

शिक्षा ऐन, २०२८, (संशोधनसहित) को दफा ११(च) को उपदफा (१) को खण्ड (ख) को प्रतिबन्धात्मक वाक्यांशको १, २ र ३ बमोजिम माध्यमिक तह (साविक कक्षा ९-१०) मा कार्यरत अस्थायी शिक्षकहरुले मात्र प्रतिस्पर्धा गर्न पाउने लिखित परीक्षाको पाठ्यक्रम

लिखित परीक्षा योजना

यस पाठ्यक्रमलाई दुई भागमा बाँडिएको छ ।

१ .लिखित परीक्षा	-पूर्णाङ्क १००	उत्तीर्णाङ्क : ४०
२ .अन्तर्वार्ता	- पूर्णाङ्क २५	

लिखित परीक्षा

समय : ३ घण्टा

खण्ड	विषय	परीक्षा प्रणाली	अङ्क भार	प्रश्न सङ्ख्या	समय
क	शिक्षासम्बन्धी : आधारभूत ज्ञान, पाठ्यक्रम तथा शिक्षण विधि र प्रविधि	वस्तुगत/ बहुवैकल्पिक	४०	४० X १	४५ मिनेट
ख	सम्बन्धित विषयवस्तुको ज्ञान	विषयगत	६०	६ X १०	२ घण्टा १५ मिनेट
जम्मा			१००	४६	

द्रष्टव्य :

१. खण्ड क र ख का उत्तरपुस्तिकहरु अलग अलग हुनेछन् ।
२. वस्तुगत र विषयगत परीक्षा एकैपटक सञ्चालन हुने छ ।
३. लिखित परीक्षाको माध्यम अङ्ग्रेजी वा नेपाली वा दुबै भाषा हुनेछ । भाषा विषयहरूका हकमा सम्बन्धित भाषामा नै उत्तर दिनुपर्नेछ ।
४. यो पाठ्यक्रम मिति २०७३/१२/०२ गतेदेखि लागु हुनेछ ।
५. खण्ड क बमोजिमको वस्तुगत प्रश्न सबै विषयका लागि एउटै हुनेछ ।
६. खण्ड ख को सबै विषयको विषयगत प्रश्न सामान्यतया सबै एकाइलाई समेटिने गरी सोधिने छ ।

शिक्षा ऐन, २०२८, (संशोधनसहित) को दफा ११(च) को उपदफा (१) को खण्ड (ख) को प्रतिबन्धात्मक वाक्यांशको १, २ र ३ बमोजिम माध्यमिक तह (साविक कक्षा ९-१०) मा कार्यरत अस्थायी शिक्षकहरूले मात्र प्रतिस्पर्धा गर्न पाउने लिखित परीक्षाको पाठ्यक्रम

विषय : विज्ञान

Section B : Subject Specific Content Knowledge

- 60 Marks

A. Physics, Geology and Astronomy

1 Mechanics, Heat and Optics

1.1 Mechanics

- 1.1.1 Scalars and vectors
- 1.1.2 Kepler's laws
- 1.1.3 Verification of acceleration due to gravity
- 1.1.4 Newton's laws of motion
- 1.1.5 Gravitational potential energy
- 1.1.6 Escape velocity
- 1.1.7 Altitude, depth and latitude
- 1.1.8 Pressure and its principles
- 1.1.9 Moment of inertia
- 1.1.10 Elasticity

1.2 Heat

- 1.2.1 First and second laws of thermodynamics
- 1.2.2 Molar heat capacity
- 1.2.3 Calorimetry
- 1.2.4 Heat engines and their efficiency
- 1.2.5 Enthalpy and entropy

1.3 Optics

- 1.3.1 Lens maker's formula
- 1.3.2 Chromatic aberration
- 1.3.3 Telescope and microscope
- 1.3.4 Spherical mirrors and their formula
- 1.3.5 Wave nature of light
- 1.3.6 Newton's rings
- 1.3.7 Polarisation of light

1.4 Numerical problems related to mechanics, heat and optics.

2 Waves, Sound, Electricity, Modern Physics

2.1 Wave and Sound

- 2.1.1 Progressive waves and stationary waves
- 2.1.2 Force oscillations and resonance
- 2.1.3 Sonometer
- 2.1.4 Acoustic of building and reverberation of sound

2.2 Electricity

- 2.2.1 Basic concepts of direct current,
- 2.2.2 Resistance, resistivity and conductivity
- 2.2.3 Energy and power in d.c. circuit
- 2.2.4 Faraday's laws of electromagnetic induction
- 2.2.5 Function of generator, dynamo and transformer
- 2.2.6 Motor effect
- 2.2.7 Threshold energy/frequency
- 2.2.8 Self and mutual induction

2.3 Modern Physics

- 2.3.1 X-rays
- 2.3.2 Fission and fusion.

2.4 Numerical problems related to Waves, Sound, Electricity and Magnetism

3 Geology and Astronomy

3.1 Geology

- 3.1.1 History of the earth
- 3.1.2 Geographical diversity/diversion of Nepal
- 3.1.3 Rocks and minerals
- 3.1.4 Tectonic movement and earthquake
- 3.1.5 Natural disasters
- 3.1.6 Vulnerability
- 3.1.7 Climate change

3.2 Astronomy

- 3.2.1 Solar system
- 3.2.2 Satellites
- 3.2.3 Solar and lunar eclipse
- 3.2.4 Birth and death of stars
- 3.2.5 Hubble's law
- 3.2.6 Galaxy and constellations
- 3.2.7 Brightness of stars
- 3.2.8 Pulsars and quasars

B. Chemistry

4 Atomic Structure, Periodic Table and Gases

- 4.1 Discovery of electron, proton and neutron, Bohr's atomic model, wave mechanical concept, molecular and valance bond theory, hydrogen bonding; entropy change
- 4.2 Modern periodic table, characteristics of element on the basis of electronic configuration, physical and chemical properties of elements on the basis of groups and periods, Redox reactions
- 4.3 Manufacture of ammonia, nitric acid, sulphuric acid, bromine, iodine, sodium carbonate and sodium hydroxide, Lothar-Meyer volume curve
- 4.4 Some related numerical problems.

5 Metallurgy and Materials Used in Daily Life

- 5.1 Extraction, properties and uses of copper, iron, silver, gold, aluminium
5.2 Preparation, properties and uses of plastics, cement, ceramics, glass, pesticides, fibers, soap, detergent and chemical fertilizers.

6 Hydrocarbons

- 6.1 Aromatic and aliphatic compounds, Alkane, alkenes and alkynes, Preparation of aniline, nitrobenzene, Estimation of nitrogen, Stereo chemistry and isomerism, Alcohol and phenol
6.2 Carbohydrates, proteins and amino acids.

C. Biology

7 Economic Biology and Environmental Science

- 7.1 Economic plants : medicinal, timber and oil yielding plants
7.2 Apiculture, pisciculture and sericulture
7.3 Physiological system and human (digestive, circulatory, respiratory, excretory, reproductive, skeleton and nervous system), blood groups
7.4 Evolution, mutation, determination of sex, semen bank
7.5 Bio-diversity
7.6 Ecology and ecosystem
7.7 Bio-geo-chemical cycle.

8. Classification and Lifecycle

- 8.1 Lifecycle of typical algae, fungus, bryophytes, pteridophytes and gymnosperm (spirogyra, mushroom, moss, cycas and fern)
8.2 Life cycle of mosquito, honey bee, silk worm, ascaris, taenia, snail
8.3 Lifecycle of toad and rice
8.4 Description of some angiospermic families
8.5 Dicot stem, mitosis and meiosis cell division, Mendel's laws of inheritance
8.6 Mechanism of photosynthesis and respiration, structure and function of nucleic acid (DNA and RNA).

विषयगत परीक्षाको प्रश्न योजना

एकाइ	पाठ्यक्रमको क्षेत्र	अङ्क विभाजन	विषयगत प्रश्न सङ्ख्या	अङ्क भार
१.	Mechanics, Heat and Optics	१०	१० X १	१०
२.	Waves, Sound, Electricity, Modern Physics	१०	१० X १	१०
३.	Geology and Astronomy	१०	१० X १	१०
४.	Atomic Structure, Periodic Table and Gases	५	१० X १	१०
५.	Metallurgy and Materials Used in Daily Life	५		
६.	Hydrocarbons	५	१० X १	१०
७.	Economic Biology and Environmental Science	५		
८.	Classification and Lifecycle	१०	१० X १	१०
	जम्मा		१० X ६	६०