

SET EXAM PATTERN

Madhya Pradesh SET test will consist of two papers. Both papers will consist of only objective type questions without breaks. The Madhya Pradesh State Eligibility Test (MP SET) is a state level examination conducted by the Madhya Pradesh Public Service Commission (MPPSC) for determining the eligibility of candidates for Assistant Professor Posts in universities and colleges of Madhya Pradesh.

The MP SET exam pattern consists of two papers:

Paper 1 and **Paper 2**. There is **no negative marking** for incorrect answers in the MP SET exam.

Paper 1 is a General Paper on Teaching and Research Aptitude, compulsory for all candidates. It consists of 50 questions to be answered in 60 minutes.

Paper 2 is based on the chosen subject of the candidate. It consists of 100 questions to be answered in 120 minutes.

Here's a table summarizing the MP SET Exam Pattern 2024:

Paper	Subject	Number of Questions	Time Duration	Marks
Paper 1	General Teaching and Research Aptitude	50	1 Hour	100
Paper 2	Chosen Subject	100	2 Hours	200
Total		150	3 Hours	300

ANALYSIS OF CUT OF FOR MP-SET EXAMINATION

YEAR	UR	OBC	SC	ST	EWS	PWD
2023	176	166	150	132	160	132
2018	174	162	154	136	-	142
2017	190.29	171.42	168	164.58	-	159.42

I N D E X

Chapter 1: Molecules & Their Interaction Relevant To Biology

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1. BIOCHEMISTRY: NUMBER OF QUESTION ASKED IN MP-SET (2017-2023)

Topics	2023	2018	2017
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1	Structure of atoms, molecules and chemical bonds	1	1
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2	Biomolecules	5	1
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3	Stabilization Interaction	-	-
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4	Biophysical Chemistry	-	-
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5	Bienergetics	-	2
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6	Principles of Catalysis	1	1
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7	Conformation of proteins	-	1
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8	Conformation of nucleic acids	-	-
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9	Stability of Protein and Nucleic acids	-	-
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10	Metabolism of carbohydrates, lipids, amino acids nucleotides and vitamins	1	1
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Unit-1.1: Structure of Atoms, Molecules & Chemical Bonds

Previous Year Questions

[MP-SET 2017]

- The magnitude of ionization potential depends upon:
 - Radius of the atom
 - Magnitude of positive charge on the nucleus
 - Number of electron orbits
 - All are correct

[MP-SET 2018]

- The atoms with higher atomic number and lesser atomic radius have:
 - Lower electro-negativity
 - Higher electro-negativity
 - Lower electrostatic attraction
 - Higher electrostatic attraction

Practice Questions

- Which of the following properties of water makes it a universal solvent?
 - Hydrophobic bonds formed between water and fatty acids
 - Strong covalent bonds formed between water and salts
 - High dielectric constant of water
 - Hydrogen bonds formed between water and biochemical molecules
- Osmotolerant yeasts are able to grow at high salt concentrations because their cytoplasm contains high concentration of:
 - Divalent cations
 - Lipids
 - Amino acids
 - Polyalcohols
- Which molecular orbital has the highest energy out of the following?

(A) σ^* (1s)	(B) σ (2p _x)
(C) σ (2s)	(D) π^* (2p _y)
- In polysaccharides, monosaccharides are linked together by:

- Peptide bonds
- Hydrogen bonds
- Glycosidic linkages
- Phosphodiester linkages

Answer Key

1	2	3	4	5	6
(D)	(B)	(D)	(D)	(D)	(D)

EXPLANATIONS

Previous Year Questions

1. Correct Answer is (D):-

- Radius of the atom: The ionization potential tends to decrease as the radius of the atom increases. This is because electrons are farther from the nucleus in larger atoms, experiencing weaker attractive forces, making them easier to remove.
- Magnitude of positive charge on the nucleus: The ionization potential increases as the positive charge on the nucleus (proton number) increases. A stronger positive charge implies stronger attraction between the nucleus and the electrons, making it more difficult to remove an electron.
- Number of electron orbits: The ionization potential generally increases as the number of electron orbits (energy levels) increases. Electrons in inner orbits are closer to the nucleus and experience stronger attractive forces. As electrons are removed from higher energy levels, the ionization potential tends to increase. All these factors influence the ionization potential, and their combined effects determine the energy required to remove an electron from an atom.

- Correct Answer is (B):-** Electro negativity is the ability of an atom to attract electrons towards itself in a chemical bond. Higher atomic number and lesser atomic radius indicate a stronger attraction for electrons. Stronger attraction for electrons translates to higher electronegativity

Practice Questions

3. **Correct Answer is (D):-** Hydrogen bonds formed between water and biochemical molecules.
Water is often referred to as the universal solvent because it has the ability to dissolve a wide variety of solutes. This is primarily due to the hydrogen bonding that occurs between water molecules and other substances.
4. **Correct Answer is (D):-** Osmotolerant yeasts are able to grow in high salt concentrations because their cytoplasm contains high concentrations of polyalcohols, which help them balance osmotic pressure and maintain their cellular integrity in such environments. Divalent cations, amino acids, and lipids also play roles in various cellular processes, but they are not the primary contributors to osmotolerance in yeasts.
5. **Correct Answer is (D):-** π^* ($2p_y$). In molecular orbital theory, molecular orbitals are formed by the combination of atomic orbitals. The π^* (π star) orbital is an antibonding orbital, meaning it has higher energy compared to the corresponding bonding orbital. In this case, the π^* ($2p_y$) orbital refers to the antibonding molecular orbital formed by the combination of the $2p_y$ atomic orbitals.
6. **Correct Answer is (D):-** Glycosidic linkages. Polysaccharides are composed of monosaccharide units that are linked together by glycosidic linkages. A glycosidic linkage is a type of covalent bond formed between the hydroxyl group of one monosaccharide and the anomeric carbon of another monosaccharide, resulting in the formation of a disaccharide or a larger polysaccharide chain.