

SPECTRA FINAL PREPARATORY EXAMINATION

SPECTRA CLASSES

CLASS 9TH

SUBJECT- SCIENCE

TIME-3HR.

MM:80

General Instruction:

1. This question paper consists of 39 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
3. Section A consists of 20 objective type questions carrying 1 mark each.
4. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should in the range of 30 to 50 words.
5. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should in the range of 50 to 80 words
6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
7. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

SECTION-A

1.The rate of diffusion will be higher in:

- | | |
|-----------|----------------|
| a Liquids | b) Solids |
| c) Gases | d) Semi solids |

2. Under normal condition, the maximum temperature that can be achieved by heating water is:

- | | |
|----------|----------------|
| a) 100°C | b) 120°C |
| c)0°C | d) above 120°C |

3. The correct symbol of sodium element is:

- | | |
|-------|-------|
| a) Na | b) Sa |
| c) NA | d) S |

4. The constituent charged particles present in Sodium chloride are:

- a)Negatively charged sodium ion and positively charged chloride ion
- b)Positively charged sodium ion and positively charged chloride ion
- c) Negatively charged sodium ion and negatively charged chloride ion
- d) Positively charged sodium ion and negatively charged chloride ion

5. The subatomic particles and their correct representation is:

- | | |
|---------------------|---------------------------------|
| (i) Proton (P-) | (ii) Proton (P ^{+}) |
| (iii) Electron (c-) | (iv) Electron (c+) |

- (a) i and iii (b) ii and iii (c) ii and iv (d) i and iv

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6. The number of valence electron in an atom having atomic number 14 is:

- a) 2 b)4 c)8 d) 14

7. Generally, Nucleus of the plants cell are not centrally located due to:

- a) large sized vacuoles b) insufficient space in the cell
c) small sized vecuoles d) none of the above

8. Xanthium and Parthenium are examples of

- a) Pesticides b) Diseases c) Pathogens d) Weeds

9. Which is not a connective tissue:

- a) blood b) cartilage c) muscle d) bone

10. The relation between speed (v) wavelength (l) and frequency (f) of a sound wave is:

- a) $v=1xf$ b) $l=fxv$ c) $v=f/l$ d) $l=f+v$

11. Cattle husbandry is done for:

- (i) increasing meat production. (ii) increasing milk production
(iii) agriculture work (iv) egg production
(a) i, ii, and iii (b) i and ii (c) ii, iii and iv (d) i, iii and iv

12. Note is:

- (a) a sound of single frequency (b) a sound of mixture of several frequency
(c) a sound of two frequency (d) unpleasent of hear.

13. Universal Law of Gravitation does not explain:

- a) the force that binds us with the earth b) motion of moon around the earth
c) the tides due to the moon and the sun d) volcanic eruption

14. The intercellular space is present in:

- a) Parenchyma b) Collenchyma c) Sclerenchyma d) Epidermis

15. A student placed an onion partially dipped in water. After few days she observed the root which grow in size. The tissue present on the tip of these root is:

- a) Apical meristem b) Intercalary meristem c) Lateral meristem d) Both a and b

16. Which is not a accelerated motion:

- a) uniform velocity b) constant velocity c) circular motion d) both a and b

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For question numbers 17-20 two statements are given one labeled as Assertion (A) and the other labeled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- a) Both A and R are true, and R is correct explanation of the assertion.
- b) Both A and R are true, but R is not the correct explanation of the assertion.
- c) A is true, but R is false.
- d) A is false, but R is true.

17. Assertion (A): Tyndall effect can be observed when beam of light passes through a colloidal solution.

Reason (R): The particles of colloidal solution are very small but can easily scatter a beam of light.

18. Assertion (A): Lysosomes are known as cleaner of the cell

Reason (R): enzymes present in the lysosomes are powerful enough to breakdown all organic materials.

19. Assertion (A): A sharp axe cut swiftly.

Reason (R): The effect of the thrust depends on the area on which it acts.

20. Assertion (A): Weeds are harmful to crop.

Reason (R): Unwanted plants in the field compete for nutrient with the crop.

SECTION- B

Q no. 21 to 26 are very short answer questions

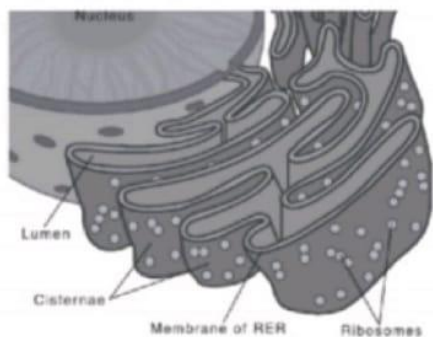
21. During a chemical reaction the temperature in the test tube increased to 303K.

- a) Convert this temperature to °C scale.
- b) What will be the physical state of water at this temperature?

22. a) A student writes the electronic configuration of an atom having atomic number 16 as: 6,2,8. Is it correct? Explain?

b) How many electrons can be filled in the L shell of an atom?

23. In the given picture, an organelle is shown which is directly connected to the nucleus.



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a) Identify the organelle and the particle Rattached to this organelle.

b) White the main function of R

24. While moving on a circular path of 10m. What will be the distance and displacement of an object after completing one num? and why?

25. Which among the following pot will you use to put water in during summer season and why? Earthern or Iron?



26. A girl mass 35kg runs up a ladder of 12 steps in 10s. If the height of each step is 20 cm, find her power ($g=10\text{ms}$)

OR

The work done by a force can either negative or positive. Give one examples of each condition.

SECTION - C

27. a) How isotopes are different from Isobars.

b) Write two applications of Isotopes.

28. a) Which gases are exchanged at the side of the cell in animal?

b) Why cell is called the structural and functional unit of life?

29. Name the functional unit of nervous system. Also draw its labeled diagram.

OR

Why blood is called connective tissue. What are its components?

30. A bike starting from rest attains a uniform velocity of 36 Km/h 3 minute.

Find: I) The acceleration and (ii). The distance traveled by the bike for attaining this velocity.

OR

A bus travels from destination A to B with a speed of 36km/h and then returns back to A with a speed of 72 km/h. Find

a) Average speed of the bus.

b) Distance traveled by the bus

c) Displacement of the bus

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31. The mass of the mars is 6.42×10^{23} kg and that one of its moon is 1.08×10^{15} Kg. If the distance between the mars and its moon is 1.01×10^5 Km calculate the force exerted by the mars on the moon. ($G = 6.7 \times 10^{-11} \text{ Nm}^2 \text{ Kg}^{-2}$)

32. a) A sound wave travels at a speed of 346 ms^{-1} . If its wavelength is 1.8 cm, what is the frequency of the wave?

b) Will the above sound is audible? Explain?

33. What are different cropping patterns adopted to maximize benefits? Discuss any three

Section - D

Q no. 34 to 36 are long answer questions

34. i) Write down the chemical formulae of the following compound. Also write the ions (Cation and anions) present in them.

a) Sodium nitrate b) ammonium sulphate

OR

a) What are Ions? Give examples:

b) State the law of constant proportion. What is the ratio by mass of carbon and oxygen present in carbon dioxide compound?

c) Define Atomicity.

35. During an experiment Reema placed few raisins in a liquid. After some times she observed that shape of raisins is changed as shown in the picture.

a) What could be the nature / Type of the solution in which these raisins were placed. Explain the reason for this change.

b) What happen if we put these (swollen) raisins in a highly saturated solution of sugar.

OR

Draw a neat labeled diagram of plants cell (label at least six parts)

36. Give reason:

a) In which direction does the passenger fall when a bus accelerates from rest.

b) A fielder pulls his hand gradually with the moving ball while holding a catch.

c) which will have greater momentum between a truck or a car moving with same velocity.

SECTION - E

Q no. 37 to 39 are case based / data based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

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37. Mixtures are constituted by more than one kind of pure form of matter, known as a substance. Depending upon the nature of the components that form a mixture we can have different types of mixtures i.e. homogeneous and heterogeneous mixtures.

- a) A student mixed few drops of egg white in 50ml of water in a test tube. What type of mixture will be formed inside the test tube.
- b) Classify the following in mixture and compound:
Blood, soil, air, water, milk, common salt
- c) How will you form a suspension mixture.

OR

- c) List two differences between homogeneous and heterogeneous

38. During a sport event an athlete runs very fast and wins the race but just after crossing the finishing line, he got an accident. During medical examination it is found that his leg bone gets fractured and ligament is treated.

Answer the following:

- i) What is ligament?
- ii) How are muscles attached to the bones.
- iii) Is bone a connective tissue, answer on the basis of its structure.

OR

iii) Name a tissue located at the head of the bone which protects them from wearing and tearing. This tissue is also present in the nose and outer ear. Write its two characteristics.

39. Different forms of energy can be changed from one form to another, so that the total energy of a system during or after the transformation remains the same. During free fall of an object its potential energy will change into kinetic energy.

A student dropped an object of mass 20kg from a height of 4m and tabulated the energy conversion as shown below:
($g=10\text{ms}^{-2}$)

Answer the following questions:

- i) Write the energy transformation in the above case.
- ii) In the above case when will the kinetic energy of the object be minimum and maximum?
- iii) Complete the above table by calculating the values from A to D

OR

iii) What will be the potential and kinetic energy of the above object at a height of 6m?

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