

Science/Environment Analysis (KAS-2010 to 2020)

KAS Prelims Paper-II (Science/Environment 2020)

1. Which among the following is/are threats for the Great Barrier Reef in Australia?
 - A. Surface water temperature rising
 - B. Crown-of-Thorns Starfishes
 - C. Oil transportation
 - D. Tourism

Choose the correct answer from the options given below:

- (1) Only A
 - (2) Only C
 - (3) Only C and D
 - (4) Only A and B
-
2. Solid Waste Management Rules 2016, is notified based on the provisions made under
 - (1) The Environment Protection Act, 1986
 - (2) The Water (Prevention and Control of Pollution) Act, 1974
 - (3) The Karnataka Municipalities Act, 1964
 - (4) The Karnataka Municipal Corporations Act, 1976
-
3. Eco-development means
 - (1) In situ conservation of biological diversity involving local communities
 - (2) Ex situ conservation
 - (3) Development of waste land
 - (4) Development of forest land
-
4. Consider the following statements:
Assertion (A): Tropical rain forests are disappearing fast from developing countries like India.
Reason (R): No value is attached to

these forests because they are poor in biodiversity.

Choose the **correct** answer from the options given below:

- (1) Both Assertion and Reason are true and Reason is the correct explanation of the Assertion.
 - (2) Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
 - (3) Assertion is true, but Reason is false.
 - (4) Both Assertion and Reason are false.
5. After a person quits smoking, the lungs can heal to a certain extent, because of
- (1) Decrease in carbon monoxide
 - (2) Increase in oxygen uptake
 - (3) Synthesis of new mucosa
 - (4) Long-term inflammatory changes
6. Consider the following four conditions (A to D) and select the correct pair of adaptations to environment in desert lizards.
- A. Burrowing in soil to escape high temperature.
 - B. Losing heat rapidly from the body during high temperature.
 - C. Bask in sun when temperature is low.
 - D. Insulating body due to thick fatty dermis.
- Choose the correct answer from the options given below:
- (1) A and B
 - (2) C and D
 - (3) A and C
 - (4) B and D
7. Which of the following statement/(s) is/are true with regard to "Nuclear Fuel Cycle" ?
- A. It is the series of industrial processes which involve the production of electricity from uranium in nuclear power reactors.
 - B. The nuclear fuel cycles start with the mining of uranium and end with the disposal of nuclear waste.

- C. To prepare uranium for use in a nuclear reactor, it undergoes the steps of mining, milling, conversion, enrichment and fuel fabrication.

Choose the correct answer from the options given below:

- (1) Only A and C
- (2) Only B and C
- (3) Only A
- (4) A, B and C

8. Consider the following about Geographical Indications of Goods (Registration and Protection) Act, 1999:

- A. It is used for agricultural, natural and manufactured goods and services.
- B. For a product to get GI tag, the goods need not be produced or processed or prepared in that region.

Which of the statement/(s) is/are correct?

Choose the correct answer from the options given below:

- (1) Only A
- (2) Only B
- (3) Both A and B
- (4) None of the above

9. Match List-I with List-II.

List-I	List-II
A. Population	I. Part of the Earth consisting of all the ecosystems of the world
B. Community	II. Assemblage of all the individuals belonging to different species occurring in an area
C. Ecosystem	III. Group of similar individuals belonging to the same species

found in an area

D. Ecosphere

IV. Interaction between the living organisms and their physical environmental components

V. Classification of organisms based on the type of environment

Choose the correct answer from the options given below:

	A	B	C	D
(1)	I	IV	V	III
(2)	V	II	III	I
(3)	II	III	V	IV
(4)	III	II	IV	I

10. Earthworms used for Vermicomposting are

- A. *Eisenia fetida*
- B. *Lumbricus rubellus*
- C. *Caenorhabditis elegans*
- D. *Platyhelminthes*

Choose the correct answer from the options given below:

- (1) Only A
- (2) Only A and B
- (3) Only A, B and C
- (4) A, B, C and D

11. Precision agriculture is a scientific endeavour to improve the agricultural management by the application of

- (1) Latest agricultural tools and implements
- (2) Use of good quantity seed drills
- (3) By application of information technology and satellite based technology
- (4) Use of goods and powerful extension strategies

12. The “Red Data Book” is the documentation of rare and endangered species of

- A. Animals
- B. Plants
- C. Fungi
- D. Arthropods

Choose the correct answer from the options given below :

- (1) Only A
- (2) A, B, C and D
- (3) A and D
- (4) B and C

13. Colchicine alkaloid is obtained from

- (1) Opium
- (2) Pyrethrum
- (3) Glory lily
- (4) Sarpagandha

14. There is a great deal of variation in the composition of milk. The factors responsible for such variation in the composition are

- A. Stage of Lactation
- B. Intervals between milking
- C. Environmental conditions at milking
- D. Individual variation

Choose the correct answer from the options given below:

- (1) A and B
 - (2) B and C
 - (3) B, C and D
 - (4) A, B, C and D
15. The number of tigers in Karnataka as per the 2018 All India Tiger Estimation Report is
- (1) 526
 - (2) 524
 - (3) 512
 - (4) 442
16. An ecological "Niche" can be defined as
- (1) The various habitats an organism may inhabit
 - (2) The specific environment an organism inhabits
 - (3) The role an organism plays in its community
 - (4) The inorganic, non-living aspects of a given area
17. National Bravery Award winners for the year 2019 from Karnataka are ____.
- (1) Venkatesh and Aarti
 - (2) Aarti and Suresh
 - (3) Bharath and Sharath
 - (4) None of the above
18. Evenness in the distribution of species is measured when we use ____.
- (1) Species richness
 - (2) Genetic diversity
 - (3) Simpson index
 - (4) Number of genera

19. Which of the following statement regarding efficiency of energy transfer through food webs is **false**?

- (1) A trophic level can support more herbivores than carnivores.
- (2) Birds and mammals have low production efficiency.
- (3) The efficiency of energy transfer depends on the total production at a particular trophic level.
- (4) Herbivores are less efficient with respect to assimilation efficiency than carnivores.

20. What are the metallic constituents of hard water?

- (1) Magnesium, Calcium and Tin
- (2) Iron, Tin and Calcium
- (3) Calcium, Magnesium and Iron
- (4) Magnesium, Tin and Iron

21. Interferons are glycoproteins which stimulate the synthesis of

- (1) Antibacterial proteins
- (2) Antifungal proteins
- (3) Antiviral proteins
- (4) Anti T-cell proteins

22. Which of the following criteria are used to define biodiversity hotspots?

- A. Species diversity
- B. Vegetation density
- C. Endemism
- D. Ethno-botanical importance
- E. Threat perception
- F. Adaptation of the species to local climate

Choose the correct answer from the options given below:

- (1) A, B and F

- (2) B, D and F
- (3) A, C and E
- (4) C, D and F

23. The growing plant bends towards the source of light only on one side. Identify the best explanation for this phenomenon.

- 1. Light stimulates the cells on the illuminated side to increase in length
- 2. Shoot apices are attracted by light
- 3. They need light for photosynthesis
- 4. Auxin accumulates towards darker side to induce greater cell elongation

KAS Prelims Paper-II (Science/Environment 2017)

24. Pick out the pair which is **incorrectly** matched regarding their status as per IUCN.

- (1) Nilgiri Tahr – Endangered
- (2) Kashmir Red Stag – Threatened
- (3) Pygmy Hog – Critically endangered
- (4) Bramble Cay Melomys – Extinct

25. Kigali Agreement 2016 is a big step in fighting climate change. It is related to which of the following?

- (1) Amendment to the Montreal Protocol to reduce the manufacture and use of Hydrofluorocarbons (HFCs).
- (2) Amendment to the Montreal Protocol to reduce the manufacture and use of Chlorofluorocarbons (CFCs).

Which of the above statements is/are correct?

Select the code for the correct answer from the options given below:

- (1) A only

- (2) B only
- (3) Both A and B
- (4) Neither A nor B

26. Which of these are tiger reserves in the State of Karnataka?

- (1) Bannerghatta National Park
- (2) Daroji Wildlife Sanctuary
- (3) Cauvery Wildlife Sanctuary
- (4) Kudremukh National Park

Select the code for the correct answer from the options given below:

- (1) A and D only
- (2) A, C and D only
- (3) A, B, C and D
- (4) None of the above

27. Which of these are true about Hydrofluorocarbons (HFCs)?

- (1) HFCs, organic compounds that contain fluorine and hydrogen atoms, are commonly used in refrigerators and air-conditioners in place of chlorofluorocarbons (CFCs).
- (2) HFCs do not harm ozone layer as much as CFCs do.
- (3) HFCs do not cause global warming at all.

Select the code for the correct answer from the options given below:

- (1) A and B only
- (2) B and C only

- (3) A and C only
- (4) A, B and C
28. Name the new species of fish which was discovered recently in Tunga River near the Kudremukh National Park
- (1) Pethia Atrata
(2) Pethia Canius
(3) Pethia Striata
(4) Pethia Cumingii
29. Khaira disease in rice is caused due to the deficiency of
- (1) Molybdenum
(2) Calcium
(3) Zinc
(4) Phosphorus
30. According to the "Bureau of Indian Standards" the permissible "pH value" in drinking water should be in the range of
- (1) 4.5 to 6.5
(2) 5.5 to 7.5
(3) 6.5 to 8.5
(4) 7.5 to 9.5
31. You have taken up a project to create night-shelters for homeless people during the winter season. Within a week of establishing the shelters, you have received complaints from the residents of the area about the increase in theft cases with a demand to remove the shelters. What is best for you to do?
- (1) Ask them to lodge a written complaint in the police station and let the investigation happen first.
(2) Assure residents of an enquiry immediately into the matter.
(3) Ask residents to consider the humanitarian effort made.

- (4) Continue with the project and ignore their complaint.

32. Match the conventions (List I) with their Agenda (List II)

List I
(Convention)

List II
(Agenda)

- A. Basel Convention, 1989
B. Vienna Convention, 1985

- I. Protection of the ozone layer

II. Control of transboundary movements of and hazardous wastes their disposal

- C. Stockholm Convention, 2001 - the

III. Protection of the marine environment of the Baltic Sea

- D. New Helsinki Convention, 1992 - environment

IV. Protection of human health and environment from persistent organic pollutants

Select the code for the correct answer from the options given below:

A	B	C	D
(1) I	II	IV	III
(2) II	I	IV	III
(3) II	I	III	IV
(4) I	II	III	IV

33. Muscle fatigue occurs due to the accumulation of which of the following?

- (1) Pyruvic acid
(2) Acetic acid
(3) Lactic acid
(4) Uric acid

34. Match the study disciplines (List I) with the subjects of study (List II):

List I
(Study Discipline)

List II
(Subject of Study)

- | | |
|---------------|---------------|
| 1. Entomology | I. Algae |
| 2. Mycology | II. Fungi |
| 3. Phycology | III. Insects |
| 4. Desmology | IV. Ligaments |

Select the code for the correct answer from the options given below:

- | | A | B | C | D |
|-----|-----|-----|----|----|
| (1) | III | II | IV | I |
| (2) | III | II | I | IV |
| (3) | II | III | IV | I |
| (4) | II | III | I | IV |

35. Consider the following hydrocarbons:

- (1) Methane
- (2) Ethane
- (3) Propane
- (4) Butane
- (5) Pentane

What is the correct sequence of increasing order of their molecular weight?

Select the code for the correct answer from the options given below:

- (1) A, B, D, C, E
- (2) B, A, D, C, E
- (3) A, B, C, D, E
- (4) C, B, A, D, E

36. The pendulum of a clock consists of a heavy point mass (bob) tied to a massless string. It is oscillating faster and so the clock is going fast. What option below should be chosen in order to reduce the time of oscillation?

- (1) The mass of the bob should be increased
- (2) The length of the pendulum should be increased
- (3) The length of the pendulum should be decreased
- (4) The mass of the bob should be decreased

37. With reference to 'graphene', which following statements is/are correct?
- A. Graphene conducts electricity faster at room temperature than any other known material.
 - B. Graphene is a crystalline allotrope of carbon with two-dimensional properties.
 - C. It is a bad conductor of heat.

Select the code for the correct answer from the options given below:

- 1. A and B only
 - 2. A only
 - 3. B only
 - 4. A, B and C
38. Consider the following statements:

- A. Pyrolusite is an ore of manganese.
- B. Galena is an ore of lead.

Which of the above statements is/are correct?

Select the code for the correct answer from the options given below:

- (1) A only
 - (2) B only
 - (3) Both A and B
 - (4) Neither A nor B
39. Angioplasty, a method of treatment includes inserting a small tube that acts as a scaffold to support the inside of the coronary artery. What is this tube known as ?

- (1) Stent
- (2) Catheter
- (3) Balloon
- (4) Atherectomy device

40. With reference to atomic power, which of the following statements is/are correct?
- A. India conducted its first nuclear detonation at Pokhran in Rajasthan on 18 May, 1974.
 - B. The fuel used in the nuclear reactor is cadmium.
 - C. The energy of a thermal neutron is about 0.025 eV.

Select the code for the correct answer from the options given below:

- (1) A and C only
- (2) B and C only
- (3) A only
- (4) A, B and C

41. Consider the following statements about the hardness of water:

- A. Temporary hardness is caused by the presence of dissolved calcium bicarbonate and magnesium bicarbonate.
- B. Permanent hardness is caused by the presence of dissolved calcium sulphate/calcium chloride and/or magnesium sulphate/magnesium chloride.
- C. One of the methods of removing permanent hardness is boiling the hard water.

Which of the above statements is/are correct?

Select the code for the correct answer from the options given below:

- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

42. With a blunt knife, cutting a vegetable is relatively difficult than with a sharp knife because, for the same force

- (1) The area under the knife edge is lesser in the case of blunt knife
- (2) The pressure applied on the vegetable is lesser in the case of blunt knife
- (3) The pressure applied is less in the case of a sharp knife
- (4) The pressure applied is more in the case of a blunt knife

43. Match the chemicals (List I) with their usage (List II):

List I

List II

(Chemicals)

(Usage)

- A. Carbon Tetrachloride
- B. Iodoform
- C. Acetone
- D. Acetylene

III.

- I. Disinfectant
- II. Fire Extinguisher
- III. Welding
- IV. Nail Polish Remover

Select the code for the correct answer from the options given below:

	A	B	C	D
1.	I	III	IV	II
2.	II	I	IV	III
3.	II	I	III	IV
4.	III	I	IV	II

44. The nucleus of an atom contains which of the following?

- (1) Protons and Neutrons
- (2) Protons and Electrons
- (3) Neutrons and Electrons
- (4) Only Neutrons

45. A company has modernised and restored the critical 1035 MW Sharavathi hydropower plant in Karnataka that accounts for 25% of the Karnataka Power Corporation's generation. It got the IndiaSmart Grid Foundation (ISGF) Award for completing the work in just 6 months. Identify the company out of the following.

- (1) Sterlite Industries
- (2) Bharat Heavy Electricals Limited (BHEL)
- (3) Suzlon Energy
- (4) ABB India

46. The image formed by a plane mirror is

- (1) Real
- (2) Virtual
- (3) May be virtual or real depending on the position of the object
- (4) Cannot be said exactly

47. The ministry of Environment, Forests and Climate change provide financial assistance to Eco- clubs to promote environmental awareness and educate school children under the programme
- a) National mission for a Green India
 - b) National Eco-club Programme
 - c) National Green peace Programme
 - d) National Green Corps.
48. Dr. Salim Ali is well known
- a) Ornithologist
 - b) Biologist
 - c) Environmentalist
 - d) Dermatologist
49. As per the report of the high level working group on the western Ghats headed by Dr. K. Kasturirangan, approximately how many villages of Karnataka were included as part of eco-sensitive area
- 1) 800
 - 2) 1500
 - 3) 500
 - 4) 2500
50. The total number of National parks and sanctuaries in Karnataka are?
- a) 5 and 27 respectively
 - b) 6 and 25 respectively
 - c) 4 and 23 respectively
 - d) 6 and 29 respectively
51. As per Plastic wastes (Management & Handlin) rules, 2011 manufacturing of plastic bags less than _____ thickness is banned.
- a) 25 microns
 - b) 30 microns
 - c) 35 microns
 - d) 40 microns
52. Movement of nutrients in the eco- system is always
- a) Cyclic
 - b) Linear
 - c) Parallel
 - d) Horizontal

53. Inverted pyramid of number and biomass, are found in
- Parasitic food-chain and forest ecosystem respectively
 - Grassland ecosystem and forest ecosystem respectively
 - Parasitic food chain and pond ecosystem respectively
 - Pond ecosystem and forest ecosystem respectively
54. In India the area declared as a Biodiversity hot spot is
- Himalayas
 - Aravalli Ranges
 - Vindaya- Satpuras
 - Nallamalla Ranges
55. In the food chain which of the following is considered as a primary producer?
- Heterotrophs
 - Autotrophs
 - Plants
 - Predators
56. Which of the following is an example of ex-situ conservation?
- Wild life sanctuary
 - Seed bank
 - Sacred grooves
 - National park
57. Consider the following international environment conservation/ protocols/ conferences with their major themes:
- The UN climate change conference held in Poland in Dec, 2008 discusses development and transfer of technologies, financial mechanism reducing emission from deforestation and disaster management
 - The Basel convention in 1989 was on the control of transboundary movement of hazardous wastes and their disposal
 - Montreal protocol adopted in 1987 referred to the specific measure to be taken on substances that deplete the ozone layer.
 - The Vienna convention in 1985 discussed the international trade in endangered species of wild fauna and flora

Which of the above statement is/ are correct?

- 1 only
- 2 and 3 only
- 1, 2 and 3 only
- 1,2,3 and 4

58. Biosphere reserve have been established to conserve biodiversity and genetic integrity of plants, animals and microorganisms. Consider the following pairs:

Biosphere Reserve	state
1. Dehang- Dabang	I. Arunachal Pradesh
2. Manas	II. Assam
3. Simlipal	III. Jharkhand
4. Agasthya-malai	IV. Karnataka

Which of the above pairs are correctly matched?

- a) 1 and 2 only
 - b) 1, 2 and 3 only
 - c) 1,2 and 4 only
 - d) 1,2,3 and 4
59. Consider following propagules:
- Rhizome of ginger
 - Tuber of sweet potato
 - Bulb of onion
 - Sucker of banana

Which of the above is/are modified of roots?

- a) 1 and 2 only
 - b) 2 only
 - c) 1 and 3 only
 - d) 1,3 and 4 only
60. Match the major agricultural revolutions in India
- | | |
|----------------------|--------------------------|
| 1. Golden revolution | 1. Fish production |
| 2. Grey revolution | 2. Oil seed production |
| 3. Blue revolution | 3. prawn production |
| 4. Yellow revolution | 4. potato production |
| 5. Pink revolution | 5. Fruit production |
| 6. Round revolution | 6. fertilizer production |

Select the correct answer using the codes given below:

	A	B	C	D	E	F
a)	3	4	2	5	1	6
b)	5	6	1	2	3	4
c)	4	3	2	1	6	5
d)	5	6	3	4	2	1

61. Suitable impurities are added to a semiconductor depending on its use. This is done order to
- a) Increase its life
 - b) Enable it to withstand higher voltages
 - c) Increase its electrical conductivity
 - d) Increase its electrical resistivity
62. Which of the following planets was demoted from its planetary status in our solar system?
- a) Uranus
 - b) Pluto
 - c) Neptune
 - d) Venus
63. On a clean glass plate a drop of water spreads to form a thin layer whereas a drop of mercury remains almost spherical because
- a) Cohesive forces for water is greater than adhesive force with glass
 - b) Cohesive forces for mercury is greater than adhesive force with glass
 - c) Density of mercury is greater than water
 - d) Adhesive forces for mercury is than cohesive force with glass
64. In our homes a tester glows when it touches the live terminal of AC mains but does not glow when it touches neutral terminal, the reason for this is
- a) Current is always converted from AC to DC when it is supplied
 - b) The live wire is a conductor but the neutral wire is not a conductor
 - c) The neutral terminal is at the same voltage as the ground
 - d) Current flows only through live wire never through the neutral wire
65. The gas used for artificial ripening of fruits is

- a) Methane
 - b) Ethane
 - c) Ethylene
 - d) Acetylene
66. The reason to keep us awake and sometimes sleepy even when we are not tired, is due to a hormone called
- 1. Adrenaline
 - 2. Adenosine
 - 3. Thyroxin
 - 4. Serotonin
67. Mass number of atom is equal to
- a) Number of electrons
 - b) number of neutrons
 - c) sum of the number of protons and neutrons
 - d) sum of the number of protons and electrons
68. In some parts of the world during severe winter, the surface of lakes is frozen leaving water below. the freezing at the bottom is prevented because
- a) the conductivity of ice is low
 - b) the water has large latent heat of fusion
 - c) the water has large specific heat
 - d) the temperature of the earth at the bottom of the lakes is high
69. There are many different regions to the electromagnetic spectrum. These include
- A. Visible light
 - B. gamma- rays
 - C. infrared
 - D. Micro-waves
 - E. radio-waves
 - F. ultra- violet
 - G. X-rays

Put them in order of increasing wavelength, starting with the shortest wavelength first

- a) GBDAFCE

- b) BGFADCE
- c) GBAFCDE
- d) BGFACDE

70. consider the following plant cell organelles and their specific functions

- | | |
|-----------------|-------------------|
| 1. Chloroplast | Photosynthesis |
| 2. Mitochondria | Respiration |
| 3. Nucleus | Secretion |
| 4. Ribosomes | protein synthesis |

Which of the above pairs is/are matched correctly?

- 1. 2 only
- 2. 1 and 3 only
- 3. 1,2 and 4 only
- 4. 1,2 3 and 4

71. Genetically modified organisms are developed in modern biotechnology using which of the following technique?

- 1. Insertion of genes from other organisms
- 2. Removal of part of the genes
- 3. Introduction of gene mutation
- 4. Silencing of some gene/ genes.

Select the correct answer by choosing the codes given below:

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

72. Venkataram Ramakrishnan and his co-worker got the Nobel prize in 2009. Their investigation was on the structural characterization of Ribosomes and they used the experimental organism viz.

- a. Pyrolobus fumarii
- b. Sulfolobus thurbers
- c. Methanopyrus Kandiers
- d. Thermus thermophiles

73. Dinosaurs were present during
- Paleozoic era
 - Cenozoic era
 - Mesozoic era
 - Proterozoic era
74. A husband and wife have normal vision but further of both of them were colour-blind. Probability of their first daughter to be colour blind is
- 1) 25%
 - 2) 50%
 - 3) 75%
 - 4) 0%
75. Mosquito transmits the following except
1. Malaria
 2. Leishmaniasis
 3. Dengue
 4. Chikungunya
76. Consider the following pairs regarding national symbol of India
- | | |
|---------------------------------------|---------------------|
| I. National animal | -Royal Bengal tiger |
| II. National heritage animal of India | -Hanuman Langur |
| III. National mammal of India | -Elephant |
| IV. National bird | -Peacock |
- which of the above pairs are correct?
- I and II
 - III and IV
 - I and III
 - I and IV
77. Bird Flue is caused by influenza virus type
- a) H1N1
 - b) H5N1
 - c) H7N1
 - d) H9N1

78. Match the following:

- | | |
|--------------------------------|------------------------------------|
| A. Natural active Immunity | Anti rabies serum |
| B. Natural passive Immunity | Acquired after small pox infection |
| C. Artificial active immunity | Transferred from mother to child |
| D. Artificial passive immunity | Develops due to vaccination |

Correct match is:

- | | A | B | C | D |
|----|---|---|---|---|
| a) | 2 | 1 | 4 | 3 |
| b) | 2 | 3 | 4 | 1 |
| c) | 3 | 4 | 2 | 1 |
| d) | 4 | 3 | 2 | 1 |

(1) .

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