

National Testing Agency

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Environmental Sciences

Group Number : 1
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Group Maximum Duration : 0
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PART A

Section Id : 12820623
Section Number : 1
Section type : Online
Mandatory or Optional: Mandatory
Number of Questions: 40
Number of Questions to be attempted: 40
Section Marks: 50
Display Number Panel: Yes
Group All Questions: No

Sub-Section Number: 1
Sub-Section Id: 12820632
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 128206717 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

An experiment was conducted where you analyzed the results of the plant growth experiment after you manipulated the amount of water and seed variety. Which of the following is *correct*?

- A. we randomized the plants to plots to eliminate any effect of hidden variables
- B. we could determine the best combination of water and seed variety by examining the difference in the plant height in the final week of the experiment
- C. the variability in growth among plants of the same variety who received the same amount of water was constant over time
- D. the growth of a particular plant in week 3 is likely to be independent (unrelated) of the growth of the same plant in week 2

Options :

1282062833. A

1282062834. B

1282062835. C

1282062836. D

Question Number : 2 Question Id : 128206718 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The concentration of end product of a reaction is quantified in a colorimeter. For a 1 cm path length cuvette, 20% of the incident light intensity is absorbed. If the path length is increased to 2 cm, the percentage of light transmitted is

- A. 36
- B. 64
- C. 56
- D. 95

Options :

1282062837. A

1282062838. B

1282062839. C

1282062840. D

Question Number : 3 Question Id : 128206719 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A farmer growing a particular variety of grape plants in vineyard, observes the following:

- P. Fruit size normally remained small.
- Q. Natural seed abortion.
- R. Development of fungal infection as the pedicels are small in size due to which moisture is retained in the bunches of grapes.

Experts suggested spraying gibberellic acid during the fruit development. This treatment would help in getting rid of

- A. P, Q and R
- B. only P and Q
- C. only P and R
- D. only Q and R

Options :

- 1282062841. A
- 1282062842. B
- 1282062843. C
- 1282062844. D

Question Number : 4 Question Id : 128206720 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Possible explanations for the age-related decline in primary productivity of trees are:

- P. As trees grow larger with age, they have more tissues that respire and loose energy and proportionately less leaf area to photosynthesize.
- Q. Nutrient limitation by nitrogen due to reduced rate of woody litter decomposition as forest ages.
- R. As trees become larger, water transport to the top canopy leaves becomes limited because of increased hydraulic resistance. This results in reduced stomatal conductance and reduction in photosynthetic rate.

Which of the above is/are *correct*?

- A. P, Q and R
- B. Only P
- C. Only P and R
- D. Only Q and R

Options :

- 1282062845. A
- 1282062846. B
- 1282062847. C
- 1282062848. D

Question Number : 5 Question Id : 128206721 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Demography is the science of

- A. Population
- B. Biotic interactions
- C. Abiotic interactions
- D. Both biotic and abiotic interactions

Options :

- 1282062849. A
- 1282062850. B
- 1282062851. C
- 1282062852. D

Question Number : 6 Question Id : 128206722 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Silviculture deals with

- A. Silkworm
- B. Trees
- C. Sewage treatment
- D. Ornamental plants

Options :

1282062853. A

1282062854. B

1282062855. C

1282062856. D

Question Number : 7 Question Id : 128206723 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Soil type A is good and soil type B is bad for rice. This is an example of

- A. Nominal scale
- B. Ordinal scale
- C. Interval scale
- D. Both nominal and ordinal scale

Options :

1282062857. A

1282062858. B

1282062859. C

1282062860. D

Question Number : 8 Question Id : 128206724 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For preparing 1 N solution of a substance, we need to know

- A. Only its equivalent weight
- B. Only its Molecular weight
- C. Both equivalent weight and molecular weight.
- D. Its equivalent weight and also density of water

Options :

1282062861. A

1282062862. B

1282062863. C

1282062864. D

Question Number : 9 Question Id : 128206725 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

SDS is used while separating proteins by polyacrylamide gel electrophoresis because

- A. It helps in proteins solubilization for easier separation
- B. It helps in providing uniform negative charge density during electrophoresis
- C. It helps in stabilization of proteins
- D. It decreases the surface tension of electrophoresis buffer

Options :

1282062865. A

1282062866. B

1282062867. C

1282062868. D

Question Number : 10 Question Id : 128206726 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

. An abstract is a part of

- A. Research article
- B. Conference proceedings
- C. Thesis
- D. All of these

Options :

1282062869. A

1282062870. B

1282062871. C

1282062872. D

Question Number : 11 Question Id : 128206727 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

. ISBN relates to

- A. Books
- B. Research articles
- C. News magazine
- D. All of these

Options :

1282062873. A

1282062874. B

1282062875. C

1282062876. D

Question Number : 12 Question Id : 128206728 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Fluorescence microscopy work on a principle in which molecules absorb light of

- A. Different wavelengths
- B. Constant wavelength
- C. Absorb at a given wavelength and then emit it at a longer wavelength
- D. Absorb at a given wavelength and then emit it at a shorter wavelength

Options :

1282062877. A

1282062878. B

1282062879. C

1282062880. D

Question Number : 13 Question Id : 128206729 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one is a plagiarism software?

- A. Norton
- B. End Note
- C. Graph prism
- D. Turnitin

Options :

1282062881. A

1282062882. B

1282062883. C

1282062884. D

Question Number : 14 Question Id : 128206730 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Among these, which statement is correct?

- A. To minimize the standard deviation the sample size should be decreased
- B. To minimize the standard deviation the sample size should be increased
- C. Standard deviation will not depend on sample size
- D. Standard deviation will always be proportional to sample size

Options :

1282062885. A

1282062886. B

1282062887. C

1282062888. D

Question Number : 15 Question Id : 128206731 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following analytical instrument does not follow Beer-Lamberts law?

- A. Spectrophotometer
- B. Atomic absorption spectrometer (AAS)
- C. Inductively Coupled Plasma Optical emission spectrometer (IPC-OES)
- D. AAS coupled with VG assembly

Options :

1282062889. A

1282062890. B

1282062891. C

1282062892. D

Question Number : 16 Question Id : 128206732 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An analyst made following observations for Fe and Cu concentrations (in ppm units) in standard of soil

	Fe	Cu
True value	56	40
Observation 1	60	40
Observation 2	60	30
Observation 3	60	50

Which of the following is NOT correct?

- A. Fe analysis have ~4% error
- B. Average Cu concentration is matching with true value
- C. Cu analysis showed high precision
- D. Fe analysis showed high precision

Options :

1282062893. A

1282062894. B

1282062895. C

1282062896. D

Question Number : 17 Question Id : 128206733 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following gases is not used in atomic absorption spectrometer?

- A. Air-acetylene
- B. Argon
- C. Nitrous oxide-air
- D. Nitrogen

Options :

1282062897. A

1282062898. B

1282062899. C

1282062900. D

Question Number : 18 Question Id : 128206734 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A sample must be representative in nature. Representative sample means:

- A. Sample similar to the population in all respects
- B. Replica of the population for some characteristics
- C. Sample which is smaller in size than population
- D. Sample whose concentrations are similar is population mean within sampling error limits

Options :

1282062901. A

1282062902. B

1282062903. C

1282062904. D

Question Number : 19 Question Id : 128206735 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The soil sampling conducted by Pramod could include all types of soil samples in the given area will fixed boundaries in the equal proportion. The sampling technique is called as

- A. Convenience sampling technique
- B. Purposive sampling technique
- C. Probability sampling technique
- D. Pre-divided sampling technique

Options :

1282062905. A

1282062906. B

1282062907. C

1282062908. D

Question Number : 20 Question Id : 128206736 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How to identify the chemical weathering process in the geological formation?

- A. the splitting of a boulder
- B. the grinding of pebbles into sand
- C. the cleavage of a feldspar crystal
- D. the rusting of hornblende

Options :

1282062909. A

1282062910. B

1282062911. C

1282062912. D

Question Number : 21 Question Id : 128206737 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

-----analysis is fast, non-destructive elemental analysis with the capability to pinpoint individual particles with diameters down to 10 μm in size

- A. AAS
- B. UV Spectrophotometer
- C. EDXRF
- D. Anodic Stripping Voltammetry

Options :

- 1282062913. A
- 1282062914. B
- 1282062915. C
- 1282062916. D

Question Number : 22 Question Id : 128206738 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which dense liquid is used to separate zircon and rutile from quartz and feldspar in sediments?

- A. Methyline iodide
- B. Bromoform
- C. Lithium based tungstate
- D. Methyl chloride

Options :

- 1282062917. A
- 1282062918. B
- 1282062919. C
- 1282062920. D

Question Number : 23 Question Id : 128206739 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which mineral is observed under microscope that has optical properties : colourless, non-pleochroic, prismatic, euheadral to subhedral grain with prominent crystalline face :

- A. quartz
- B. Magnetite
- C. Titanite
- D. Zircon

Options :

- 1282062921. A
- 1282062922. B
- 1282062923. C
- 1282062924. D

Question Number : 24 Question Id : 128206740 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Trilobite fossil used to determine the approximate age of ---- geological period

- A. Silurian
- B. Devonian
- C. Cambrian
- D. Jurassic

Options :

- 1282062925. A
- 1282062926. B
- 1282062927. C
- 1282062928. D

Question Number : 25 Question Id : 128206741 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Generally which size fraction of sediment/regolith is generally chosen for the sedimentary geochemical studies :

- A. 37 micron
- B. 63 micron
- C. 47 micron
- D. 125 micron

Options :

- 1282062929. A
- 1282062930. B
- 1282062931. C
- 1282062932. D

Question Number : 26 Question Id : 128206742 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is a research design?

- A. A method of conducting research that is not solved by theoretical calculation
- B. The choice between using qualitative or quantitative methods
- C. The method by which we present your research findings, e.g. a graph, a table
- D. An outline for every stage of the collection and analysis of data

Options :

- 1282062933. A
- 1282062934. B
- 1282062935. C
- 1282062936. D

Question Number : 27 Question Id : 128206743 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The median of the five terms listed below is 5, where b is a constant. What is the average (arithmetic mean) of the five terms?

$$b - 3, b - 1, b + 2, b + 3, b + 4$$

- A. 3
- B. 4
- C. 5
- D. 0

Options :

- 1282062937. A
- 1282062938. B
- 1282062939. C
- 1282062940. D

Question Number : 28 Question Id : 128206744 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The average (arithmetic mean) high temperature for X days is 70 degrees. The addition of one day with a high temperature of 75 degrees increases the average to 71 degrees. What is the value of X ?

- A. 5
- B. 4
- C. 10
- D. 1

Options :

- 1282062941. A
- 1282062942. B
- 1282062943. C
- 1282062944. D

Question Number : 29 Question Id : 128206745 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the followings is used in simple titration

- A. Litmus
- B. Conductivity meter
- C. Indicator
- D. Resin

Options :

- 1282062945. A
- 1282062946. B
- 1282062947. C
- 1282062948. D

Question Number : 30 Question Id : 128206746 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Polluted water can be identified by using following sensor

- A. Thermal
- B. Visible
- C. Microwave
- D. Ultraviolet

Options :

- 1282062949. A
- 1282062950. B
- 1282062951. C
- 1282062952. D

Sub-Section Number: 2
Sub-Section Id: 12820633
Question Shuffling Allowed : Yes

Question Number : 31 Question Id : 128206747 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If ELR and DALR represent environmental lapse rate and dry adiabatic lapse rate, respectively, which of the following statement is correct?

- A. $ELR > DALR$ indicates stable atmosphere.
- B. $ELR = DALR$ indicates highly unstable atmosphere.
- C. $ELR < DALR$ indicates unstable atmosphere.
- D. $ELR > DALR$ indicates unstable atmosphere.

Options :

- 1282062953. A
- 1282062954. B
- 1282062955. C
- 1282062956. D

Question Number : 32 Question Id : 128206748 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Mathematically, the logistic curve for population growth is derived from differential equation, $dN/dt = rN [1 - (N/K)]$ where 'N' is population size, 'K' is carrying capacity of the environment and 'r' is the.....

- A. Environmental resistance constant
- B. Population explosion constant
- C. Logarithmic growth rate constant
- D. Exponential growth rate constant

Options :

- 1282062957. A
- 1282062958. B
- 1282062959. C
- 1282062960. D

Question Number : 33 Question Id : 128206749 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

When testing for differences between the means of two related populations, the null hypothesis states that

- A. the difference between the two population means is not significantly different from zero
- B. the population mean difference is significantly greater than zero
- C. the difference between the two population means is significantly greater than zero
- D. the population mean difference is not significantly different from zero

Options :

1282062961. A

1282062962. B

1282062963. C

1282062964. D

Question Number : 34 Question Id : 128206750 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Given below are a set of statistical methods/parameters (Column A) and their potential applications/utility in biological research (Column B), in a random manner.

Column A		Column B	
P.	Variance	1.	Measures strength of association between two variables.
Q.	Correlation coefficient	2.	Prediction of value of a dependent variable based on known value of an associated variable.
R.	Regression analysis	3.	Calculation of deviation between observed and expected values.
S.	Chi-square analysis	4.	Calculate the spread of a distribution.

Which of the following options is a *correct* match of entries in column A and B?

- A. P-2, Q-4, R-1, S-3
- B. P-3, Q-2, R-4, S-1
- C. P-4, Q-1, R-2, S-3
- D. P-1, Q-3, R-2, S-4

Options :

1282062965. A

1282062966. B

1282062967. C

1282062968. D

Question Number : 35 Question Id : 128206751 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In the global nitrogen cycle, the following microbial organisms are involved in three important process—denitrification, nitrification and nitrogen fixation.

1. *Rhizobium* 2. *Nitrosomonas* 3. *Nitrobacter* 4. *Pseudomonas* 5. *Azotobacter*

Which of the following is the *correctly* matched pair of process and its causative species?

- A. Denitrification - (2); nitrogen fixation - (3) and (4); nitrification - (4)
- B. Denitrification - (4); nitrogen fixation - (1) and (5); nitrification - (3)
- C. Denitrification - (5); nitrogen fixation - (1) and (4); nitrification - (4)
- D. Denitrification - (2); nitrogen fixation - (1) and (4); nitrification - (3)

Options :

1282062969. A

1282062970. B

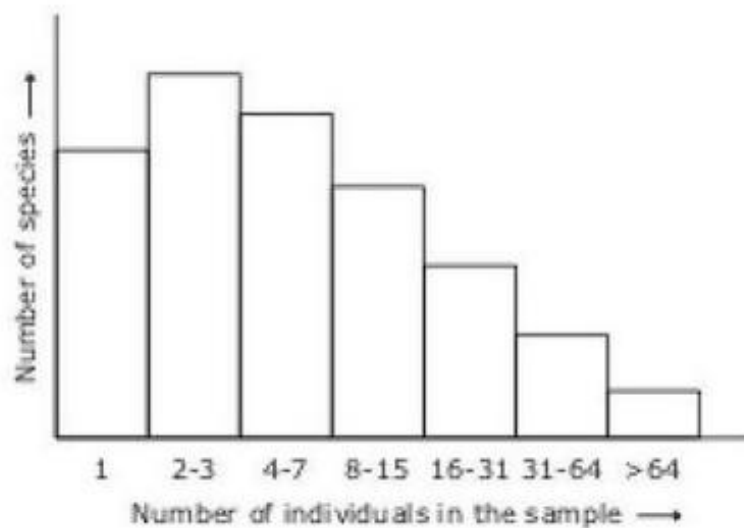
1282062971. C

1282062972. D

Question Number : 36 Question Id : 128206752 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Biologists randomly sampled about 3000 insects from a newly found island. The distribution of their abundance in the sample was as in the figure given below:



Which of the following can be *correctly* inferred from the graph?

- A. Many species have only one individual each on the island.
- B. The bar on the extreme right represents a large number of species with very few individuals.
- C. Summation of the heights of all columns will be exactly equal to the total number of species present on the island.
- D. All species from the island may not be represented in the sample.

Options :

1282062973. A
1282062974. B
1282062975. C
1282062976. D

Question Number : 37 Question Id : 128206753 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The following set of minerals are useful for Rb-Sr radioactive age determination in rocks

- A. Calcite and Kyanite
- B. Calcite and Dolomite
- C. Mica and K Feldspar
- D. Hornblende and Tourmaline

Options :

1282062977. A
1282062978. B
1282062979. C
1282062980. D

Question Number : 38 Question Id : 128206754 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Earth climate that has been warming in the Last glacial period that ended in about---

- A. 100-200 yrs ago
- B. 1000-2000 yrs ago
- C. 10000-20000 yrs ago
- D. 100000-200000 yrs ago

Options :

1282062981. A
1282062982. B
1282062983. C
1282062984. D

Question Number : 39 Question Id : 128206755 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

_____ is a preferred sampling method for the population with finite size.

- A. Area sampling
- B. Cluster sampling
- C. Purposive sampling
- D. Systematic sampling

Options :

1282062985. A
1282062986. B
1282062987. C
1282062988. D

Question Number : 40 Question Id : 128206756 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

How the remote sensing application is useful in formulating research hypothesis

- A. It is used to avoid field work
- B. It is useful in formulating hypothesis of different environmental problems
- C. It is alternate method of approximation
- D. Images can be manipulated by this technique

Options :

1282062989. A

1282062990. B

1282062991. C

1282062992. D

PART B

Section Id :	12820624
Section Number :	2
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	40
Number of Questions to be attempted:	40
Section Marks:	50
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	12820634
Question Shuffling Allowed :	Yes

Question Number : 41 Question Id : 128206757 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A student performed three measurements to determine the water density at 25°C to four significant figures. The known density of water at 25°C to three significant figures is 0.997 g/ml. The student obtained the following results.

Trial	Density (g/mL)
-------	----------------

1	0.9345
2	0.9623
3	0.9007

The measurements were _____

- A. sufficiently precise but not accurate.
- B. sufficiently accurate but not precise.
- C. both sufficiently precise and accurate.
- D. neither sufficiently precise nor accurate.

Options :

1282062993. A

1282062994. B

1282062995. C

1282062996. D

Question Number : 42 Question Id : 128206758 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

You have solutions of NH_3 , HCl , NaOH , and $\text{HC}_2\text{H}_3\text{O}_2$ (acetic acid), all with the same solute concentrations. Rank these solutions in order of pH, from the highest to lowest.

A. $\text{NaOH} > \text{NH}_3 > \text{HC}_2\text{H}_3\text{O}_2 > \text{HCl}$

B. $\text{NH}_3 > \text{NaOH} > \text{HC}_2\text{H}_3\text{O}_2 > \text{HCl}$

C. $\text{NaOH} > \text{NH}_3 > \text{HCl} > \text{HC}_2\text{H}_3\text{O}_2$

D. $\text{NH}_3 > \text{HC}_2\text{H}_3\text{O}_2 > \text{NaOH} > \text{HCl}$

Options :

1282062997. A

1282062998. B

1282062999. C

1282063000. D

Question Number : 43 Question Id : 128206759 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following molecules is expected to show a rotational spectrum: benzene, C_6H_6 ; water, H_2O ; boron trifluoride, BF_3 ; monodeuterated acetylene, C_2HD ?

A. C_6H_6 , C_2HD

B. H_2O only

C. H_2O , BF_3

D. H_2O , C_2HD

Options :

1282063001. A

1282063002. B

1282063003. C

1282063004. D

Question Number : 44 Question Id : 128206760 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Oddo-Harkins rule is all about.

A. Cerium anomaly,

B. Elemental abundances,

C. Redox reactions,

D. Elemental substitution

Options :

1282063005. A

1282063006. B

1282063007. C

1282063008. D

Question Number : 45 Question Id : 128206761 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Trace elements obey the following law.

- A. Boyle's
- B. Henry's
- C. Newton's
- D. Nernst's

Options :

- 1282063009. A
- 1282063010. B
- 1282063011. C
- 1282063012. D

Question Number : 46 Question Id : 128206762 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Biodiesel is an example of which of the 12 Principles of Green Chemistry?

- A. #1 – Waste prevention
- B. #7 – Use of renewable feedstocks
- C. #9 – Use of catalysis
- D. #5 – Safer solvents

Options :

- 1282063013. A
- 1282063014. B
- 1282063015. C
- 1282063016. D

Question Number : 47 Question Id : 128206763 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Methyl lithium exists as a

- A. Monomer
- B. Trimer
- C. Dimer
- D. Tetramer

Options :

- 1282063017. A
- 1282063018. B
- 1282063019. C
- 1282063020. D

Question Number : 48 Question Id : 128206764 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statements are *correct* about C₄ plants and C₄ cycle?

P. In hot, dry climates, the C₄ cycle reduces photorespiration and water loss.

Q. The affinity of PEP carboxylase for its substrate, HCO₃⁻, is sufficiently high as compared to rubisco.

R. C₄ plants photosynthesize more efficiently at high temperatures than C₃ plants.

S. Oxidative decarboxylation of the C₄ acids occurs within the mesophyll cells.

- A. Q, R and S
- B. P, Q and R
- C. P, R and S
- D. P, Q, R and S

Options :

1282063021. A

1282063022. B

1282063023. C

1282063024. D

Question Number : 49 Question Id : 128206765 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Phytochrome

P. is a blue protein pigment.

Q. shows photo reversibility.

R. has a linear tetrapyrrole termed phytochromobilin.

S. regulates nyctinastic movement of leaves.

- A. P and S
- B. Q and R
- C. Q, R and S
- D. P, Q, R and S

Options :

1282063025. A

1282063026. B

1282063027. C

1282063028. D

Question Number : 50 Question Id : 128206766 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Chilling-resistant plants

- A. greater proportion of unsaturated fatty acids than those of chilling-sensitive plants.
- B. greater proportion of saturated fatty acids than those of chilling-sensitive plants.
- C. have mechanisms that limit the growth of ice crystals to extracellular spaces.
- D. grow typically in tropical climate.

Options :

1282063029. A

1282063030. B

1282063031. C

1282063032. D

Question Number : 51 Question Id : 128206767 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Following four types of species were observed in a community:

P. Species A has a large effect on community because of its abundance.

Q. Species B has a large role in community out of proportion to its abundance.

R. Status of species C provides information on the overall health of an ecosystem.

S. Significant conservation resources are allocated to species D which is single, large and instantly recognizable.

According to above description, species A, B, C and D are called respectively,

A. Dominant, Keystone, Indicator and Flagship

B. Keystone, Flagship, Dominant and Indicator

C. Keystone, Dominant, Indicator and Flagship

D. Flagship, Dominant, Keystone and Indicator

Options :

1282063033. A

1282063034. B

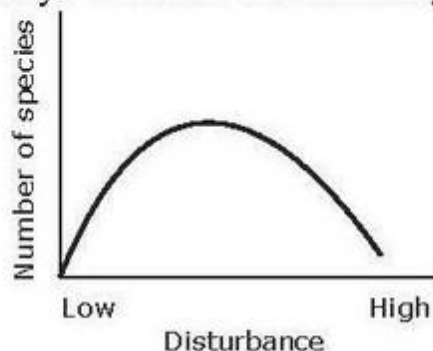
1282063035. C

1282063036. D

Question Number : 52 Question Id : 128206768 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The graph below illustrates a simplified description of the effect of disturbance on species diversity. Which of the following best explains the graph?



A. Species diversity is lowest at intermediate intensities or frequencies of disturbance.

B. Stabilizing selection occurs at intermediate levels of disturbance.

C. The interaction of physical factors and biological competition increases diversity at intermediate intensities or frequencies of disturbance.

D. Directional selection is enhanced by increased disturbance.

Options :

1282063037. A

1282063038. B

1282063039. C

1282063040. D

Question Number : 53 Question Id : 128206769 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

. Assume that an animal generates heat at a rate proportional to its volume and can radiate heat at a rate proportional to its body surface area. Which of these animals would be best at maintaining its body temperature in a cold climate?

- A. Mouse
- B. Rabbit
- C. Fox
- D. Bear

Options :

1282063041. A

1282063042. B

1282063043. C

1282063044. D

Question Number : 54 Question Id : 128206770 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Sum of the squares of the deviations about mean is always

- A. zero
- B. maximum
- C. minimum
- D. one

Options :

1282063045. A

1282063046. B

1282063047. C

1282063048. D

Question Number : 55 Question Id : 128206771 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Variance of a standard normal variate is

- A. zero
- B. one
- C. variable
- D. always more than one

Options :

1282063049. A

1282063050. B

1282063051. C

1282063052. D

Question Number : 56 Question Id : 128206772 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The mean marks obtained by 250 students in an examination are 45. The mean of the top 75 students was found to be 63 and the mean of the last 75 students was found to be 27. The mean of the remaining 100 students is

- A. 40
- B. 42
- C. 44
- D. 45

Options :

- 1282063053. A
- 1282063054. B
- 1282063055. C
- 1282063056. D

Question Number : 57 Question Id : 128206773 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statements about Karl Pearson's coefficient of correlation is correct?

- A. It is independent of change in origin and scale
- B. It is independent of change in origin but not of change in scale
- C. It is independent of change in scale but not of change in origin
- D. It is neither independent of change in origin nor of change in scale

Options :

- 1282063057. A
- 1282063058. B
- 1282063059. C
- 1282063060. D

Question Number : 58 Question Id : 128206774 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the testing of null hypothesis, a type-II error is committed when:

- A. A null hypothesis is rejected when actually it is true
- B. A null hypothesis is rejected when actually it is not true
- C. A null hypothesis is accepted when actually it is not true
- D. A null hypothesis is accepted when actually it is true

Options :

- 1282063061. A
- 1282063062. B
- 1282063063. C
- 1282063064. D

Question Number : 59 Question Id : 128206775 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

.Which of the following statements about the sensitivity of human ear in detecting sounds is correct?

- A. Sensitivity of human ear is same at all the frequencies
- B. Sensitivity of human ear is more in the low frequency range (20-200 Hz)
- C. Sensitivity of human ear is more in the middle frequency range (1000-4000 Hz)
- D. Sensitivity of human ear is more in the high frequency range (16000-20000 Hz)

Options :

1282063065. A

1282063066. B

1282063067. C

1282063068. D

Question Number : 60 Question Id : 128206776 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is the most effective barrier material for the control of noise?

- A. Wood
- B. Vegetation
- C. Concrete
- D. Plywood

Options :

1282063069. A

1282063070. B

1282063071. C

1282063072. D

Question Number : 61 Question Id : 128206777 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Species composition and abundance in soil community is influenced by?

- A. Cannibalism only
- B. Intra-guild predation only
- C. Cannibalism, intra-guild predation and trophic level omnivory
- D. Nitrogen concentration in atmosphere

Options :

1282063073. A

1282063074. B

1282063075. C

1282063076. D

Question Number : 62 Question Id : 128206778 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Vermicomposting requires?

- A. tapeworms
- B. earthworms
- C. nematodes
- D. protozoa

Options :

1282063077. A

1282063078. B

1282063079. C

1282063080. D

Question Number : 63 Question Id : 128206779 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Copiotrophs

- A. Consume elemental sulfur
- B. Consume elemental phosphorus
- C. Consume labile organic carbon
- D. Consume toxic elements

Options :

1282063081. A

1282063082. B

1282063083. C

1282063084. D

Question Number : 64 Question Id : 128206780 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

. Which one of the following can be called as ecosystem engineer

- A. grasshopper
- B. butterfly
- C. beetle
- D. termite

Options :

1282063085. A

1282063086. B

1282063087. C

1282063088. D

Question Number : 65 Question Id : 128206781 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

.Which one of the following is not considered a primary nutrient in crop growth?

- A. Carbon
- B. Nitrogen
- C. Phosphorus
- D. Potassium

Options :

1282063089. A

1282063090. B

1282063091. C

1282063092. D

Question Number : 66 Question Id : 128206782 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Tritium is an isotope of

- A. Tellurium
- B. Titanium
- C. Hydrogen
- D. Tantalum

Options :

1282063093. A

1282063094. B

1282063095. C

1282063096. D

Question Number : 67 Question Id : 128206783 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which part of the Earth is in the molten state?

- A. Mantle
- B. Outer core
- C. Inner core
- D. Crust

Options :

1282063097. A

1282063098. B

1282063099. C

1282063100. D

Question Number : 68 Question Id : 128206784 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What type of rocks form from layers of sand, mud or carbonate shells?

- A. Igneous
- B. Metamorphic
- C. Sedimentary
- D. Batholith

Options :

1282063101. A

1282063102. B

1282063103. C

1282063104. D

Question Number : 69 Question Id : 128206785 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is correct?

- A. Mass movements only occur on land
- B. Mass movements only occur on the sea floor
- C. Mass movements occur both on land and on the sea floor
- D. none of the above

Options :

1282063105. A
1282063106. B
1282063107. C
1282063108. D

Question Number : 70 Question Id : 128206786 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What type of flow can transport fine-grained clay particles?

- A. laminar flow
B. turbulent flow
C. bed flow
D. laminar and turbulent flow

Options :

1282063109. A
1282063110. B
1282063111. C
1282063112. D

Sub-Section Number: 2
Sub-Section Id: 12820635
Question Shuffling Allowed : Yes

Question Number : 71 Question Id : 128206787 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

. How many pi (π -) electrons are there in molecule A?



A

- A. 6
B. 10
C. 12
D. 14

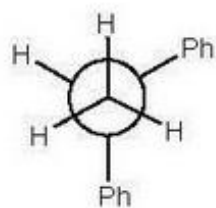
Options :

1282063113. A
1282063114. B
1282063115. C
1282063116. D

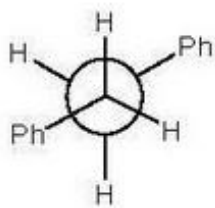
Question Number : 72 Question Id : 128206788 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

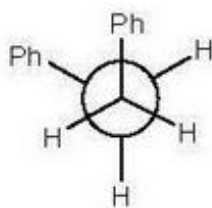
Pick out the Newman projection which represents the most stable conformation of 1,2-diphenylethane:



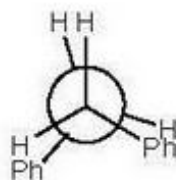
A



B



C



D

A. A

B. B

C. C

D. D

Options :

1282063117. A

1282063118. B

1282063119. C

1282063120. D

Question Number : 73 Question Id : 128206789 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a research on population dynamics of beetles, one student estimate that the population size is 3000. Over the course of a month, he records 400 births and 150 deaths in the population. Estimate intrinsic rate of natural increase (r) and calculate what the population size (N_t) is predicted to be in 6 months.

A. $r = 0.083$ and $N_t = 4945$

B. $r = 0.13$ and $N_t = 4000$

C. $r = 0.05$ and $N_t = 3000$

D. $r = 0.083$ and $N_t = 4000$

Options :

1282063121. A

1282063122. B

1282063123. C

1282063124. D

Question Number : 74 Question Id : 128206790 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A researcher wants to assess whether two different attributes A and B occur independently in a population. He divides the entire population into 'r' different classes on the basis of attribute A and into 's' different classes on the basis of attribute B. He then decides to employ the chi square test to arrive at a statistically valid inference. The chi square in this case will have how many degrees of freedom?

- A. rs
- B. (r-1)s
- C. r(s-1)
- D. (r-1)(s-1)

Options :

- 1282063125. A
- 1282063126. B
- 1282063127. C
- 1282063128. D

Question Number : 75 Question Id : 128206791 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A root mean square sound pressure of 20 Pa would correspond to a sound of how many decibels on the decibel scale?

- A. 140 dB
- B. 120 dB
- C. 100 dB
- D. 80 dB

Options :

- 1282063129. A
- 1282063130. B
- 1282063131. C
- 1282063132. D

Question Number : 76 Question Id : 128206792 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which one is the water soluble vitamin?

- A. Vitamin A
- B. Vitamin D
- c. Vitamin B₁₂
- D. Vitamin E

Options :

- 1282063133. A
- 1282063134. B
- 1282063135. C
- 1282063136. D

Question Number : 77 Question Id : 128206793 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following is an unbranched polysaccharide

- A. Glycogen
- B. Sucrose
- C. Cellulose
- D. Starch

Options :

1282063137. A

1282063138. B

1282063139. C

1282063140. D

Question Number : 78 Question Id : 128206794 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Identify the mineral pair which exhibits isomorphous series.

- A. Calcite - Aragonite
- B. Forsterite - Faylite
- C. Quartz - Tridymite
- D. Graphite - Diamond

Options :

1282063141. A

1282063142. B

1282063143. C

1282063144. D

Question Number : 79 Question Id : 128206795 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following represents the correct order of processes involved in sedimentary rock formation?

- A. Erosion, weathering, compaction, cementation, deposition
- B. Compaction, cementation, deposition, weathering, erosion
- C. Deposition, cementation, compaction, erosion, weathering
- D. Weathering, erosion, deposition, compaction, cementation

Options :

1282063145. A

1282063146. B

1282063147. C

1282063148. D

Question Number : 80 Question Id : 128206796 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Resistance to methicillin by staphylococci is mainly correlated with

- A. Production of penicillin-binding protein 2'
- B. Alteration of cell wall structure
- C. Production of beta-lactamases
- D. Inactivation of drug by modification

Options :

1282063149. A

1282063150. B

1282063151. C

1282063152. D