

Solution: NDA II 2018 GAT

1. Ans. A.

Her main task is to lay eggs. With an ensuing object refers to a female bird, insect, reptile, or amphibian that produces an egg or eggs from inside the body.

“The honeybee is a very unusual kind of insect. Unlike other insects which live alone, the honeybee lives as a/an member of a community. These bees live together in what is known as a bee colony. The head of the bees is called the queen bee. She is larger than the rest of the bees. Her main task is to lay eggs.”

2. Ans. D.

Queen bee, she is larger than the rest of the bees. There is comparative sentence, verb should be in comparative degree. Hence option D is the correct answer.

3. Ans. D.

Bees live together in what as a bee colony. In biology, the noun “colony” refers to a community of animals or plants of one kind living close together or forming a physically connected structure.

4. Ans. C.

The honeybee lives as a member of community. The noun “member” refers to a person, animal, or plant belonging to a particular group.

5. Ans. A.

Here, the preposition “unlike” means “different from; not similar to”.

6. Ans. B.

The verb “is” in the opening part cannot be followed by the conjunction “and”. This eliminates option (A) from consideration. Part (R), which ends with a preposition, cannot be placed at the end of the sentence. This eliminates option (C) from consideration. Neither does part (S) fit after the opening part nor does (R) fit after (Q). This eliminates option (D) from consideration. The only remaining option (B) is used to complete the sentence and it is found to be grammatically

7. Ans. A.

The focus is on options starting with a verb (S) and (P). Consequently, option D is not considered. "were" will not come after "knocking" because here it is singular. So, option (C) is also not considered. The sense of the sentence is that first the knocking ceased. Thereafter, the echoes (echo = a sound or sounds caused by the reflection of sound waves from a surface back to the listener) continued to exist for some time before eventually fading away. This sequence of actions does not fit with option (B). A final reading of the sentence is done by using option (A). The sentence has a flow and the sequence of events is correct.

8. Ans. B.

The "gravitational pull" is exerted by the earth. So, it is logical to place part (Q) after (P). Part-sequence PQ is mentioned only in option (B). The complete sentence is read by using option (B). The sentence is meaningful. The adverb phrase of place "on the ground" is positioned after the verb "falls". It is followed by part (P) which mentions the reason. There is no need to waste time in checking other options.

9. Ans. C.

"More inspiring" is a comparative degree adjective. It is followed by "than". The part sequence RQ exists only in option (C). The sentence is read by using option (C) and is found to be both meaningful and grammatically correct. (Word meaning "Heath" is vegetation dominated by dwarf shrubs of the heather family)

10. Ans. D.

The sentence can easily be understood by inserting the words "which are" before part (S). The original question has a typographical error. "An" should be replaced by "and". The sentence becomes meaningful now. Part (P) does not fit after the introductory part. Part (R) does not fit after part (Q). This eliminates option (C) from consideration.

11. Ans. C.

If someone to "fish in troubled waters", that person tries get Benefiting from a situation, situation or experience that is full of chaos, difficulty, confusion, stress etc. The term, first recorded in 1568, even expresses the old belief that fish bite more easily when the seas are bumpy.

12. Ans. D.

If a person is "to be in a fix", the person is in a difficult, troublesome, dangerous or awkward situation from which it is difficult to extricate oneself. We sometimes say "in pickle or place" to refer to a difficult situation, which puts one in a dilemma or predicament. "Pickles" in the

sense of a mess or inconsistent, sometimes placed as "a beautiful pickle", from the 1500s. "Spot", often placed as "poorly / hard / tight spot", from the early 1900s. Some other expressions that express a similar sentiment are: "place of trouble", "a little disturbing", "in a jam / box / hole / jam", "in deep water", "in a soup" and "Corner" in a tight.

13. Ans. C.

To act very carefully. A criterion is a tightly stretched piece of rope high up in the air, on which an acrobat balances and moves in a circus. This phrase transfers the balancing act performed on tight or high-wire by acrobats. You can use constriction in expressions such as "walking / tightening", "living tight" and "staying tight" to indicate that someone is in a difficult situation and has to be very careful about it. What they do or do. . One has to navigate the position with extreme caution and accuracy as it allows little or no error.

14. Ans. A.

Ability to speak easily and confidently. If one has a "the gift of the gab", the person is able to speak confidently, clearly, and in a brilliant manner. Informal expression refers to a person's talent for verbal fluency, particularly the ability to speak persuasively. This expression may be related to the Irish and Gaelic word `gab`, meaning "mouth". The Irish have a reputation as good negotiators. "Gab", dating from the late 18th century, was an informal term for chat conversation or chat. '

15. Ans. B.

Red letter day is a day that you will always remember because then something good happens to you. The expression refers to a memorable or happy day. The term is related to the practice of marking / printing feast days and other holy days in red on the church calendar.

16. Ans. A.

Apprehension. The noun "apprehension" means "anxiety or fear that something bad or unpleasant will happen".

17. Ans. B.

You commit yourself to something.

18. Ans. B.

Hardly means for a very short period, or too short.

19. Ans. C.

Float means rest or move on or near the surface of a liquid without sinking" as in "she relaxed, floating gently in the water"

20. Ans. A.

Someone apologise to someone else to convey that he is sorry that he have done something wrong. You apologise for (doing) something as in "He later apologized for his behaviour"

21. Ans. C.

This sentence is conditional sentence. The modals will, can are not used in this type of conditional sentence. Similarly, the simple past tense is not used in the main clause. The past tense in the if-clause is not a true past but a subjunctive, which indicates unreality or improbability

22. Ans. A.

The phrase "call off" means cancel something. The match called off because of the weather.

23. Ans. A.

"hegemony" means "leadership or dominance, especially by one state or social group over others"

24. Ans. B.

Conserved is the appropriate word here because it means to avoid wasting something.

25. Ans. C.

Leaving is the appropriate word here. Because 'without completing' means something left before completing.

26. Ans. C.

Magda says "Good morning, Mrs. Smiles". This is not the way to address ones classmates or school friends or for that matter even one's sister-in-law. The use of "Mrs." Before the name "Smiles" provides the clue that the two are neighbours. The use of "Mrs" provides the required degree of formality.

27. Ans. D.

Magda's sister was coming to pursue her studies. To Mrs. Smiles query, Magda replies in the affirmative by saying "Yes, that's right. I shan't go back home until she's settled down."

28. Ans. A.

This means, Magda was expecting with pleasure her sister's arrival. The phrasal verb "look forward to" means "await eagerly". This sense is conveyed by option A

29. Ans. B.

Magda was not going back home yet because her sister was coming over. The phrase "going back home" refers to the hometown of Magda. Magda replies that she would not be going home yet because her sister was coming over to stay with her.

30. Ans. C.

Magda had not been out much lately because the weather had been unpleasant. Magda says "Well, I haven't been out much lately. I don't like this weather a bit."

31. Ans. C.

The conjuror extracted seventeen eggs from the hat of one gentleman from the audience. The conjuror requested for a hat from someone in the audience and thanked the giver of the hat. Please refer the sentence "Will some gentleman kindly lend me his hat? Ah, thank you – Presto!"

32. Ans. A.

Quick Man's frequent comments made viewers feel that the moves were nothing special. The Quick Man was a heckler. He wanted to embarrass the consumer who was performing in public. It was a silly action, while the attendants were trying to make their magic show enjoyable for the viewer, Quick Man was constantly trying to pull it off by adopting a flawed - stance and suspicion-ridden approach. This was a foolish action.

33. Ans. C.

Quick Man gave the explanation of each trick by saying "He-had-it-up-his-sleeve." This is possible if the sleeves are large. Also refer the last sentence of the paragraph that he had things in the large sleeves of his coat.

34. Ans. B.

People were unconvinced. The conjuror was endeavouring to make the magic show enjoyable for the audience. The "egg" trick was ruined because the audience were whispered it on. "He-has-a-lot-of-hens-up-his-sleeve. So the audience was unconvinced by the explanations provided by Quick Man.

35. Ans. C.

The verb "clouded" is occasionally used to refer to someone's face or eyes to mean "show an emotion such as worry, sorrow, or anger". So option C is the correct answer.

36. Ans. B.

Brave means Ready to face and endure danger or pain; showing courage and some words that convey this sense are: courageous, plucky, fearless, valiant, valorous, intrepid, heroic, lionhearted, manful, macho, bold, daring, daredevil, adventurous, audacious. The opposite sense is conveyed by: coward, cowardly, chicken, chickenhearted, chicken livered, craven, dastardly, fainthearted, fearful, gutless, lily livered, milk-livered, nerveless, poltroon, poor-spirited, pusillanimous, spineless, spiritless, timorous, uncourageous, ungallant, weak hearted and yellow.

37. Ans. C.

Permit means provide an opportunity or scope for (something) to take place; make possible. Some synonyms are: allow, let, authorize, empower, enable and entitle. The opposite sense is conveyed by: ban, forbid and prohibit

38. Ans. D.

Orthodox means following or conforming to the traditional or generally accepted rules or beliefs of a religion, philosophy, or practice. Some words that convey a similar sense are: conservative, traditional, observant, conformist, devout, strict, true, true blue, of the faith and of the true faith. The opposite sense is conveyed by: unconventional, unorthodox, nonconformist and heterodox. The adjective "heterodox" means Not conforming to accepted or orthodox standards or beliefs and some synonyms are unorthodox, heretical, dissenting, dissident, blasphemous, nonconformist

39. Ans. D.

Biased – a strong feeling of favour towards or against one group of people. Impartial is the correct answer.

40. Ans. C.

Embellish is the appropriate answer. Embellish means make more attractive by decoration. Tarnish means lose, especially as a result of exposure of air or moisture. Wreck means a ship that has sunk or been badly damaged at sea.

41. Ans. A.

Let us understand the meaning of the given words :-

Provocative = serving or tending to provoke, excite, or stimulate; stimulating discussion or exciting controversy.

Infuriating = extremely annoying or displeasing.

Pitiable = inspiring mixed contempt and pity.

Frustration = a feeling of annoyance at being hindered or criticized.

Exciting = creating or arousing excitement.

Hence, option A is the correct answer.

42. Ans. C.

Let us understand the meaning of the given words :-

Stubborn = tenaciously unwilling or marked by tenacious unwillingness to yield.

Observant = paying close attention especially to details.

Obnoxious = causing disapproval or protest.

Corpulent = excessively fat.

Obstinate = stubbornly persistent in wrongdoing.

Hence, option C is the correct answer.

43. Ans. B.

Let us understand the meaning of the given words :-

Timid = showing a lack of courage or confidence; easily.

Courageous = possessing or displaying courage; able to face and deal with danger or fear without flinching.

Shy = lacking self-confidence.

Clever = mentally quick and resourceful.

Dull = lacking in liveliness or animation.

Hence, option B is the correct answer.

44. Ans. B.

Let us understand the meaning of the given words :-

Firm beliefs = a strong belief in a power that controls human destiny.

Conviction = an unshakable belief in something without need for proof or evidence.

Prejudices = unreasonable feeling of not liking or trusting something/someone.

Biases = a strong feeling of favour towards or against one group of people.

Hence, option B is the correct answer.

45. Ans. A.

Let's understand the meaning of the given words:

Enormous: large in size, huge, massive, extensive, vast, broad, wide

Erroneous: containing or characterized by error

Hazardous: involving risk or danger

Perilous: fraught with danger

Hence, option A is the correct answer.

46. Ans. C.

Replace "grow" by "grown". the use of "... begins have not evolved" in part (B). The auxiliary verb is common to the next verb "grow". The auxiliary verb "have" is used only before a past participle. So, the verb "grow" should be replaced with "grown". Part (C) of the sentence means "or (have) grown up enough to stick". The repetition of the auxiliary verb "have" is not required.

47. Ans. B.

'Slow and steady wins the race' is an idiom. Change "Owns" to "Wins".
Prov. if you work slowly but continuously, you will do better if you work fast for a while and do not continue. (Connected with Aesop's legend of "Tortoise and Hare".) hence the correct answer is option B.

48. Ans. C.

Replace "has" with "have". In this sentence, the relative pronoun "who" refers to the preceding plural noun "persons". So, a plural verb is required. A pronoun with a plural noun or plural takes a plural verb. This view has been taken by one of the ablest persons who have written on this subject.

49. Ans. B.

'Doubt' can be a countable or uncountable noun in a sentence. Here 'doubt' is countable noun, use article 'a' before 'doubt'. So the correct answer is 'one of the members expressed a doubt if the minister was an atheist'.

50. Ans. C.

Replace 'a' with 'an'. If the noun begins with a vowel sound, the appropriate indefinite article to use is 'an'. A vowel sound is a sound that is made by any vowel in the English language: 'a,' 'e,' 'i,' 'o,' 'u', and sometimes 'y' if it is 'e' Makes or i 'sound. or abbreviations like MBA, MLA etc. honest is pronounced as aunest hence the correct answer is option C

51. Ans. C.

Nimbostratus clouds bring continuous precipitation that can last for many hours.

Clouds which produce rain and snow falls under the category of Nimbus cloud. Nimbus in Latin means 'rain'. Two examples are nimbostratus or cumulonimbus clouds.

Cumulonimbus clouds are also called Thunderheads.

52. Ans. D.

Census 2011 recorded a negative population growth in the state of Nagaland. The decadal population growth was 19,80,602 as against 19,88,636 in 2001 figure. It was minus 0.40 percent.

Census 2011 recorded all North Eastern States with a growth more or less around the national average of 17.64%.

53. Ans. D.

Majuli is the largest river island which is situated on the bank of River Brahmaputra. Majuli is situated in the state of Assam. Recently, it was made a district in Assam.

54. Ans. A.

Bhagirathi: Uttarakashi is situated on the banks of River Bhagirathi. It is generally known as a holy town close to Rishikesh.

Alaknanda: Landsowne is a beautiful cantonment town and got its name from Lord Landsowne, who was the viceroy of India during 1888-1894. It is situated on the bank of River Alaknanda.

Nayar River is a tributary of Ganga. It emerges from Dudhatoli ranges of Garhwal in Pauri district of Uttarakhand.

Ganga River: Narendra Nagar is a town in Uttarakhand. It offers panoramic view of the Ganga river.

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56. Ans. C.

We know, Acceleration due to gravity is given by, $g = GM/R^2$

Where, g : acceleration due to gravity

G : universal gravity constant

M : mass of the body

R : distance from the centre of the mass of large body

$$M_1=M, M_2=2M$$

$$R_1=RR_2=2R$$

$$g_2/g_1=(GM/R^2)_2/(GM/R)_1=GM_2/R_2^2 \times R_1^2/M_1$$

$$g_2/g_1=2M/(2R)^2 \times R/M$$

hence, $g_2=g_1/2$

57. Ans. D.

Microscope	Telescope
To see smaller objects	To see large and distant objects
Focal length of eyepiece lens is greater than the focal length of the objective lens.	Focal length of the objective is greater than the eyepiece.
The aperture of the objective is small.	The aperture of the objective is large.
For higher magnification, focal length of the object should be small.	For higher magnification, focal length of the objective should be large.

58. Ans. B.

Ohm's Law states that the current (I) is inversely proportional to the resistance R. so, when the current increases, the resistance will decrease.

As per the Ohm's law, correct sequence of resistances will be-

$$R_1 < R_3 < R_2$$

59. Ans. C.

Electrical wires follow standard coding. In India, wires are RGB mode- Red-Green-Black. Each of these RGB have different functions.

Red- It signifies the phase in electric circuit. It indicates live wire.

Black- It signifies neutral wire. It is connected to neutral bus bar inside an electric panel. It does not carry charge or current.

Green- it stands for grounding/earthing in electric circuit. These wires are usually not meant for lights and fans purposes; they are chiefly used for AC, geyser, TV, microwave, etc.

60. Ans. B.

We know,

$$\text{Time Period} = 2\pi\sqrt{l/g}$$

$$\text{New time period } T_2/T_1 = \sqrt{L_2/L_1}$$

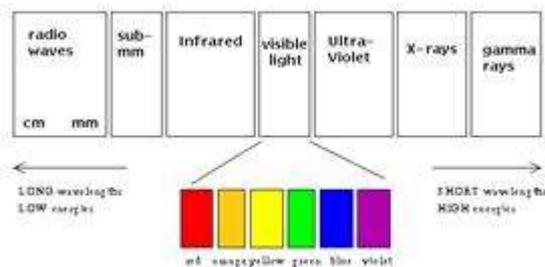
$$T_2 = T\sqrt{4L/L}$$

Hence, $T_2 = 2T$

61. Ans. B.

Statement 3 is incorrect, as energy of UV light photon is more than that of visible light photon.

Wavelength of visible light is more than that of X-rays and the energy of X-rays photon is higher than that of UV photons.



62. Ans. C.

The absolute zero temperature is -273.15°C on Celsius temperature scale. It is -459.67°F on the Fahrenheit temperature scale.

Absolute zero temperature is the temperature at which a thermodynamics system has the lowest energy.

63. Ans. B.

To calculate R_{AB} ;

As we know, $1/R_1 = 1/R + 1/R = 2/R$

$$R_1 = R/2$$

Since, R_1 and R_2 are series connected, so

$$\Rightarrow R_1 = R_1 + R$$

$$\Rightarrow R/2+R$$

$$\Rightarrow 3R/2$$

$$\text{Now, } 1/R_{AB}=1/R_2+R$$

$$\Rightarrow 2R/3+R$$

$$\Rightarrow 5R/3$$

$$\text{Hence, } R_{AB}=3/5R$$

64. Ans. D.

Double fertilization is the process which involves two major steps- haploid sperm (N) fuses with a haploid egg cell (N) to form a diploid zygote (2N).

Endosperm nucleus is the triploid nucleus formed in the embryo sac of a seed plant by fusion of a nucleus formed by prior fusion of the polar nuclei. Hence, it has the ploidy of a triploid (3N).

65. Ans. B.

A reflex arc is a neural pathway which controls a reflex. Most reflex arcs have 5 major components viz. receptors, sensory neurons, interneurons, motor neurons and muscles.

The correct circuit of reflex arc is:

Receptor, Sensory neurons, Spinal cord, motor neurons, effector

For example, a pain in receptor in the fingertip which ends with a motor neuron at an effector that is a skeletal muscle.

66. Ans. A.

Photolysis of water happens, in which oxygen is released during photosynthesis. It is the process of breakdown of water molecule into hydrogen and oxygen under the influence of light during the light reaction of photosynthesis.

67. Ans. A.

- Left atrium receives oxygenated blood pulmonic blood from the pulmonary veins.

- The blood is then pumped through the mitral valve into the left ventricle, which in turn pumps the blood through the aortic valve into aorta.
- Right atrium receives deoxygenated systemic blood from the superior and inferior vena cavae.

68. Ans. A.

The acidic semi-digested food coming out of the stomach is neutralized by the pancreatic juice. The juice is alkaline in nature as it has high concentration of bicarbonate ions. It helps to neutralize the acidic gastric juice from the stomach. This secretion is further stimulated by hormones of duodenum such as secretin, etc.

69. Ans. A.

Solid Carbon Dioxide is called dry ice as it does not melt into a liquid when it is heated. Hence, the name is dry ice.

70. Ans. D.

All carbon in a diamond are linked by carbon-carbon single bond.

Graphite is a layered structure in which layers are held together by weak Van Der Waal's Force. The layers in graphite are formed by carbon-carbon atoms.

Carbon forms a double covalent bond which means that two pairs of bonding electrons are shared.

71. Ans. D.

Tribasic acid has three hydrogen ions to donate to a base in a reaction of acid-base. It has got three replaceable hydrogen atoms. Some common examples of tribasic acid are Phosphoric acid (H_3PO_4) and citric acid.

72. Ans. A.

The reaction-



Hence, this balanced equation is giving NO (nitric oxide) gas one of the product apart from water.

Other equations does not give a nitric oxide as a product.

73. Ans. C.

Permanent hardness of water is caused by the presence of the chlorides, nitrates and sulphates of calcium and magnesium. Boiling cannot precipitate these substances. It can be removed by treating it with soda water and using purmutit process.

74. Ans. B.

Halocline is the region in the ocean which witnesses a sharp salinity change in the vertical section of ocean with the depth.

Thermocline is the zone of rapid change of temperature gradient with the depth.

Photic Zone is the zone in upper surface of ocean up to which the sun rays can easily penetrate. It is very important for the life in ocean.

Pynocline is the layer where density gradient is greatest within a body of water. Here, density increases rapidly with increase in depth.

75. Ans. D.

Normal Lapse rate also called Environmental Lapse Rate is the decrease in temperature with height in the troposphere at an average rate of 6.4°C per kilometer. However, normal lapse rate is not constant as we go up in the atmosphere. It is affected by many factors such as convection, radiation and condensation. In lower atmosphere, its average value is 6.5°C in lower atmosphere (troposphere).

76. Ans. C.

Shikhari Devi Wildlife Sanctuary is located in the state of Himachal Pradesh.

Bhadra Wildlife Sanctuary is located in the state of Karnataka.

Simplipal Wildlife Sanctuary is located in the state of Odisha.

And Panchmarhi Wildlife Sanctuary is located in the state of Madhya Pradesh.

77. Ans. D.

In delta region, uplands are called chars and the marshy region is called the Bils. Deltaic plain is the expansion of the Khadar land in India. It covers larger area in lower Ganga river.

78. Ans. B.

Since, sun rises from east and then move to west. So, (B) is the correct answer.

Itanagar is the capital city of Arunanchal Pradesh.

Imphal is the capital of Manipur.

Agartala is the capital of Tripura and Aizwal is the capital of Mizoram.

79. Ans. B.

Potential Energy is given by,

$$\Rightarrow PE = q \times \Delta V$$

$$= 1.6 \times 10^{-1} \text{Joule}$$

Hence, (B) is the correct answer.

80. Ans. A.

- Light Emitting Diode (LED) is a semiconductor light source.
- LED is made up of millions of diode fabricated electronically to create screen for visualization.

81. Ans. B.

Angstrom to Nanometer conversion Table-

Angstrom (A)	Nanometer (nm)
0.01	0.001
0.1	0.01
1	0.1
2	0.2
10	1
100	10

82. Ans. C.

The pressure in the chamber will decrease as the number of molecules is decreased. Pressure is mainly caused by the number of molecules hitting the walls of chamber. A decrease in molecules will result in decreased pressure by half.

83. Ans. A.

According to Ampere's Law, Current (I) in the wire induces a magnetic field (B) which is proportional to the current.

Hence, magnetic field strength of a current carrying wire depends upon the current in the wire.

84. Ans. D.

The frequency of ultrasound wave is greater than 20kHz. Human hearing is in the range of about 20Hz to 20,000Hz. The ultrasound waves are above normal human hearing. So, we can not hear ultrasound.

85. Ans. C.

Synthetic gas in short written as Syngas is a mixture which constitutes carbon monoxide CO₂ and hydrogen. Syngas is produced by gasification of a carbon containing fuel to a gaseous product which has a heating value.

86. Ans. B.

Given, Atomic mass of

Na ⇒ 23u

Carbon ⇒ 12u

O ⇒ 16u

Molar mass of Anhydrous sodium carbonate ⇒ $\text{Na}_2\text{CO}_3 = 2*\text{Na} + \text{C} + \text{O}*3$
 $= 46 + 12 + 48 = 106$

Hence, (B) is the correct answer.

87. Ans. C.

A mixture can be separated into two or more individual substances by physical means. For example glass of ice water is a mixture as the ice can be separated from the liquid water by the method of filtration.

Milk under microscope contains little globs of solid fat amongst the liquid particles. Those globs of fat are so small that they float in the liquid milk forming a suspension, never sinking to the bottom. That makes the milk a heterogeneous mixture.

88. Ans. D.

Give, first isotope 16u; second isotope 18u

Proportion of isotopes= 3:1

Average Atomic Mass= $(16u \cdot 3 + 18u \cdot 1) / (3 + 1)$

= $(48u + 18u) / 4$

= $66u / 4$

= 16.5 u

Hence, (D) is the correct option.

89. Ans. B.

It has 6 electrons in its outermost orbit, and it lacks two electrons to obtain octane configuration. Hence, to form a sodium compound that is Na_2O , each sodium atom releases one electron and those are caught by 1 O atom, thus forming Na_2O .

90. Ans. A.

Jaundice is a water-borne disease mainly caused by the buildup of bilirubin, a waste material in the blood. Symptoms may be yellow tinge to the skin and whites of eyes, dark urine, etc.

Tuberculosis is a bacterial disease that mainly affects the lungs. It is spread by sneezing or coughing.

Arthritis is the joint pain in simple words. It may be an age related disease.

91. Ans. C.

Monera is a unicellular organism of prokaryotic cellular structure. Protista is also a unicellular organism but possess eukaryotic cellular structure. It has well defined and has well membrane-bounded cellular organelle.

92. Ans. A.

Apical Meristem is also known as 'growing tip'. It is found in the buds and growing tips of roots in plants. It is responsible for the growth of new cells in young seedlings.

93. Ans. D.

Main functions of Smooth Endoplasmic Reticulum (SER) includes synthesis of lipids, steroid hormones, the detoxification of toxic substances or harmful metabolic byproducts and the storage and metabolism of calcium ions within the cell. The SER lacks the membrane-bound ribosomes.

94. Ans. A.

Three organelles that contain DNA are Mitochondria, Nucleus and Chloroplast.

Mitochondria in animal cell and chloroplasts in plant cell produces energy; whereas nucleus is the center of all cells and contains genetic information.

95. Ans. D.

Geostrophic wind: as we move higher, surface features do affect the wind until the wind is geostrophic. This layer is considered the top of the boundary. Usually, boundary layer from the surface is 1-2km.

Geostrophic wind is the horizontal wind velocity in which the coriolis force balances the horizontal pressure force.

Hence, Statement I is false but statement II is true

96. Ans. B.

Temperature affects algae growth. As the temperature tends to zero degrees, it freezes the growth of algae. Algae grow in cold water as well as warm water.

Also, phytoplankton produces most of the carbon in the ocean. It is responsible for most of the transfer of CO₂ from atmosphere to the ocean.

The, CO₂ is consumed during photosynthesis and the carbon gets incorporated in phytoplankton.

Hence, Both the statements are individually true, but Statement II is not the correct explanation of Statement I

97. Ans. A.

Mughal painting originated during Akbar's period as a result of synthesis of indigenous Indian style of painting and the Safvid school of Persian painting. It reached its zenith under Jahangir. Aurangzeb was adorned by some of the best known artists of Mughal School of Painting such as Aqa Riza, Abul Hasan, Mansur, Bishan Das, Manohar, Gavardhan, Balchand, Daulat, and Inayat.

Hence, Both the statements are individually true, and statement II is the correct explanation of statement I

98. Ans. B.

Government of India Act provided for the adoption of dyarchy at the centre. However, dyarchy at the provinces was abolished. In place of dyarchy in provinces, *provincial autonomy* was introduced. It introduced responsible government at the provinces.

Hence, both statements are individually correct.

99. Ans. A.

Sound does not travel through vacuum. In vacuum, the region is marked by the absence of air. Space is such an area. So, sound waves require a medium to propagate and hence can not travel in space. Both the statements are correct with statement 2 as the correct explanation of statement 1.

100. Ans. B.

Pitch of the sound depends on its frequency. A high pitch indicates high frequency sound wave whereas low frequency corresponds to a low frequency sound wave. Also, loudness of sound depends on its amplitude. Both statements are correct, but second statement is not the correct explanation of first statement.

101. Ans. B.

Bipin Chandra pal was an Indian nationalist, writer, orator and a social reformer in the Indian independence. He was the member of extremist group of congress after the split of congress. He died at May 1932.

102. Ans. C.

Madam H.P. Blavatsky and Colonel M.S. Olcott found the theosophical society in 175. They were based in Adyar (Chennai) in 1882. The society believed in Reincarnation and Karma. Their beliefs were based on Upanishad, Samkhya, Yoga and Vedanta school of thoughts.

Annie Besant joined the society in May 1889. She elected as President and led the society until her death on September 1933.

103. Ans. D.

Under article 352, the President can declare a national emergency when the security of India or a part of it is threatened by war or external aggression or armed rebellion. He can declare even before the war if he is satisfied that there is imminent danger.

Article 360 provides financial emergency.

In article 356 provides President's rule due to the failure of constitutional machinery in states.

Article 358 provides suspension of fundamental rights conferred under Article 19 when national emergency is proclaimed. No separate order is required.

Article 359 authorizes President to suspend the right to move any court for the enforcement of fundamental rights during National emergency. That means fundamental rights are not suspended only the enforcement is suspended. Only those rights got suspended which is mentioned in presidential order and for the time of national emergency or as specified in the order.

104. Ans. C.

Dr. Bindeshwar pathak has been honored with Nikkei Asia Prize in Japan for his contribution to Asia's development. He is the founder of Sulabh Sabnitation and social reform Movement.

105. Ans. A.

Government of India has introduced Seva Bhoj Yojna. It seeks to reimburse Central share of Central goods and service tax and integrated goods and service tax.

This introduced by Union Ministry of Culture and aims to lessen the financial burden of charitable institutions such as durgah, temple, Mosque. Church, Gurudwara. Ashrams etc.

The institution should be in existence for at least 3 years and serve food to at least 5000 people in a month. It should be covered under section 10 of Income tax act or registered under Societies registration Act or a public trust under any law.

106. Ans. A.

The theme of World Blood Donor Day 2018 was "Blood Connect us all". This event hosted by Greece. This day is celebrated to thank the blood donors and to acknowledge them and encourage the blood donation.

107. Ans. C.

North Eastern council was created by a separate act of Parliament, The North eastern council Act of 1971. Its members include Assam, Manipur, Mizoram, Arunachal Pradesh, Nagaland, Meghalaya, Tripura and Sikkim.

The union home minister is the ex-officio chairman and the Minister of state (independent Charge) development of North Eastern region is the ex-officio vice chairman of North eastern council.

It is to formulate a unified and coordinated regional plan covering matters of common importance.

108. Ans. C.

The composite water management Index report is a direction that aims to create awareness among governments and people about water crisis in the country. It is to enable effective water management in Indian states.

Niti Aayog has ranked all states in the index comprising 9 sectors and 2 indicators which covers ground water, restoration of water bodies, irrigation, farm practice, drinking water, policy and governance.

Gujarat ranked one in the reference year 2017-18 followed by Andhra Pradesh, Madhya Pradesh, Goa, Karnataka and Tamil Nadu.

109. Ans. B.

Fort St, George is the first English east India company settlement in India. It was founded in 1644 at the coastal city of Madras. It was originally uninhabited land and after the fort provided trading activity and further settlement.

110. Ans. B.

The word socialist was included in preamble by the 42nd amendment Act, 1976 during Emergency. It implies social and economic equality. Under

social equality everyone has equal status and opportunities and the absence of discrimination on the grounds of caste, color, sex, religion and language.

111. Ans. C.

Directive principle of State policy aims to create social and economic conditions under which the citizens can lead a good life. These provisions contained in Part IV (Article 36-51) of the constitution Of India and are not enforceable by any court. These are inspired by the constitution of Ireland.

Directive principles are classified under three heads- Socialistic Principle, Gandhian Principle and Liberal-Intellectual Principle.

Article 39A provides Equal Justice and free legal aid. Article 49 provides Protection of monuments and places and objects of national importance. Article 50 provides Separation of Judiciary from Executive.

112. Ans. B.

Nehru mahalanobis was implemented in India's Second Five Year Plan in 1955 by the appointment of PM Jawahar Lal Nehru. This model was basically a shift in the pattern of industrial investment towards building up a domestic consumption goods sector. Thus the strategy suggests in order to reach a high standard in consumption, investment in building a capacity in the production of capital goods.

113. Ans. C.

- The judges of the Supreme Court are **appointed by the President of India.**
- The Chief Justice of India is appointed by the President after the consultation with the other judges of Supreme Court and the High Court if the President of India thinks it is necessary. The other judges of the Supreme Court are appointed by the President after the consultation of the Chief Justice of Supreme Court of India and it is obligatory for the President to consult.

114. Ans. C.

Indian home Rule league was started by Bal Gangadhar Tilak in April 1916 and by Annie Besant in September 1916.

It was to promote political education and discussion. It was to build the confidence among Indians and suppress the British government.

115. Ans. C.

The nation that are part of G7 countries are Canada, France, Germany, Italy, Japan, United Kingdom and United States.

It is informal bloc of industrialized democracies to discuss economic governance, international security and energy policy.

116. Ans. B.

India refused back the mega connectivity project of China called Belt and Road initiative at the SCO summit. Prime Minister Modi asserted that any Mega connectivity Project must respect sovereignty and integrity of the countries. India was the only nation opposing this project in SCO summit.

117. Ans. A.

Sentosa island is situated along with Singapore's Southern coast. This was recently in news because of summit between President of United States Donald Trump and Supreme leader of North Korea Kim-Jong un. In this North Korea pledges to move towards denuclearization and U.S. assures for security guarantees.

118. Ans. B.

National Sports University is set up in Manipur India. Prime minister Narendra Modi led the foundation of university on March 16, 2018. It was to give more focus on sports education. It is first central University on sports in India.

119. Ans. D.

Zabivaka was the official mascot of FIFA world cup for 2018. It was held in Russia. The mascot was selected by Internet voting in Russia and the author is student designer Ekaterina Bocharova.

120. Ans. D.

Bal gangadhar Tilak- The Arctic Home in Vedas

Dada Bhai Naoroji-poverty and un-British rule in India

Mahatma Gandhi- hind Swaraj or Indian Home rule

Jawahar lal Nehru- The Discovery of India

121. Ans. A.

- Central Vigilance Commission was set up by Government of India in **February 1964** on **the recommendation of Santhanam committee**.
- This committee was on Prevention of corruption headed by Shri K. Santhanam.
- It was to advise and guide central government agencies in the field of vigilance.

122. Ans. B.

First east India company was formed in 1664 during the reign of King Louis XIV to start trading with India. It established their first factory at Surat, India in 1669 AD and another factory at Masaulipatnam.

123. Ans. D.

Nicola De Conti was Italian merchant, scholar and a traveller. He visited the Vijayanagar kingdom during the time of Dev Raya II.

Afanasy Nikitin was a Russian merchant and one of the first European to travel and document his visit to India. He described his journey in 'Journey beyond Three Seas'.

Fa-hien was a Chinese traveller and a Buddhist monk. He travelled from Ancient China to Ancient India by foot. He visited during the reign of Chandragupta II.

Bernier Francois Bernier was a French physician and traveller. He was a personal physician to Mughal prince Dara Shikoh, the eldest son of Mughal emperor Shah Jahan.

124. Ans. C.

The Stamp Act Congress which consisted of delegates from nine colonies met between October 7 to October 25, 1765. They met in New York's City Hall, which is now known as Federal Hall. It was the first gathering of elected representatives of several American colonies. It was to protest against British taxation.

125. Ans. C.

Bhakti movement was a socio-religious reform movement. Shankaracharya was a great thinker and philosopher. He consolidated the doctrine of Advaita Vedanta. The follower of this philosophy believed that their soul is not different from Brahman.

Ramananda developed his philosophy and devotional themes inspired by south philosopher Ramanuja, and he was also influenced by Yoga school of Hindu philosophy.

Ramanuja propounded the philosophy of Vishishtadvaita. It completed with the Dvaita (theistic dualism) by Madhvacharya and Advaita (monism) by Adi Shankara.

Chaitanya contain the complete philosophy of Gaudiya Vaishnavism, which promotes worship of Lord Vishnu as supreme soul.

126. Ans. A.

Merchant guild in south India got established because of expansion of trading activities. It is the way to trade Indian culture to other lands. Five hundred lords of Ayyavolu, means group of 500 swamis constituted themselves into a board of merchant in Aihole. Manigramam merchant guild was flourished in Tamilnadu and was active in south East Asia. Anjuvannam guild was consisting jewish, Christian and muslim traders and they were defined as body of west Asian traders. Manigramam and Anjuvannam was not subordinated to each other.

127. Ans. D.

Chili was introduced by Portuguese in India at the end of 15th century. Portuguese explorer Vasco-da-Gama reached Indian shores bringing with him the pungent spices. Now the chili is grown all over the world except colder region.

128. Ans. C.

According to Indian constitution, there are six fundamental rights of Indian citizens which are right to equality, right to freedom of religion, cultural and educational rights, right to freedom, right to constitutional remedies, and right against exploitation.

Right to citizenship is not a fundamental right.

129. Ans. C.

At the center of the current carrying coil, the magnetic field intensity is directly proportional to current and number of turns in the coil and inversely proportional to radius of the coil. The formula for magnetic induction is,

$$B_1 = \frac{\mu_0 I}{2a} \times N$$

If the number of turns got doubled and radius got halved then

$$B_2 = \frac{\mu_0 I}{a} \times 2N$$

$$B_2 = 4 \times B_1$$

$$B_2 = 4 \times 0.1 = 0.4 \text{ tesla}$$

130. Ans. A.

When an object is placed in front of a convex mirror, an image is always formed behind the mirror. The image formed by a convex mirror is always virtual. When the object starts moving towards the mirror, the image starts moving away from the focus. Only when the object is at infinity, the image is at the focus. The image formed by the convex mirror is always smaller than the object.

131. Ans. C.

A plane mirror is a flat reflective surface. In a plane mirror, the angle of reflection is equal to the angle of incidence. The image formed in a plane mirror is always virtual, upright, and has the same shape and size. The focal length of a plane mirror is infinite because the focal length of a mirror is $R/2$ and the radius of a mirror is infinite.

132. Ans. D.

Disintegration and erosion of rocks caused by a chemical reaction is known as chemical weathering. The agents of chemical weathering are water, carbon dioxide, and oxygen.

Reaction with oxygen between rocks is called oxidation.

Dissolution in acid makes a solution which will lead to the erosion of rocks. Rocks containing iron will get rusty and start disintegrating.

Carbonation is the process of mixing water with carbon dioxide to make carbonic acid. This kind of weathering is prominent in cave formation.

Exfoliation is a type of mechanical weathering in which curved plates of rocks are stripped from the surface of rocks. This process results in dome-like hills or rounded boulders.

133. Ans. A.

Steppe climate is usually a semi-arid region or continental climate.

Pretoria- it is having humid and subtropical climate, hot rainy summers and short dry winters.

Saskatchewan- it is a Prairie and boreal province in Western Canada. It follows humid continental climate.

Perth-it is having cool and wet winters. It is having hot summers Mediterranean climate.

Buenos Aires- it is in humid subtropical climate zone. Due to the maritime influences by Atlantic ocean climate is temperate with extreme temperature being rare.

134. Ans. C.

Sex ratio is defined as the number of females as per 1000 males. According to census 2011 population ratio of India was 943/1000. It is highly skewed towards men.

Meghalaya- 989/1000

Manipur-987/1000

Mizoram-976/1000

Tripura- 960/1000

135. Ans. D.

India is having total 18 zones, each headed by DRM (Divisional Railway Manager).

West central- Jabalpur

South east central- Bilaspur

East central- Hajipur

North easters- Gorakhpur

136. Ans. A.

Koppen divided climate into five major classifications. It is first published by 1884. The five major group are A (tropical), B(dry), C(temperate), D(continental) and E(polar). After the first capital letter, 2nd letter will decide seasonal precipitation.

Tropical wet- Af

Mid latitude desert- BWk

Mediterranean- Cs

Humid continental-Df

137. Ans. C.

carbon dioxide is present in the largest concentration in atmosphere. It is around 400 ppm in concentration in atmosphere.

138. Ans. A.

Refractive index of a medium is inversely proportional to velocity.

Given that n_2/n_1 is 1.5

So $v_1 / v_2 = 1.5$

139. Ans. B.

The relationship between areal and volume expansion is,

$$\beta/2 = \gamma/3$$

$$\gamma = 3 \times \beta/2$$

$$\gamma = 3 \times 1.6 \times 10^{-5} / 2$$

$$\gamma = 2.4 \times 10^{-5} \text{ K}^{-1}$$

140. Ans. C.

$$S = ut + 1/2 at^2$$

$$100 = 0 + 1/2 \times a \times 4^2$$

$$a = 12.5 \text{ cm/s}^2$$

$$\text{Acceleration} = g \sin \theta$$

$$g \sin \theta = 12.5$$

$$\sin \theta = 12.5/1000 = 1/80$$

$$\theta = \sin^{-1} \frac{1}{80}$$

141. Ans. A.

The power of a lens is defined as the reciprocal of its focal length.

$D=1/f$, where D is in diopetre and f is in meters.

$$D=1/0.5 = 2 \text{ diopetre}$$

142. Ans. D.

Acceleration is change in velocity with respect to time. Above time and velocity graph acceleration during 8s to 12 second is

$$\text{Acceleration} = \frac{4-8}{12-8} = -1 \text{ m/s}^2$$

143. Ans. A.

X-rays have wavelength of around 1 A (1 angstrom is 1×10^{-10} meters). And in nanometers it is around 0.1 to 10 nanometers.

144. Ans. C.

law of conservation of mass states that mass in an isolated system can neither be created nor be destroyed.

The law of definite proportions states that compound formed in a reaction always contain equal amount of reactants.

Gay Lussac's Law of Combining Volumes states that when the gases taking part in a chemical reaction they are in a simple ratio when volume is measured at the same room temperature and pressure.

Avogadro's law states that equal volumes of all the gases at the same temperature and pressure will have the equal number of molecules.

145. Ans. A.

Gypsum is soft sulphate material. It consists calcium sulphate dihydrate. The chemical formula for gypsum is $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$. It is widely used in fertilizers and also in many forms of plaster, drywall, Blackboards etc.

146. Ans. B.

Ammonium nitrate is a nitrate salt with ammonium cation. It is widely used in agriculture as a high nitrogen fertilizers. It is highly soluble in water.

Ammonium sulphide is made up of solution of ammonium sulphide with water. It is also called as stink bomb. It is usually used in photography development and textile manufacturing etc.

Ammonium phosphate is a salt of ammonium and phosphate. It is highly unstable compound. It is used in some fertilizers as a high nitrogen content.

Ammonium sulphate is an inorganic salt. It is used as soil fertilizer in alkaline soil.

147. Ans. C.

oxidation reduction reaction that means Redox reaction involve transfer of electron between two species or oxidation number of a molecule going to be change by gaining or losing the electron.

$\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$ is a neutralization or double displacement reaction. In this acid (HCl) and base(NaOH) will combine to make salt and water.

The reaction between calcium oxide (CaO) and water (H₂O) to form calcium hydroxide Ca(OH)₂ is an exothermic combination reaction. This is because: Calcium oxide reacts with water to form slaked lime Ca(OH)₂ which means the oxides of calcium combine with molecules of free molecules of O⁻ and H⁺. This reaction generates a lot of heat accompanied with hissing sound and thus is stated to be exothermic.

$2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ Is a combination reaction where two element combine together to form compounds. It is also a half reaction of redox system. MgO is an ionic compound having Mg²⁺ and O²⁻ ions whereas Mg(s) and O₂(g) are elements with no charges. So Mg gains +2 charge by losing 2 electron and O₂ gains -2 charge by gaining 2 electron.

$\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$ is a type of double displacement reaction in which elements will exchange their places or constituents.

148. Ans. C.

A pH of 7 is neutral and having pH less than 7 means solution is acidic and if it is greater than 7 means basic.

NaOH solution is hydroxide that mean Basic, the value of pH is 13.

KCl is potassium chloride and having pH of neutral value that is 7. It is salt in nature having cation of strong base and anion of strong acid. Because of this it shows no changes on pH paper.

FeCl_3 is an acid salts and ph value is less than 3.

NaCl value of Ph is almost 7 because of extremely weak basicity of Chlorine ion which is conjugate base of strong acid HCl .

149. Ans. C.

Change in structure, texture and composition of rock due to the impact of different agents is called as a metamorphism. There are three agents of metamorphism heat, pressure(compression) and fluid action (solution).

Most common agent is heat because it provide energy to drive the changes or recrystallization of minerals. Pressure is the component, as you go in depth it will increase because of load above. These stresses and tension will shorten the rock body. Most common fluid as metamorphic agent is water. Water us having ions to form solution and also water can contained in the pore spaces of every rock.

150. Ans. B.

Kolkata port is a type of riverine port. It is situated in the city of Kolkata and was constructed by British East India Company. It is located 203 Kms from the sea. It is one of the oldest operating port and having no variation in salinity. It is a freshwater port.

Mormugao port is situated on the entrance of the estuary. It lies on the southern part of the mouth of river Zuari. It commissioned in 1885 in the current Indian state Goa. It is India's oldest port.

Visakhapatnam port located in Andhra pradesh is deepest landlocked port in India. Located on the east coast of India and midway between chennai and Kolkata ports. It carries Iron and many other export commodities from Mayurbhanj, Kendurjhar and some eastern part of the country.

Paradip port is present in the east coast of India in Jagatsinghpur district of Odisha. It is situated in the confluence of Mahanadi river and Bay of Bengal that means in the delta region of Mahanadi.