Section : **Biology**

Q.1 **A transcription unit in DNA is primarily comprised of:**
(A) A Promoter
(B) Origin of replication
(C) The Structural gene
(D) A terminator
Choose the correct answer from the options given below:
1. (A), (B) and (D) only
2. (B), (C) and (D) only
3. (A), (B), (C) and (D)
4. (A), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.2 **Health is a state of :**
1. Economical fitness
2. Physical, mental and social well-being
3. Absence of disease
4. Longevity

Options 1. 1
2. 2
3. 3
4. 4

Q.3 **Which one of the followings is not the male sex accessory duct?**
1. Rete testis
2. Infundibulum
3. Epididymis
4. Vas deferens

Options 1. 1
2. 2
3. 3
4. 4

Q.4 **The correct sequence of the formation of pollen grains is -**
(A) Sporogenous tissue
(B) Formation of microspore
(C) Microspore tetrad formed by meiotic divisions
(D) Pollen grains develop from microspores
Choose the correct answer from the options given below:
1. (A), (B), (C), (D)
2. (A), (C), (B), (D)
3. (B), (A), (D), (C)
4. (C), (B), (D), (A)

Options 1. 1
2. 2
3. 3
4. 4

Q.5 **The microbe involved in the production of citric acid is -**
1. Acetobacter aceti
2. Lactobacillus
3. Aspergillus niger
4. Clostridium butylicum

Options 1. 1
2. 2
3. 3
4. 4

Q.6
Arrange the given organs in correct sequence which are involved in life cycle of *Plasmodium*.
(A) Gut of mosquito
(B) Salivary gland of mosquito
(C) Liver of man
(D) Blood of man
Choose the correct answer from the options given below:

1. (A), (B), (C), (D)
2. (D), (C), (A), (B)
3. (A), (D), (B), (C)
4. (B), (C), (D), (A)

Options
1. 1
2. 2
3. 3
4. 4

Q.7 The unequivocal proof that DNA is the genetic material came from the experiments of -
1. Colin MacLeod and Maclyn McCarty
2. Frederick Griffith
3. Matthew Meselson and Franklin Stahl
4. Alfred Hershey and Martha Chase

Options
1. 1
2. 2
3. 3
4. 4

Q.8 RNA polymerase III is responsible for the transcription of -
1. rRNA
2. hnRNA
3. snRNA
4. Triple stranded tRNA

Options
1. 1
2. 2
3. 3
4. 4

Q.9 Sequentially arrange the evolutionary stages of humans from the given options.
(A) *Australopithecines*
(B) *Homo habilis*
(C) *Dryopithecus*
(D) *Homo erectus*
Choose the correct answer from the options given below:
1. (A), (B), (C), (D)
2. (C), (A), (B), (D)
3. (B), (A), (D), (C)
4. (C), (B), (D), (A)

Options
1. 1
2. 2
3. 3
4. 4

Q.10 Pleiotropic genes are:
1. Polygenes
2. Complementary genes
3. Genes with multiple phenotypic expression
4. Genes with single phenotypic expression

Options
1. 1
2. 2
3. 3
4. 4

Q.11 Point out the technique, which is not useful for the detection of cancer of internal organs.
1. X-rays
2. DNA fingerprinting
3. Computed tomography
4. Magnetic resonance imaging

Options
1. 1
2. 2
3. 3
4. 4

Q.12 Match List-I with List-II

List-I	List-II
Terms	Examples/Explanations
(A) Homology	(I) Forelimbs of mammals
(B) Analogy	(II) Wings of birds and butterfly

(C) Convergent evolution (III) Common habitat and function

(D) Divergent evolution (IV) Common ancestry of structure

Choose the correct answer from the options given below:
1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (IV), (B) - (III), (C) - (II), (D) - (I)
3. (A) - (II), (B) - (I), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Options 1. 1
2. 2
3. 3
4. 4

Q.13 Which one of the mentioned reasons does not cause the loss of biodiversity?
1. Habitat loss and fragmentation
2. Alien species invasions
3. Aforestation
4. Co-extinctions

Options 1. 1
2. 2
3. 3
4. 4

Q.14 The components of the ecosystem are seen to function as a unit when you consider the following aspects -
(A) Productivity
(B) Decomposition
(C) Energy flow
(D) Nutrient cycling
Choose the correct answer from the options given below:
1. (A), (B) and (C) only
2. (A), (B) and (D) only
3. (A), (B), (C) and (D)
4. (B), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.15 Typical embryo sac at maturity is:
1. 7 nucleate, 8 celled structure
2. 8 nucleate, 7 celled structure
3. 4 nucleate, 6 celled structure
4. 8 nucleate, 6 celled structure

Options 1. 1
2. 2
3. 3
4. 4

Q.16 Match List-I with List-II

List-I	List-II
Diseases	Causative organisms
(A) Pneumonia	(I) *Microsporum*
(B) Ringworms	(II) *Wuchereria bancrofti*
(C) Elephantiasis	(III) *Entamoeba histolytica*
(D) Amoebiasis	(IV) *Haemophilus influenzae*

Choose the correct answer from the options given below:
1. (A) – (I), (B) – (II), (C) – (III), (D) – (IV)
2. (A) – (IV), (B) – (III), (C) – (II), (D) – (I)
3. (A) – (II), (B) – (I), (C) – (IV), (D) – (III)
4. (A) – (IV), (B) – (I), (C) – (II), (D) – (III)

Options 1. 1
2. 2
3. 3
4. 4

Q.17 Identify, which is not the sexually transmitted infection?
1. Chlamydiasis
2. Trichomoniasis
3. Rheumatoid arthritis

4. Syphilis

Options 1. 1

2. 2

3. 3

4. 4

Q.18 The disease phenylketonuria is caused by mutation in the gene that codes for -
1. Phenylalanine dehydrogenase
2. Phenylalanine carboxylase
3. Phenylalanine hydroxylase
4. Phenylalanine hydrogenase

Options 1. 1

2. 2

3. 3

4. 4

Q.19 Which of the following free living soil microorganisms are used as biofertilisers?
(A) *Anabaena*
(B) *Azospirillum*
(C) *Rhizobium*
(D) *Azotobacter*
Choose the correct answer from the options given below:
1. (B) and (C) only
2. (A) and (B) only
3. (C) and (D) only
4. (B) and (D) only

Options 1. 1

2. 2

3. 3

4. 4

Q.20

Match List-I with List-II

List-I (Enzymes/bioactive molecule)	List-II (Actions)
(A) Pectinases and proteases	(I) Removing oily stains
(B) Streptokinase	(II) Immunosuppressive agent
(C) Lipases	(III) Clear bottled juices
(D) Cyclosporin A	(IV) Clot buster

Choose the correct answer from the options given below:
1. (A) – (I), (B) – (III), (C) – (II), (D) – (IV)
2. (A) – (III), (B) – (IV), (C) – (I), (D) – (II)
3. (A) – (I), (B) – (II), (C) – (IV), (D) – (III)
4. (A) – (III), (B) – (II), (C) – (I), (D) – (IV)

Options 1. 1

2. 2

3. 3

4. 4

Q.21 Arrange the given structures formed during spermatogenesis in correct sequence.
(A) Spermatozoa
(B) Secondary spermatocytes
(C) Spermatids
(D) Spermatogonia
Choose the correct answer from the options given below:
1. (D), (B), (C), (A)
3. (A), (B), (C), (D)
3. (B), (A), (D), (C)
4. (D), (C), (B), (A)

Options 1. 1

2. 2

3. 3

4. 4

Q.22 Groups of individuals in a well-defined geographical area, sharing or competing for similar resources, having the potential to interbreed, are the characteristics of :
1.Biomass
2. Communities
3. Populations
4. Organisms

Options 1. 1

2. 2

3. 3

4. 4

Q.23 **Which one of the given sacred groves is not found in Madhya Pradesh?**
1. Sarguja
2. Jaintia hills
3. Chanda
4. Bastar

Options 1. 1

2. 2

3. 3

4. 4

Q.24 **Arrange the given stages of menstrual cycle in correct sequence.**
(A) Luteal phase
(B) Follicular phase
(C) Menstruation
(D) Next cycle begins
Choose the correct answer from the options given below:
1. (A), (B), (C), (D)
2. (B), (A), (D), (C)
3. (C), (B), (A), (D)
4. (D), (C), (A), (B)

Options 1. 1

2. 2

3. 3

4. 4

Q.25 **Which one of the following features of pea plant is not suitable for genetical studies?**
1. Stem height
2. Flower position
3. Pod colour
4. Stem tendril

Options 1. 1

2. 2

3. 3

4. 4

Q.26 **During sewage treatment, the anaerobic sludge digesters produce the biogas. The components of biogas are -**
1. H_2, H_2S and CO_2
2. CH_4, H_2S and CO_2
3. CH_4, H_2S and O_2
4. CH_4, SO_2 and CO_2

Options 1. 1

2. 2

3. 3

4. 4

Q.27 **Match List-I with List-II**

List-I (Terms)	List-II (Relations/Features)
(A) Homologous organs	(I) Mutation caused speciation
(B) Analogous organs	(II) Retrogressive evolution
(C) Vestigial organs	(III) Convergent evolution
(D) Saltation	(IV) Divergent evolution

Choose the correct answer from the options given below:
1. (A) – (I), (B) – (II), (C) – (III), (D) – (IV)
2. (A) – (IV), (B) – (III), (C) – (II), (D) – (I)
3. (A) – (III), (B) – (II), (C) – (IV), (D) – (I)
4. (A) – (II), (B) – (I), (C) – (IV), (D) – (III)

Options 1. 1

2. 2

3. 3

4. 4

Q.28 **A molecule that can act as the genetic material must fulfill all the mentioned criteria except one which is incorrect.**
1. It should be able to generate its replica (replication).
2. It should be able to express itself in the form of Mendelian characters.

3. It should not provide the scope for slow changes (mutation) that are required for evolution.
4. It should be stable chemically and structurally.

Options 1. 1
2. 2
3. 3
4. 4

Q.29 In a typical microsporangium, the function of tapetum is -
1. Nourishment to developing ovules
2. Nourishment to developing stigma
3. Nourishment to developing pollen grains
4. Nourishment to developing thalamus

Options 1. 1
2. 2
3. 3
4. 4

Q.30 Which one of the following approaches does not belong to ex situ conservation strategy?
1. Zoological parks
2. Wildlife sanctuaries
3. Botanical gardens
4. Wildlife safari parks

Options 1. 1
2. 2
3. 3
4. 4

Q.31 The density of a population in a given habitat during a given period fluctuates due to changes in:
(A) Natality
(B) Emigration
(C) Immigration
(D) Mortality
Choose the correct answer from the options given below:
1. (A), (B) and (C) only
2. (A), (B) and (D) only
3. (A), (B), (C), (D)
4. (B), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.32 The female reproductive system consists of:
(A) Ovaries
(B) External genitalia
(C) Cervix and vagina
(D) Oviducts and uterus
Choose the most appropriate answer from the options given below:
1. (A), (B), (C) and (D)
2. (A), (B) and (D) only
3. (A) and (D) only
4. (A), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.33 Verhulst-Pearl logistic growth equation can be represented by -
1. dt/dN = rN(K-N/K)
2. dN/dt = rK(K-N/K)
3. dN/dt = rN(K-N/K)
4. dN/dt = rN(N-K/N)

Options 1. 1
2. 2
3. 3
4. 4

Q.34 Identify the incorrect statement in reference to the latitudinal gradient in biodiversity.

1. In general, species diversity decreases as we move away from the equator towards the poles.
2. The largely tropical Amazonian rain forest in South America has the greatest biodiversity on earth.
3. A forest in a tropical region like Equador has up to 10000 times as many species of vascular plants as a forest of equal area in a temperate region like the Midwest of the USA.
4. With very few exceptions, tropics harbor more species than temperate or polar areas.

Options 1. 1
2. 2
3. 3
4. 4

Q.35 Medical termination of pregnancy is considered relatively safe -
1. Upto 24 weeks of pregnancy
2. Upto 18 weeks of pregnancy
3. Upto 12 weeks of pregnancy
4. Upto 30 weeks of pregnancy

Options 1. 1
2. 2
3. 3
4. 4

Q.36 The rate of production of organic matter during photosynthesis is defined as -
1. Quaternary productivity
2. Secondary productivity
3. Net primary productivity
4. Gross primary productivity

Options 1. 1
2. 2
3. 3
4. 4

Q.37 As a biocontrol agents, the ladybird and dragonflies are useful to get rid of -
1. Wasp and cockroach, respectively
2. Housefly and ants, respectively
3. Mosquitoes and aphids, respectively
4. Aphids and mosquitoes, respectively

Options 1. 1
2. 2
3. 3
4. 4

Q.38 Match List-I with List-II

List-I (Contraceptive methods)	List-II (Examples)
(A) Barrier method	(I) LNG-20
(B) Oral method	(II) Multiload 375
(C) Copper releasing IUDs	(III) Vaults
(D) Hormone releasing IUDs	(IV) Saheli

Choose the correct answer from the options given below:
1. (A) – (I), (B) – (II), (C) – (III), (D) – (IV)
2. (A) – (III), (B) – (IV), (C) – (I), (D) – (II)
3. (A) – (III), (B) – (IV), (C) – (II), (D) – (I)
4. (A) – (IV), (B) – (I), (C) – (II), (D) – (III)

Options 1. 1
2. 2
3. 3
4. 4

Q.39 Decomposers break down complex organic matter into -
1. Inorganic substances like O_2, H_2O and CO_2
2. Inorganic substances like CO_2, H_2O and nutrients
3. Inorganic substances like O_2, H_2S and nutrients
4. Inorganic substances like N_2, H_2O and CO_2

Options 1. 1
2. 2
3. 3
4. 4

Q.40 **The sedative & painkiller drug useful for the patients who have undergone surgery is-**

1. **Barbiturates**
2. **Morphine**
3. **Amphitamines**
4. **Cocaine**

Options 1. 1

2. 2

3. 3

4. 4

Q.41 **Read the Passage carefully and answer the the questions**

The DNA fragments can be separated by a technique known as gel electrophoresis. Since DNA fragments are negatively charged molecules, they can be separated by forcing them to move towards the anode under an electric field through a medium/matrix. The separated DNA fragments can be visualised only after staining the DNA with a compound known as ethidium bromide followed by exposure to UV radiation. The repeated amplification of DNA is achieved by the use of a thermostable DNA polymerase (isolated from a bacterium, *Thermus aquaticus*). After completion of the biosynthetic stage, the product has to be subjected through a series of processes before it is ready for marketing as a finished product. The downstream processing and quality control testing vary from product to product. The convention for naming restriction enzymes is the first letter of the name comes from the genus and the second two letters come from the species of the prokaryotic cell from which they were isolated.

The downstream processing does not include -

1. **Separation and purification**
2. **Product formulation with preservatives**
3. **No clinical trials in case of drugs**
4. **Strict quality control testing**

Options 1. 1

2. 2

3. 3

4. 4

Q.42 **Read the Passage carefully and answer the the questions**

The DNA fragments can be separated by a technique known as gel electrophoresis. Since DNA fragments are negatively charged molecules, they can be separated by forcing them to move towards the anode under an electric field through a medium/matrix. The separated DNA fragments can be visualised only after staining the DNA with a compound known as ethidium bromide followed by exposure to UV radiation. The repeated amplification of DNA is achieved by the use of a thermostable DNA polymerase (isolated from a bacterium, *Thermus aquaticus*). After completion of the biosynthetic stage, the product has to be subjected through a series of processes before it is ready for marketing as a finished product. The downstream processing and quality control testing vary from product to product. The convention for naming restriction enzymes is the first letter of the name comes from the genus and the second two letters come from the species of the prokaryotic cell from which they were isolated.

In agarose gel electrophoresis, the DNA fragments can be visualised only after staining the DNA with a compound known as -

1. **Ethidium bromate**
2. **Ethidium chloride**
3. **Ethidium bromide**
4. **Ethidium bromine**

Options 1. 1

2. 2

3. 3

4. 4

Q.43 **Read the Passage carefully and answer the the questions**

The DNA fragments can be separated by a technique known as gel electrophoresis. Since DNA fragments are negatively charged molecules, they can be separated by forcing them to move towards the anode under an electric field through a medium/matrix. The separated DNA fragments can be visualised only after staining the DNA with a compound known as

ethidium bromide followed by exposure to UV radiation. The repeated amplification of DNA is achieved by the use of a
thermostable DNA polymerase (isolated from a bacterium, *Thermus aquaticus*). After completion of the biosynthetic stage, the
product has to be subjected through a series of processes before it is ready for marketing as a finished product. The
downstream processing and quality control testing vary from product to product. The convention for naming restriction
enzymes is the first letter of the name comes from the genus and the second two letters come from the species of the
prokaryotic cell from which they were isolated.

In the nomenclature of restriction enzymes -

1. The first letter of the name from the species and the second two letters from the different species of the prokaryotic cell
2. The first two letter of the name from the genus and the third letter from the species of the prokaryotic cell
3. The first letter of the name from the species and the second two letters from the genus of the prokaryotic cell
4. The first letter of the name from the genus and the second two letters from the species of the prokaryotic cell

Options 1. 1

2. 2

3. 3

4. 4

Q.44 Read the Passage carefully and answer the the questions

The DNA fragments can be separated by a technique known as gel electrophoresis. Since DNA fragments are negatively
charged molecules, they can be separated by forcing them to move towards the anode under an electric field through a
medium/matrix. The separated DNA fragments can be visualised only after staining the DNA with a compound known as
ethidium bromide followed by exposure to UV radiation. The repeated amplification of DNA is achieved by the use of a
thermostable DNA polymerase (isolated from a bacterium, *Thermus aquaticus*). After completion of the biosynthetic stage, the
product has to be subjected through a series of processes before it is ready for marketing as a finished product. The
downstream processing and quality control testing vary from product to product. The convention for naming restriction
enzymes is the first letter of the name comes from the genus and the second two letters come from the species of the
prokaryotic cell from which they were isolated.

The thermostable DNA polymerase is isolated from -

1. *Thermus aquaticas*
2. *Thermus acquaticus*
3. *Thermus aquaticus*
4. *Thermas aquaticus*

Options 1. 1

2. 2

3. 3

4. 4

Q.45 Read the Passage carefully and answer the the questions

The DNA fragments can be separated by a technique known as gel electrophoresis. Since DNA fragments are negatively
charged molecules, they can be separated by forcing them to move towards the anode under an electric field through a
medium/matrix. The separated DNA fragments can be visualised only after staining the DNA with a compound known as
ethidium bromide followed by exposure to UV radiation. The repeated amplification of DNA is achieved by the use of a
thermostable DNA polymerase (isolated from a bacterium, *Thermus aquaticus*). After completion of the biosynthetic stage, the
product has to be subjected through a series of processes before it is ready for marketing as a finished product. The
downstream processing and quality control testing vary from product to product. The convention for naming restriction
enzymes is the first letter of the name comes from the genus and the second two letters come from the species of the
prokaryotic cell from which they were isolated.

In agarose gel electrophoresis, DNA fragments move towards _____ under an electric field through a medium.

1. Cathode
2. Anode
3. Matrix
4. Buffer

Options 1. 1
2. 2
3. 3
4. 4

Q.46 **Read the Passage carefully and answer the the questions.**

Insulin consists of two short polypeptide chains: chain A and chain B, that are linked together by disulphide bridges. The first clinical gene therapy was given in 1990 to a 4-year old girl with adenosine deaminase (ADA) deficiency. This enzyme is crucial for the immune system to function. Recombinant DNA technology, Polymerase Chain Reaction (PCR) and Enzyme Linked Immuno-sorbent Assay (ELISA) are some of the techniques that serve the purpose of early diagnosis of diseases. Transgenic animals that produce useful biological products can be created by the introduction of the portion of DNA (or genes) which codes for a particular product such as human protein (α-1-antitrypsin) used to treat emphysema. Biopiracy is the term used to refer to the use of bio-resources by multinational companies and other organisations without proper authorisation from the countries and people concerned without compensatory payment.

Deficiency of adenosine deaminase (ADA) can be permanently cured by -
1. Gene therapy
2. Bone marrow transplantation
3. Periodic infusion of genetically engineered lymphocytes.
4. Enzyme replacement therapy

Options 1. 1
2. 2
3. 3
4. 4

Q.47 **Read the Passage carefully and answer the the questions.**

Insulin consists of two short polypeptide chains: chain A and chain B, that are linked together by disulphide bridges. The first clinical gene therapy was given in 1990 to a 4-year old girl with adenosine deaminase (ADA) deficiency. This enzyme is crucial for the immune system to function. Recombinant DNA technology, Polymerase Chain Reaction (PCR) and Enzyme Linked Immuno-sorbent Assay (ELISA) are some of the techniques that serve the purpose of early diagnosis of diseases. Transgenic animals that produce useful biological products can be created by the introduction of the portion of DNA (or genes) which codes for a particular product such as human protein (α-1-antitrypsin) used to treat emphysema. Biopiracy is the term used to refer to the use of bio-resources by multinational companies and other organisations without proper authorisation from the countries and people concerned without compensatory payment.

In early diagnosis of disease, the principle of antigen-antibody interaction operates in -
1. Computed tomography
2. Recombinant DNA technology
3. Polymerase Chain Reaction
4. Enzyme Linked Immuno Sorbent Assay

Options 1. 1
2. 2
3. 3
4. 4

Q.48 **Read the Passage carefully and answer the the questions.**

Insulin consists of two short polypeptide chains: chain A and chain B, that are linked together by disulphide bridges. The first clinical gene therapy was given in 1990 to a 4-year old girl with adenosine deaminase (ADA) deficiency. This enzyme is crucial for the immune system to function. Recombinant DNA technology, Polymerase Chain Reaction (PCR) and Enzyme Linked Immuno-sorbent Assay (ELISA) are some of the techniques that serve the purpose of early diagnosis of diseases. Transgenic animals that produce useful biological products can be created by the introduction of the portion of DNA (or genes) which codes for a particular product such as human protein (α-1-antitrypsin) used to treat emphysema. Biopiracy is the term used to refer to the use of bio-resources by multinational companies and other organisations without proper authorisation from the countries and people concerned without compensatory payment.

Transgenic animals that produce useful biological products can be created by the introduction of the portion of DNA which codes for a particular product such as human protein (α-1-antitrypsin) which is used to treat:
1. Phenylketonuria
2. Emphysema
3. Cystic fibrosis
4. Adenosine deaminase deficiency

Options 1. 1
2. 2
3. 3
4. 4

Q.49 **Read the Passage carefully and answer the the questions.**

Insulin consists of two short polypeptide chains: chain A and chain B, that are linked together by disulphide bridges. The first clinical gene therapy was given in 1990 to a 4-year old girl with adenosine deaminase (ADA) deficiency. This enzyme is crucial for the immune system to function. Recombinant DNA technology, Polymerase Chain Reaction (PCR) and Enzyme Linked Immuno-sorbent Assay (ELISA) are some of the techniques that serve the purpose of early diagnosis of diseases. Transgenic animals that produce useful biological products can be created by the introduction of the portion of DNA (or genes) which codes for a particular product such as human protein (α-1-antitrypsin) used to treat emphysema. Biopiracy is the term used to refer to the use of bio-resources by multinational companies and other organisations without proper authorisation from the countries and people concerned without compensatory payment.

Insulin has 2 polypeptide chains linked together by _____ bridges.

1. Dimethyl
2. Disulphide
3. Dipropyl
4. Diphosphate

Options 1. 1

2. 2

3. 3

4. 4

Q.50 **Read the Passage carefully and answer the the questions.**

Insulin consists of two short polypeptide chains: chain A and chain B, that are linked together by disulphide bridges. The first clinical gene therapy was given in 1990 to a 4-year old girl with adenosine deaminase (ADA) deficiency. This enzyme is crucial for the immune system to function. Recombinant DNA technology, Polymerase Chain Reaction (PCR) and Enzyme Linked Immuno-sorbent Assay (ELISA) are some of the techniques that serve the purpose of early diagnosis of diseases. Transgenic animals that produce useful biological products can be created by the introduction of the portion of DNA (or genes) which codes for a particular product such as human protein (α-1-antitrypsin) used to treat emphysema. Biopiracy is the term used to refer to the use of bio-resources by multinational companies and other organisations without proper authorisation from the countries and people concerned without compensatory payment.

In 1997, an American company got patent rights on Basmati rice through the US Patent and Trademark Office. This allowed the company to sell a 'new' variety of bvasnmati, in the US and abroad. This 'new' variety of Basmati had actually been derived from Indian farmer's varieties.. Indiian Basmati was crossed with semi-dwarf varieties and claimed as an invention or a novelty. This is a case of:

1. Competitive market
2. Bioresources
3. Biopiracy
4. Commercialization

Options 1. 1

2. 2

3. 3

4. 4