaptan added to the otherwise odourless LPG cooking gas for imparting a detectable smell to the gas is a compound of:

**Options :**

1. ✘ Bromine

2. ✘ Oxygen
3. ✔ Sulphur
4. ✘ Nitrogen

**Question Number : 39 Is Question Mandatory : No Option Orientation : Vertical**

"Operation Flood" is a movement related with the product:

**Options :**

1. ✔ Milk
2. ✘ Fresh Water
3. ✘ Rice
4. ✘ Rain

**Question Number : 40 Is Question Mandatory : No Option Orientation : Vertical**

Indian Standard Time (IST) refers to the local time of which city?

**Options :**

1. ✘ Banaras
2. ✘ Gurugram near Delhi
3. ✔ Mirzapur near Allahabad
4. ✘ Kolkata

**Question Number : 41 Is Question Mandatory : No Option Orientation : Vertical**

A bag contains 7 green and 8 white balls. If two balls are drawn simultaneously, the probability that both are of the same colour is:

**Options :**

1. ✘  $8/15$
2. ✘  $2/15$
3. ✘  $3/15$
4. ✔  $7/15$

**Question Number : 42 Is Question Mandatory : No Option Orientation : Vertical**

Mode can be determined by applying the formula:

**Options :**

1. ✘  $\text{Mode} = 2 \text{ Median} - 3 \text{ Mean}$
2. ✔  $\text{Mode} = 3 \text{ Median} - 2 \text{ Mean}$

3. ✘ Mode = 3 Mean - 2 median
4. ✘ Mode = 2 Mean - 3 Median

**Question Number : 43 Is Question Mandatory : No Option Orientation : Vertical**

When an investigator uses the data, which has already been collected by others, such data is called:

**Options :**

1. ✘ Primary data
2. ✘ Processed data
3. ✘ Collected data
4. ✔ Secondary data

**Question Number : 44 Is Question Mandatory : No Option Orientation : Vertical**

Sum of the deviation of the variable values 3, 4, 6, 8, 14 from their mean is:

**Options :**

1. ✔ 0
2. ✘ 1
3. ✘ 5
4. ✘ 7

**Question Number : 45 Is Question Mandatory : No Option Orientation : Vertical**

The mean of 5 observations is 4.4 and their variance is 8.24. If three of the observations are 1, 2 and 6. The other two observations are:

**Options :**

1. ✘ 5 and 6
2. ✔ 4 and 9
3. ✘ 7 and 8
4. ✘ 5 and 8

**Question Number : 46 Is Question Mandatory : No Option Orientation : Vertical**

Marital status of a group of people represents which variable:

**Options :**

1. ✘ Discrete
2. ✘ Continuous
3. ✔ Nominal



4. ✘ Ordinal

**Question Number : 47 Is Question Mandatory : No Option Orientation : Vertical**

If a test statistic rejects the null hypothesis when it is true, then which type of error is made:

**Options :**

1. ✔ Type-I error
2. ✘ Type-II error
3. ✘ Both Type-I and Type-II errors
4. ✘ None of Type-I and Type-II errors

**Question Number : 48 Is Question Mandatory : No Option Orientation : Vertical**

Which one of the following is NOT a non-parametric test?

**Options :**

1. ✔ One-way ANOVA
2. ✘ Mann-Whitney test
3. ✘ Friedman test
4. ✘ Kruskal-Wallis test

**Question Number : 49 Is Question Mandatory : No Option Orientation : Vertical**

If a constant 20 is subtracted from each of the value of X and Y, the regression coefficient of Y on X is:

**Options :**

1. ✘  $1/20^{\text{th}}$  of the original regression coefficient
2. ✘ reduces by 20
3. ✔ not changed
4. ✘ increases by 20

**Question Number : 50 Is Question Mandatory : No Option Orientation : Vertical**

In a regression model, a situation in which the error term is same or constant across all values of the independent variables is known as:

**Options :**

1. ✘ Multicollinearity
2. ✔ Homoscedasticity
3. ✘ Autocorrelation
4. ✘ Skewed Distribution

## Life sciences

<b>Section Id :</b>	986068896
<b>Section Number :</b>	2
<b>Section type :</b>	Online
<b>Number of Questions :</b>	100
<b>Number of Questions to be attempted :</b>	75
<b>Section Marks :</b>	75
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	986068988
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 51 Is Question Mandatory : No Option Orientation : Vertical**

The culture media shown in the image is:



**Options :**

1. ✓ Lowenstein-Jensen medium
2. ✗ MacConkey (lactose) Agar medium
3. ✗ Dubos Medium
4. ✗ Mueller Hinton Agar media

**Question Number : 52 Is Question Mandatory : No Option Orientation : Vertical**

Staphylococcal food poisoning manifests within how much time after ingestion of contaminated food:

**Options :**

1. ✓ 2-6 hours
2. ✗ 10-12 hours
3. ✗ 12-24 hours
4. ✗ 24-48 hours

**Question Number : 53 Is Question Mandatory : No Option Orientation : Vertical**

A patient diagnosed to be having malaria was successfully treated with an anti-malarial drug extracted from a plant 'sweet wormwood'. The compound had been discovered by Nobel Laureate Tu Youyou in 1972. Which compound are we talking about here?

**Options :**

1. ✗ Chloroquine
2. ✗ Hydroxychloroquine
3. ✓ Artemisinin
4. ✗ Quinine

**Question Number : 54 Is Question Mandatory : No Option Orientation : Vertical**

An organism isolated from a female patient having urinary tract infection producing mucoid colonies, oxidase negative, Voges Proskauer test positive, urease positive could be?

**Options :**

1. ✗ *Escherichia coli*
2. ✗ *Proteus mirabilis*
3. ✓ *Klebsiella pneumoniae*
4. ✗ *Salmonella paratyphi A*

**Question Number : 55 Is Question Mandatory : No Option Orientation : Vertical**

During an outbreak of a viral infection, all health care workers are advised to wear personal protective equipment. For the purpose, N95 respirators were also provided. What does N95 stands for?

**Options :**

1. ✓ Non-oil proof, blocks 95% of very small (0.3 micron) test particles
2. ✗ Non-oil proof, blocks 98% of very small (0.03 micron) test particles
3. ✗ Non-oil proof, blocks 95% of very small (0.003 micron) test particles
4. ✗ Non-oil proof, blocks 98% of very small (0.3 micron) test particles

**Question Number : 56 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following is a Selective Estrogen Receptor Modulator used in the treatment of estrogen-dependent breast cancer?

**Options :**

1. ✘ Anastrozole
2. ✘ Exemestane
3. ✘ Letrozole
4. ✔ Tamoxifen

**Question Number : 57 Is Question Mandatory : No Option Orientation : Vertical**

Aldosterone causes:

**Options :**

1. ✘ Increase in urinary sodium excretion
2. ✘ Decrease in urinary chloride excretion
3. ✘ Decrease in body weight
4. ✔ Increase in potassium excretion

**Question Number : 58 Is Question Mandatory : No Option Orientation : Vertical**

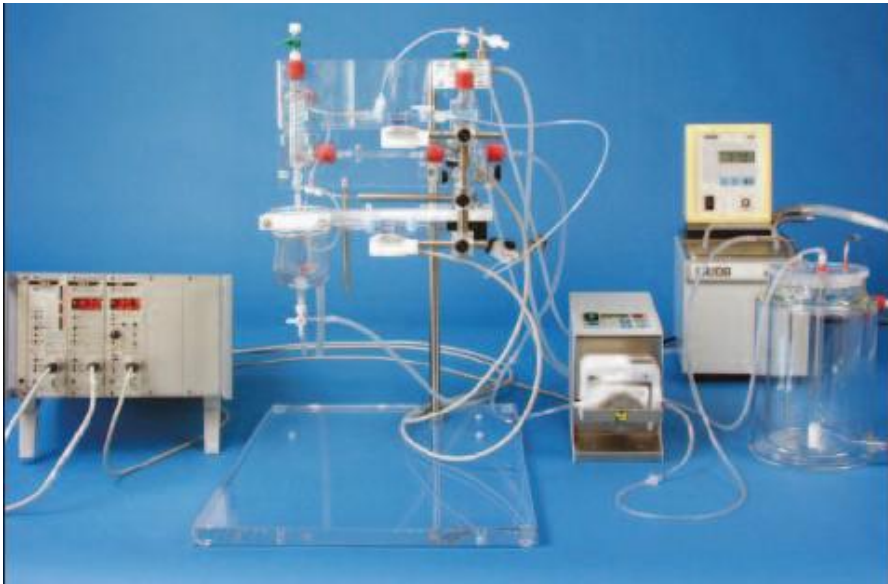
Oxytocin is useful for:

**Options :**

1. ✔ Induction of labour
2. ✘ Menorrhagia
3. ✘ Hyperprolactinemia
4. ✘ Infertility

**Question Number : 59 Is Question Mandatory : No Option Orientation : Vertical**

The Langendorff apparatus shown below is characterized by which of the following statements?



**Options :**

1. ✓ It is an isolated heart perfusion technique
2. ✗ This is used for studying the effects of drugs on trachea
3. ✗ Perfusion of small intestine done in this apparatus helps to study physiology of the gut
4. ✗ It is very useful to study multiple organs in large animals

**Question Number : 60 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following antidote – poison combination is incorrect?

**Options :**

1. ✗ Glucagon – Beta blockers
2. ✗ Hydroxocobalamin - Cyanide
3. ✓ Glucose – Ethylene glycol
4. ✗ Calcium chloride - Fluoride

**Question Number : 61 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following is CORRECT regarding surfactants of the lungs?

**Options :**

1. ✓ Produced by the type II pneumocytes
2. ✗ Surfactant deficiency protects against neonatal respiratory distress syndrome
3. ✗ Surfactant deficiency at childhood protects from repeated episodes of pneumonia

4. ✘ Nearly 90% of the surfactant is composed of proteins

**Question Number : 62 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following is a muscle involved in normal inspiration?

**Options :**

1. ✔ External intercostal muscle
2. ✘ Internal intercostal muscle
3. ✘ Scalene
4. ✘ Sternocleidomastoid

**Question Number : 63 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following region of eye has the greatest concentration of cones?

**Options :**

1. ✘ Optic disc
2. ✔ Fovea
3. ✘ Parafoveal region
4. ✘ Peripheral region

**Question Number : 64 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following diseases is not caused by fungi?

**Options :**

1. ✘ Histoplasmosis
2. ✘ Pneumocystis pneumonia
3. ✘ Rhinosporidiosis
4. ✔ Melioidosis

**Question Number : 65 Is Question Mandatory : No Option Orientation : Vertical**

A high school athlete with a past medical history of structural heart problems presents to the cardiology clinic for a periodical check-up. On examination, his heart rate was 96 beats/ min and BP was 140/86 mm Hg. What would be the mean arterial pressure (MAP) in this patient?

**Options :**

1. ✘ 98 mm Hg
2. ✘ 100 mm Hg
3. ✘ 102 mm Hg

4. ✓ 104 mm Hg

**Question Number : 66 Is Question Mandatory : No Option Orientation : Vertical**

Histones pack the DNA into a repeating array of DNA-protein particles called:

**Options :**

1. ✓ Nucleosomes
2. ✗ Centromere
3. ✗ Telomere
4. ✗ Chromatin

**Question Number : 67 Is Question Mandatory : No Option Orientation : Vertical**

Which one of the following is used to study the structural details of biological tissues using freeze-fracture technique?

**Options :**

1. ✗ Scanning electron microscopy
2. ✓ Transmission electron microscopy
3. ✗ Atomic force microscopy
4. ✗ Phase contrast microscopy

**Question Number : 68 Is Question Mandatory : No Option Orientation : Vertical**

Pericentric inversion is a type of chromosome mutation in which:

**Options :**

1. ✗ Inversion of a chromosome segment that does not includes centromere
2. ✓ Inversion of a chromosome segment that includes centromere
3. ✗ Inversion of a chromosome segment that includes telomere but not centromere
4. ✗ Inversion of a chromosome segment that neither includes telomere nor centromere

**Question Number : 69 Is Question Mandatory : No Option Orientation : Vertical**

Fluorescence recovery after photobleaching (FRAP) is a technique to study:

**Options :**

1. ✓ Membrane proteins
2. ✗ Transporting ions
3. ✗ Cholesterol patches
4. ✗ Nuclear proteins



**Question Number : 70 Is Question Mandatory : No Option Orientation : Vertical**

To study the living cells without staining, which of the following microscopes can be used?

**Options :**

1. ✘ Scanning Electron microscope
2. ✘ Transmission electron microscope
3. ✔ Phase contrast microscope
4. ✘ Fluorescent microscope

**Question Number : 71 Is Question Mandatory : No Option Orientation : Vertical**

The material used as a bioplastic is:

**Options :**

1. ✘ Polystyrene
2. ✘ Polypropylene
3. ✔ Polyhydroxybutyrate
4. ✘ Dextran

**Question Number : 72 Is Question Mandatory : No Option Orientation : Vertical**

What is PHRED score in a Next generation sequencing data?

**Options :**

1. ✘ Indicator of mutation load
2. ✔ Read quality score
3. ✘ Average depth/coverage calculation score
4. ✘ Alignment score

**Question Number : 73 Is Question Mandatory : No Option Orientation : Vertical**

What does SNP stand for?

**Options :**

1. ✘ Single number polymorphism
2. ✘ Same nucleotide polymorphism
3. ✘ Sequence nucleotide polymorphism
4. ✔ Single nucleotide polymorphism

**Question Number : 74 Is Question Mandatory : No Option Orientation : Vertical**

“Compensation” refers to which of the following processes in relation to flow cytometry?

**Options :**

1. ✘ Conversion of analog signals to digital signals
2. ✔ Elimination of overlapping fluorescent signals from different fluorochromes
3. ✘ Estimation of the level of cellular autofluorescence
4. ✘ Categorizes different leucocyte populations

**Question Number : 75 Is Question Mandatory : No Option Orientation : Vertical**

Which one of the following crosses will produce two phenotypes in the next generation?

**Options :**

1. ✘ Outcross
2. ✘ Selfing of pure lines
3. ✔ Test cross
4. ✘ Incomplete dominance

**Question Number : 76 Is Question Mandatory : No Option Orientation : Vertical**

The type of inheritance in which many traits of a character are spread across a gradient and the effect of each allele is additive, is:

**Options :**

1. ✘ Codominance
2. ✘ Monohybrid out cross
3. ✔ Polygenic inheritance
4. ✘ Dihybrid test cross

**Question Number : 77 Is Question Mandatory : No Option Orientation : Vertical**

Both the alleles express themselves equally in F<sub>1</sub> generation, EXCEPT:

**Options :**

1. ✔ *Antirrhinum majus*
2. ✘ Sickle cell anaemia
3. ✘ AB blood group
4. ✘ Roan cattle

**Question Number : 78 Is Question Mandatory : No Option Orientation : Vertical**

In the cross AaBBcc x aaBbCc, what is the probability of an offspring that is aaBbcc?

**Options :**

1. ✘ 1/2
2. ✘ 1/4
3. ✘ 1/16
4. ✔ 1/8

**Question Number : 79 Is Question Mandatory : No Option Orientation : Vertical**

Gene for starch synthesis in pea plant is functionally connected with:

**Options :**

1. ✘ Chlorophyll synthesis
2. ✔ Shape of seed
3. ✘ Shape of pod
4. ✘ Flower colour

**Question Number : 80 Is Question Mandatory : No Option Orientation : Vertical**

When a diploid female plant is crossed with a tetraploid male, the ploidy of endosperm cells in the resulting seed is:

**Options :**

1. ✘ Pentaploidy
2. ✘ Diploidy
3. ✘ Triploidy
4. ✔ Tetraploidy

**Question Number : 81 Is Question Mandatory : No Option Orientation : Vertical**

Out of the seven contrasting pairs of characters studied by Mendel in pea plant, how many had colour-based contrasting traits?

**Options :**

1. ✘ One
2. ✘ Two
3. ✔ Three
4. ✘ Four

**Question Number : 82 Is Question Mandatory : No Option Orientation : Vertical**

Which one of the following is called Sewall Wright Effect?

**Options :**

1. ✘ Gene Pool
2. ✘ Gene Flow
3. ✔ Genetic Drift
4. ✘ Isolation

**Question Number : 83 Is Question Mandatory : No Option Orientation : Vertical**

Bone is connected to muscles with the help of:

**Options :**

1. ✘ Ligament
2. ✘ Cartilage
3. ✔ Tendon
4. ✘ Haversian canals

**Question Number : 84 Is Question Mandatory : No Option Orientation : Vertical**

A 5-year-old female patient was brought to the OPD by her mother with the chief complaints of speech impairment, a small head size and problems in movement and balance (ataxia). She also finds baby's behaviour as unique in the form of frequent laughter, hyperactivity and short attention span. On genetic analysis, deletion in the maternal chromosome 15 was found. Which of the following can present with these symptoms?

**Options :**

1. ✘ Prader-Willi syndrome
2. ✔ Angelman syndrome
3. ✘ Hurler syndrome
4. ✘ Weaver syndrome

**Question Number : 85 Is Question Mandatory : No Option Orientation : Vertical**

Burkitt's lymphoma occurs due to translocation of:

**Options :**

1. ✘ Chromosome 13
2. ✔ Chromosome 8
3. ✘ Chromosome 12
4. ✘ Chromosome 11

**Question Number : 86 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following is NOT a vestigial organ in man?

**Options :**

1. ✘ Nictitating membrane
2. ✘ Tail vertebrae
3. ✘ Vermiform appendix
4. ✔ Nails

**Question Number : 87 Is Question Mandatory : No Option Orientation : Vertical**

A toxic substance responsible for the chills and high fever recurring every three to four days in malarial fever is:

**Options :**

1. ✘ interferon
2. ✔ haemozoin
3. ✘ hirudin
4. ✘ colostrum

**Question Number : 88 Is Question Mandatory : No Option Orientation : Vertical**

Multiload 375 is:

**Options :**

1. ✔ Cu releasing IUD
2. ✘ Hormone releasing IUD
3. ✘ Non medicated IUD
4. ✘ Oral pill containing steroids

**Question Number : 89 Is Question Mandatory : No Option Orientation : Vertical**

Which group's members have same chromosomal set and protoplasm?

**Options :**

1. ✘ Secondary Oocyte and polar body
2. ✘ Primary Oocyte and secondary oocyte
3. ✘ Ovum and second polar body
4. ✔ Secondary Oocyte and ovum

**Question Number : 90 Is Question Mandatory : No Option Orientation : Vertical**

ZIFT refers to the transfer of embryo in fallopian tube up to:

**Options :**

1. ✓ Eight blastomeres stage
2. ✗ 16 blastomeres stage
3. ✗ More than 8 blastomeres stage
4. ✗ 16-24 blastomeres stage

**Question Number : 91 Is Question Mandatory : No Option Orientation : Vertical**

All the following are components of a flow cytometer, EXCEPT:

**Options :**

1. ✗ Photomultiplier tube
2. ✓ Scintillation counter
3. ✗ Lasers
4. ✗ Flow chamber

**Question Number : 92 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following forms left-handed helix?

**Options :**

1. ✗ RNA
2. ✗ B-DNA
3. ✓ Z-DNA
4. ✗ A-DNA

**Question Number : 93 Is Question Mandatory : No Option Orientation : Vertical**

Restriction endonucleases are very important enzymes used in Genetic engineering. They are used for:

**Options :**

1. ✗ Cutting RNA
2. ✗ Cutting single stranded DNA
3. ✓ Cutting double stranded DNA
4. ✗ Joining double stranded DNA

**Question Number : 94 Is Question Mandatory : No Option Orientation : Vertical**

If a hemophilic man marries a carrier woman, then which of the following holds true for his progenies?

**Options :**

1. ✓ 50% daughters are carrier and 50% are hemophilic

2. ✘ All the daughters are hemophilic
3. ✘ All sons are haemophilic and all daughters are normal
4. ✘ All sons are normal and all daughters are carriers

**Question Number : 95 Is Question Mandatory : No Option Orientation : Vertical**

The expected phenotypic ratio of a dihybrid cross is:

**Options :**

1. ✘ 12:3:1
2. ✔ 9:3:3:1
3. ✘ 15:1
4. ✘ 9:7

**Question Number : 96 Is Question Mandatory : No Option Orientation : Vertical**

ABO blood grouping in human beings cites the example of:

**Options :**

1. ✘ Incomplete dominance
2. ✘ Co-dominance
3. ✘ Mutiple allelism
4. ✔ Both co-dominance and multiple allelism

**Question Number : 97 Is Question Mandatory : No Option Orientation : Vertical**

Bt Cotton is a:

**Options :**

1. ✘ Cloned plant
2. ✔ Transgenic plant
3. ✘ Hybrid plant
4. ✘ Mutated plant

**Question Number : 98 Is Question Mandatory : No Option Orientation : Vertical**

In an area where DDT had been used extensively, the population of birds declined significantly because:

**Options :**

1. ✘ Cobras were feeding exclusively on birds
2. ✔ Many of the birds' eggs laid, did not hatch

- ✘ Birds stopped laying eggs
- ✘ Earthworms in the area got eradicated

**Question Number : 99 Is Question Mandatory : No Option Orientation : Vertical**

If a mutation converts a triplet codon “UGC” to “UGA”, it is called

**Options :**

- ✘ Missense mutation
- ✘ Deletion mutation
- ✘ Frameshift mutation
- ✔ Non-sense mutation

**Question Number : 100 Is Question Mandatory : No Option Orientation : Vertical**

False about TATA box is that it:

**Options :**

- ✘ Has TATAAAA sequence
- ✔ Lies 10 bp upstream to the start point
- ✘ Aligns RNA polymerase at proper site
- ✘ Has mostly 7-8 base pair sequences

**Question Number : 101 Is Question Mandatory : No Option Orientation : Vertical**

During complete metabolism of glucose, the number of ATP formed is:

**Options :**

- ✘ Two
- ✘ Twelve
- ✔ Thirty-six
- ✘ Forty-four

**Question Number : 102 Is Question Mandatory : No Option Orientation : Vertical**

Vitamin B12 deficiency can be diagnosed by urinary excretion of:

**Options :**

- ✘ Pyruvate
- ✔ Methylmalonate
- ✘ Malate



4. ✘ Lactate

**Question Number : 103 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following enzyme participates in both the citric acid cycle and the electron transport chain?

**Options :**

1. ✘ NADH dehydrogenase
2. ✘ Malate dehydrogenase
3. ✔ Succinate dehydrogenase
4. ✘ Isocitrate dehydrogenase

**Question Number : 104 Is Question Mandatory : No Option Orientation : Vertical**

Bilirubin in serum can be measured by:

**Options :**

1. ✔ Van den Bergh reaction
2. ✘ Ehrlich's reaction
3. ✘ Hay sulphase test
4. ✘ Fouchet's reaction

**Question Number : 105 Is Question Mandatory : No Option Orientation : Vertical**

A positive Benedict's test is not given by:

**Options :**

1. ✔ Sucrose
2. ✘ Lactose
3. ✘ Glucose
4. ✘ Maltose

**Question Number : 106 Is Question Mandatory : No Option Orientation : Vertical**

Bordeaux mixture is:

**Options :**

1. ✘ Organochlorine
2. ✘ Antibiotic
3. ✘ Organophosphate
4. ✔ Inorganic fungicide

**Question Number : 107 Is Question Mandatory : No Option Orientation : Vertical**

Two-dimensional gels are used to:

**Options :**

1. ✘ Separate DNA from RNA
2. ✘ Separate DNA fragments
3. ✘ Separate RNA fragments
4. ✔ Separate different proteins

**Question Number : 108 Is Question Mandatory : No Option Orientation : Vertical**

Health adjusted life expectancy (HALE) refers to:

**Options :**

1. ✔ The equivalent number of years in full health that a new-born can expect to live based on current rates of ill-health and mortality
2. ✘ The equivalent number of years of healthy life lost due to all causes whether from premature mortality or chronic disability
3. ✘ Expectation of life years which could be free of disability
4. ✘ Loss of healthy life years resulting from chronic disability and total number of healthy years

**Question Number : 109 Is Question Mandatory : No Option Orientation : Vertical**

The weight of the baby becomes 5 times the birth weight by the age of:

**Options :**

1. ✘ Two years
2. ✔ Three years
3. ✘ Four years
4. ✘ Five years

**Question Number : 110 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following laboratory values should a nurse expect to be elevated in a child who has pancreatitis?

**Options :**

1. ✔ Serum Amylase
2. ✘ Glycosylated haemoglobin
3. ✘ Blood urea nitrogen (BUN)
4. ✘ Red blood cell count

**Question Number : 111 Is Question Mandatory : No Option Orientation : Vertical**

An infant is to receive 28 mg of Phenobarbital (Luminal) orally per day divided into two equal doses for seizure control. The medication is dispensed as 20 mg per 5 ml. How many millilitres should the nurse administer for each dose?

**Options :**

1. ✘ 2.5
2. ✔ 3.5
3. ✘ 5.5
4. ✘ 2

**Question Number : 112 Is Question Mandatory : No Option Orientation : Vertical**

Exclusive breastfeeding is recommended for about:

**Options :**

1. ✘ 8 months
2. ✘ 4 months
3. ✔ 6 months
4. ✘ 10 months

**Question Number : 113 Is Question Mandatory : No Option Orientation : Vertical**

RNA interference (RNAi) or Post-Transcriptional Gene Silencing (PTGS) is a conserved biological response to:

**Options :**

1. ✔ double-stranded RNA
2. ✘ DNA- RNA hybrid
3. ✘ Methylated double stranded DNA
4. ✘ Single stranded DNA

**Question Number : 114 Is Question Mandatory : No Option Orientation : Vertical**

Databases such as CATH and SCOP are used to identify:

**Options :**

1. ✔ the structural family to which a protein belongs
2. ✘ the genetic family to which a protein belongs
3. ✘ homologous proteins
4. ✘ analogous proteins

**Question Number : 115 Is Question Mandatory : No Option Orientation : Vertical**

Two sequences are said to be homologous if:

**Options :**

1. ✓ they have diverged from a common ancestor
2. ✗ their alignments share 30% identity or more
3. ✗ they belong to the same fold family
4. ✗ they have converged to share similar functional properties

**Question Number : 116 Is Question Mandatory : No Option Orientation : Vertical**

What is the function of Chaperonins?

**Options :**

1. ✗ Conformation prediction
2. ✓ Protein folding
3. ✗ Complex & slow conformation stability
4. ✗ Stability analysis

**Question Number : 117 Is Question Mandatory : No Option Orientation : Vertical**

The colour of earthworm body is brown due to:

**Options :**

1. ✗ Haemoglobin
2. ✗ Haemocyanin
3. ✗ RBC
4. ✓ Porphyrin

**Question Number : 118 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following amino acids does not have an aromatic ring?

**Options :**

1. ✗ Tryptophan
2. ✗ Histidine
3. ✓ Proline
4. ✗ Tyrosine

**Question Number : 119 Is Question Mandatory : No Option Orientation : Vertical**

The first clinical application of gene therapy over a 4-year-old girl was for:

**Options :**

1. ✓ Adenosine deaminase deficiency
2. ✗ Adenosine deficiency
3. ✗ Growth deficiency
4. ✗ Adenine deficiency

**Question Number : 120 Is Question Mandatory : No Option Orientation : Vertical**

The computational methodology that tries to find the best matching between two molecules, a receptor and ligand is called:

**Options :**

1. ✗ Molecular matching
2. ✓ Molecular docking
3. ✗ Molecular fitting
4. ✗ Molecule affinity checking

**Question Number : 121 Is Question Mandatory : No Option Orientation : Vertical**

The dual resistance vector is:

**Options :**

1. ✗ M<sub>13</sub>
2. ✗ pUC18
3. ✗ pUC19
4. ✓ pBR 322

**Question Number : 122 Is Question Mandatory : No Option Orientation : Vertical**

Radioactive decay of the nucleus emits which of the following electromagnetic radiations?

**Options :**

1. ✗ Ultraviolet rays
2. ✗ X-Rays
3. ✗ Infra-red
4. ✓ Gamma rays

**Question Number : 123 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following produce antibodies?

**Options :**

1. ✘ Monocytes
2. ✔ B-lymphocytes
3. ✘ Granulocytes
4. ✘ T-lymphocytes

**Question Number : 124 Is Question Mandatory : No Option Orientation : Vertical**

Perforin lined pores in target cell are developed by:

**Options :**

1. ✔ Natural killer cells
2. ✘ Neutrophil
3. ✘ Macrophage
4. ✘ Mast cell

**Question Number : 125 Is Question Mandatory : No Option Orientation : Vertical**

Which type of immunity is developed after exposure to pathogens?

**Options :**

1. ✔ Natural active acquired immunity
2. ✘ Artificial active acquired immunity
3. ✘ Natural passive acquired immunity
4. ✘ Artificial passive acquired immunity

**Question Number : 126 Is Question Mandatory : No Option Orientation : Vertical**

The infectious stage of Plasmodium that enters the human body is:

**Options :**

1. ✘ Trophozoites
2. ✔ Sporozoites
3. ✘ Female gametocytes
4. ✘ Male gametocytes

**Question Number : 127 Is Question Mandatory : No Option Orientation : Vertical**

The vaccine against polio viruses is an example of:

**Options :**

1. ✘ Autoimmunization
2. ✘ Passive immunization
3. ✔ Active immunization
4. ✘ Simple immunization

**Question Number : 128 Is Question Mandatory : No Option Orientation : Vertical**

The chemical test that is used for diagnosis of typhoid is:

**Options :**

1. ✘ Casoni test
2. ✘ Mantoux test
3. ✘ Galactomannan test
4. ✔ Widal test

**Question Number : 129 Is Question Mandatory : No Option Orientation : Vertical**

Cell mediated immunity involves all, EXCEPT:

**Options :**

1. ✘ Class I MHC molecules
2. ✘ T helper cells
3. ✘ Processed antigen
4. ✔ Secreted antibody

**Question Number : 130 Is Question Mandatory : No Option Orientation : Vertical**

T lymphocytes in a lymph node are concentrated in which of the following anatomical locations?

**Options :**

1. ✘ Medulla
2. ✔ Paracortex adjacent to lymphoid follicle
3. ✘ Germinal centre of lymphoid follicle
4. ✘ Mantle zone of lymphoid follicle

**Question Number : 131 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following groups is formed only of the hermaphrodite organisms?

**Options :**

1. ✘ Earthworm, Tapeworm, Housefly, Frog

2. ✘ Earthworm, Tapeworm, Sea horse, Housefly
3. ✘ Earthworm, Leech, Sponge, Roundworm
4. ✔ Earthworm, Tapeworm, Leech, Sponge

**Question Number : 132 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following products of apiculture is used in cosmetics and polishes?

**Options :**

1. ✘ Honey
2. ✘ Oil
3. ✔ Wax
4. ✘ Royal jelly

**Question Number : 133 Is Question Mandatory : No Option Orientation : Vertical**

Holstein-Friesian, Brown Swiss and Jersey are all well-known:

**Options :**

1. ✔ Exotic breeds of cattle
2. ✘ Exotic breeds of goat
3. ✘ Exotic breed of poultry
4. ✘ Exotic breed of birds

**Question Number : 134 Is Question Mandatory : No Option Orientation : Vertical**

Sabin-Feldman dye test is used in the diagnosis of:

**Options :**

1. ✔ Toxoplasmosis
2. ✘ Amoebiasis
3. ✘ Cryptosporidiosis
4. ✘ Trypanosomiasis

**Question Number : 135 Is Question Mandatory : No Option Orientation : Vertical**

Aquatic larva of mosquito is known as:

**Options :**

1. ✘ Caterpillar
2. ✘ Tadpole



3. ✘ Maggot
4. ✔ Wiggler

**Question Number : 136 Is Question Mandatory : No Option Orientation : Vertical**

While calculating Air Quality Index, the data for which of the following pollutant(s) is essential?

**Options :**

1. ✔ PM<sub>2.5</sub> or PM<sub>10</sub>
2. ✘ Carbon dioxide and Carbon monoxide
3. ✘ O<sub>3</sub> and NH<sub>3</sub>
4. ✘ SO<sub>2</sub> and NO<sub>2</sub>

**Question Number : 137 Is Question Mandatory : No Option Orientation : Vertical**

Which among the following is a cold desert?

**Options :**

1. ✘ Kalahari
2. ✘ Sonoran
3. ✘ Thar
4. ✔ Patagonian

**Question Number : 138 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following is most commonly applied in automobile exhaust system?

**Options :**

1. ✘ Wet scrubber
2. ✘ Dry scrubber
3. ✘ Electrostatic precipitator
4. ✔ Catalytic converter

**Question Number : 139 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following is a secondary air pollutant?

**Options :**

1. ✘ Sulphur dioxide
2. ✔ Ozone
3. ✘ Carbon monoxide

4. ✖ Nitrogen Dioxide

**Question Number : 140 Is Question Mandatory : No Option Orientation : Vertical**

Itai-Itai disease is associated with which metal poisoning?

**Options :**

1. ✔ Cd

2. ✖ Ag

3. ✖ Hg

4. ✖ Pd

**Question Number : 141 Is Question Mandatory : No Option Orientation : Vertical**

The scientific name of the flower shown in the image is:



Options :

1. ✓ *Hibiscus rosa-sinensis*

2. ✘ *Tagetes erecta*
3. ✘ *Bougainvillea glabra*
4. ✘ *Dicentra spectabilis*

**Question Number : 142 Is Question Mandatory : No Option Orientation : Vertical**

A host plant produces a toxin that is lethal to aphids feeding on its leaves. Over time, some of the aphids become immune to the toxin. In response, the host plant begins to produce a different toxin that is lethal to aphids. This is an example of:

**Options :**

1. ✘ parasitism
2. ✔ coevolution
3. ✘ mutualism
4. ✘ commensalism

**Question Number : 143 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following best describes a pattern of idealized population growth that is restricted by limiting factors?

**Options :**

1. ✔ Logistic growth model
2. ✘ Carrying capacity model
3. ✘ Exponential growth model
4. ✘ Habitat cap model

**Question Number : 144 Is Question Mandatory : No Option Orientation : Vertical**

Induction of cell division activity and delay in senescence is caused by:

**Options :**

1. ✘ Gibberellin
2. ✘ Auxin
3. ✔ Cytokinin
4. ✘ Ethylene

**Question Number : 145 Is Question Mandatory : No Option Orientation : Vertical**

Which plant part is modified into pitcher in pitcher plant?

**Options :**

1. ✘ Root

2. ✘ Stem
3. ✔ Leaf
4. ✘ Flower

**Question Number : 146 Is Question Mandatory : No Option Orientation : Vertical**

Natural insecticide obtained from Neem tree is:

**Options :**

1. ✔ Azadirachtin
2. ✘ Nicotine
3. ✘ Ecdysone
4. ✘ Malathion

**Question Number : 147 Is Question Mandatory : No Option Orientation : Vertical**

Which of the following insect can be used for production of formic acid?

**Options :**

1. ✘ Bed bugs
2. ✘ Crickets
3. ✘ Locusts
4. ✔ Red ants

**Question Number : 148 Is Question Mandatory : No Option Orientation : Vertical**

The practice of painless killing of laboratory animal to relieve pain after experimentation is called:

**Options :**

1. ✔ Euthanasia
2. ✘ Dissection
3. ✘ Post Mortem
4. ✘ Autopsy

**Question Number : 149 Is Question Mandatory : No Option Orientation : Vertical**

Which of the animals are referred to as solipeds?

**Options :**

1. ✘ Dog
2. ✘ Cattle

3. ✓ Horse

4. ✗ Poultry

**Question Number : 150 Is Question Mandatory : No Option Orientation : Vertical**

Which one of the following is a mammal?

**Options :**

1. ✗ Shark

2. ✗ Trout

3. ✓ Whale

4. ✗ Salmon