# माध्यमिक शिक्षा पाठ्यक्रम - २०७८



# **Specification Grid – 2081**

## **First Terminal Examination**

Class	lass : 9 Subject : Science and Technology					50 Ti	me : 2 H	ours
C N	<b>TT</b> •	Working	Group	Unit	Cognitive Level			
S.N.	Unit	IIOui	Marks	Marks	K	U	А	HA
					15 %	30 %	30 %	25 %
1	Scientific Learning	7	7	7				
					MCQ	MCQ	MCQ	MCQ
2	Classification of Organisms	6		9 <u>+</u> 2	1×1	2×1	I×I	3×1
					V Short	V Short	V Short	V Short
3	Life cycle of Mushroom	5	14	5 <u>+</u> 2	1×1	1×1	2×1	1×1
7	Force and Motion	11	15	15	Short	Short	Short	Short
			_		1×2	- 3×2	3×2	2×2
14	Atomic Structure and	13	14	14	Long	Long	Long	Long
	Chemical Bond				1×4	1×4	$2\times4$	$1 \times 4$
	Total	42	50	50	8	15	15	12

S.N.	Questions Type	Marking Schedule	Total
1	Multiple Choice Question (MCQ)	$7 \times 1 = 7$	7
2	Very Short Questions (VS)	$5 \times 1 = 5$	5
3	Short Questions (S)	$9 \times 2 = 18$	18
4	Long Questions (L)	$5 \times 4 = 20$	20
	Total	50	50
Rec	fication		

# First Terminal Examination – 2081 Model Question

Class: 9	F.M.: 50
Subject : Science and Technology	Time : 2 Hours
Group A (Multiple Choice Questions) 1. Circle the best alternative: a. Which branch of science deals with the study of plants and animals i. Physics ii. Chemistry iii. Biology iv. Astronomy b. A unique acception was found on the heads of Candalsi Diver which	7 × 1 = 7 ?
<ul> <li>b. A unique organism was found on the bank of Gandaki River which which kingdom does this organism belong?</li> <li>i. Monera ii. Protista iii. Fungi iv. Plantae</li> </ul>	had no well-developed nucleus. In
i. Trama ii. Sub hymenium iii. Basidium iv. I d. A car starts from rest and after 5 sec. it gains velocity of 20m/s Wha	Paraphyses
i. $4 \text{ m/s}^2$ ii. $5 \text{ m/s}^2$ iii. $10 \text{ m/s}^2$ iv. $-4 \text{ m/s}^2$	a is the deceleration produced on a
<ul> <li>e. Which of the following is the application of elasticity?</li> <li>i. Shaping the mud into the flowering pot.</li> <li>ii. Beating iron into</li> <li>iii. Shaping the dough into flatbread.</li> <li>iv. Hitting the shut</li> <li>f. One day, Pradeep was ordered to write some covalent compound on</li> <li>examples below. Based on this information, which one is the right at</li> </ul>	o sheets. tlecock with a badminton racket. the paper. He wrote some nswer?
i. NaCl ii. MgO iii. HCl iv. CaO g. Identify the molecular weight of carbon dioxide.	
<ul> <li>i. 30 amu ii. 40 amu iii 48 amu iv. 44 amu</li> <li><u>Group B (Very Short Questions)</u></li> <li>Answer the questions in very short.</li> <li>What is the least count of mater costle?</li> </ul>	5 × 1 = 5
<ul> <li>2. What is the feast count of meter scale?</li> <li>3. Why is Metrix prefix important?</li> <li>4. Mention one application of Newton's Third law of motion.</li> <li>5. Uranium is used in nuclear power plants, why?</li> <li>6. Complete the following chemical reaction.</li> <li>Zn + HCl → +</li> </ul>	

# Group C (Short Questions)

## $9 \times 2 = 18$

## Answer the questions in short.

7. Express the numerical value 0.000356 in scientific notation.

- 8. Why should we practice scientific learning?
- 9. Write the scientific name of Human beings and Garden pea.
- 10. Five kingdom system is more appropriate and scientific than the two kingdom system for organisms. Give the reason.
- 11. In Nepal, especially the Ayurvedic doctors give emphasis to consume mushrooms as much as possible for those patients who are very weak, why?
- 12. How can we identify the Nonpoisonous mushroom? Mention any two ideas.
- 13. Find the molecular weight of calcium carbonate.
- 14. When an electric bulb is connected with a beaker filled with fresh water through wire, it does not glow. But it is possible when we add some amount of sodium chloride in the water. Why is it possible? Give the reason.

 $5 \times 4 = 20$ 

15. Differentiate between Reactants and Products.

## **Group D** (Long Questions)

## Answer the questions in detail.

- 16. Draw the chart of the five kingdom system and give two examples of each kingdom.
- 17. Atomic energy has both boons and banes, give reason. Identify the difference between atomic bomb and Hydrogen bomb according to nuclear fission and fusion.
- 18. Explain the formation of covalent bonds in water with figures.
- 19. Balance the following chemical reactions.

specification

#### $H_2 + O_2 \rightarrow H_2O$

$$Fe + O_2 \rightarrow Fe_2O_3$$

20. Study the balanced chemical equation below and answer the questions given.

 $4Na + O_2 \rightarrow 2Na_2O$ 

- i. What are the reactants and products in the chemical reaction?
- ii. Write the number of sodium and oxygen atoms present in reactants and products
- iii. What are the additional information that we know from the balanced chemical equation?

\*\*THE END\*\*

# **Specification Grid – 2081**

# **Second Terminal Examination**

Class	: 9 Subject : Science and	<b>F.M.</b> :	50 Ti	me : 2 H	ours			
		Working	Group	Unit		Cogniti	ve Level	
S.N.	Unit	Hour	Marks	Marks	K 15 %	U 30 %	A 30 %	HA 25 %
1	Scientific Learning	7	7	2 <u>+</u> 2			ò	0-
13	Information and Communication Technology	14		5 <u>+</u> 2	MCO	MCO	MCO	MCO
2	Classification of Organisms	6		5 <u>+</u> 2	1×1	2×1		$3 \times 1$
3	Mushroom	5	13	3 <u>+</u> 2	9			
4	Evolution	6		5 <u>+</u> 2	V Short $1 \times 1$	V Short 1×1	V Short 2×1	V Short 1×1
7	Force and Motion	11		7+2				
8	Simple Machine	5	17	4 <u>+</u> 2	Short 1×2	Short 3×2	Short 3×2	Short 2×2
9	Energy	8		6 <u>+</u> 2				
14	Atomic Structure and Chemical Bond	13		6 <u>+</u> 2	Long 1×4	Long 1×4	Long 2×4	Long 1×4
15	Chemical Reaction	6	13	3 <u>+</u> 2				
16	Some Gases	6		4 <u>+</u> 2				
	Total	87	50	50	8	15	15	12

	S.N.	Questions Type	Marking Schedule	Total
	1	Multiple Choice Question (MCQ)	$7 \times 1 = 7$	7
	2	Very Short Questions (VS)	$5 \times 1 = 5$	5
	3	Short Questions (S)	$9 \times 2 = 18$	18
	4	Long Questions (L)	$5 \times 4 = 20$	20
C		Total	50	50
5				

# Second Terminal Examination – 2081 Model Question

Class: 9	F.M.: 50
Subject : Science and Technology	Time : 2 Hours
<b>Example 2</b> Group A (Multiple Choice Questions) $7 \times 1 = 7$	
1. Circle the best alternative:	2
a. On which orbit of the earth does the navigation satellite is launched?	
i. low earth orbit ii. Geostationary orbit	
iii. medium earth orbit iv. Geosynchronous orbit	
b. The reason behind the mushroom called saprophytic is	
i. It does not prepare its food ii. It takes its food from dead and de	ecaying matter
iii. It depends to other for food. iv. It absorbs its food from organism	n
c. Study the following graph, which represents the constant velocity?	V
d A good gives high with two hand hid What high of shares life is this called?	
d. A goat gives birth with two head kid. what kind of abnormanity is this called?	
iii Mutation iv Variation	
e The efficiency of a pulley system is 50% If M A is 4 than V R to be	
i 8	
iii 8% iv 8cm	
f. In a molecule of calcium bicarbonate, the valency of bicarbonate is	
i. 2 ii. 1	
iii. 4 iv. 5	
<b>Group B</b> (Very Short Questions) $5 \times 1 = 5$	
Answer the questions in very short.	
2. Teacher gives you a sample of bacteria. In which kingdom do you prefer it?	
3. Velocity ratio of a machine is 2. What does it mean?	
4. The thermonuclear fusion is possible in the sun but not in the earth, why?	
5. Name two alternative sources of energy that are suitable in the context of Nepal.	
6. In the given chemical reaction $Fe + CuSO_4 \longrightarrow FeSO_4 + Cu$	
Name the product and reactant.	
$\frac{\text{Group C (Short Questions)}}{9 \times 2 = 18}$	5
Answer the questions in short.	

- 7. Write the 0.0000000214 in scientific notation.
- 8. Grishma found some mushroom in her garden. Suggest her how can she identity those mushrooms are edible or poisonous.
- 9. How can you explain that the horse and human beings are evolved from the same ancestors? Give your opinion.
- 10. Darwinism is still not a perfect theory in explaining evolution. Do you agree with this statement? Why? Or why not?
- 11. Sandesh beats the carpet with a steak. He observed that dust particles come out of the carpet. What might be reason behind it.

12. Observe the given figure and calculate it. i.M.A. ii. V.R.



- 13. Convert the given word equation into balanced formula equation.
  - Ammonium chloride + Calcium hydroxide \_\_\_\_\_ Calcium chloride + Ammonia + Water.
- 14. Which gas is used in the production of Vanaspati ghee. Draw a well-labelled diagram of laboratory preparation of that gas.
- 15. As we heard news from different seminars held in the world the ozone layer is depleted. What is the main reason behind the ozone layer depletion and how can we protect the ozone layer?

 $5 \times 4 = 20$ 

#### Group D (Long Questions)

## Answer the questions in detail.

- 16. You are connected to your family, friend all around the world through telecommunication. What is the principle behind it? Do you have social account like Facebook, Instagram account? Give a thought about what kinds of activities should not do in digital social platform.
- 17. Study the given diagram and identify the kingdom of organism and give reason why it belongs to that kingdom.

There are different methods of classification of organism. But, among them the five kingdom system of classification is accepted the most. Discuss any two significant behind it.

- 18. State the Newton's second law of motion. Smriti wants to measure the height of building of her school. She dropped a stone from the top of a building with a velocity of 50 m/s. If the stone takes 2 seconds to reach the ground than what is the height of the building.
- 19. In rural area must of the people keeps cattle for agriculture and running their life. How can they manage the dungs of cattle for producing bio-gas. Explain with figure.
- 20. Study the following table and answer the question that follow.

Name of elements	Electronic configuration
A	2,8,7
B	2,8,1
C	2,8
D	2,8,8,2

i. Name the elements C and D

ii. What is the valency of elements A and B. And why?

iii. Name the compound formed by the combination of A and C. Also write the type of bond exist between them.

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## **\*\*THE END\*\***

# **Specification Grid – 2081**

# **Third Terminal Examination**

Class	:9 Subject : Science a	nd Techn	ology		<b>F.M.</b> :	75 Ti	me : 3 H	ours
		Working	Group	Unit		Cognitiv	ve Level	
S.N.	Unit	Hour	wise Marks	wise Marks	K 15 %	U 30 %	A 30 %	HA 25 %
1	Scientific Learning	7	10	3 <u>+</u> 2				0,2
13	Information and Communication Technology	14	10	7 <u>+</u> 2				
2	Classification of Organisms	6		4 <u>+</u> 2	MCQ	MCQ	MCQ	MCQ
3	Mushroom	5		3 <u>+</u> 2	2×1	4×1	2×1	2×1
4	Evolution	6	19	3 <u>+</u> 2	e de	-		
5	Life Process	16		9 <u>+</u> 2	S.			
7	Force and Motion	11		7+2	V Short $2 \times 1$	V Short $4 \times 1$	V Short $2 \times 1$	V Short
8	Simple Machine	5	C	4 <u>+</u> 2	2~1	7/1	2~1	1/1
9	Energy	8	26	6 <u>+</u> 2				
10	Waves	14		9 <u>+</u> 2	Short	Short	Short	Short
14	Atomic Structure and Chemical Bond	13		7 <u>+</u> 2	2×2	3×2	5×2	4×2
15	Chemical Reaction	6	20	3 <u>+</u> 2				
16	Some Gases	6		4 <u>+</u> 2	Long	Long	Long	Long
17	Some Metals and Non- Metals	5		2 <u>+</u> 2	1×4	2×4	2×4	2×4
18	Carbon and Its Compound	6		4 <u>+</u> 2				
	Total	128	75	75	12	22	22	19
S	.N. Questions 7	Гуре		Markin	g Schedu	le 7	Total	

	S.N.	Questions Type	Marking Schedule	Total
C	1	Multiple Choice Question (MCQ)	$10 \times 1 = 10$	10
5	2	Very Short Questions (VS)	$9 \times 1 = 9$	9
	3	Short Questions (S)	$14 \times 2 = 28$	28
	4	Long Questions (L)	$7 \times 4 = 28$	28
		Total	75	75

# Third Terminal Examination – 2081 Model Question

Class: 9		F.M.: 75		
Subject : Science and Technology	Time : 3 Hours			
Group A (Mul	tiple Choice Questions)	$10 \times 1 = 10$		
1. Circle the best alternative:				
a. What is the power of 10 in the pref	ix Giga?			
i. 9 ii9	iii. 12 iv12			
b. Which of the following is the way	of handling cyberbullying?			
i. follows the person in social	media ii. inform	n parents or teachers		
iii. get in a fight with the perso	on iv. delete	the messages		
c. Which of the following is the steril	e tissue present in gills?			
i. mycelium ii. basidiu	n iii. paraphysis	iv. trama		
d. Statement: Dinosaurs got extinct.				
Reasons: a. Lack of food				
b. Decrease in temperatu	ire			
Which of the following reasons are	correct?			
i. only a ii. only b	iii. both a and b	iv. none of them		
e. What must be the radius of axle if t	he diameter of wheel is 40 cr	m and its velocity ratio is 4?		
i. 5 cm ii. 10 cm	iii. 20 cm	iv. 160 cm		
f. Match the following:				
<u>Column A</u>	<u>(</u>	Column B		
A. limited resource	a. non-re	enewable sources		
B. Unlimited resource	b. Alterr	native sources		
C. Can be used instead of renewa	ible energy c. Renew	vable sources		
i. Ab, Ba, Cc ii. Aa, Bc,	Cb iii. Aa, Bb, Cc	iv. Ac, Ba, Cb		
g. Which of the following is the characte	eristic of Fluorine:			
i. Non-metal, valency: 7 ii.	Metal, valency: 1			
iii. Metal, valency: 1 iv.	Metal, valency: 7			
h. What must be the values of 'x' and 'y'	for the given reaction to be b	alanced?		
$xKClO_3 \longrightarrow 2KCl +$	- yO <sub>2</sub>			
i. x=1; y=3 ii. x=2; y=	1 iii. x=2; y=3	iv. x=3; y=1		
i. Metals are good conductor of electricit	y because:			
i. They are malleable	ii. They are sono	orous		
iii. They have bonded electrons	iv. They have fro	ee electrons		
j. Which of the following compound of a	carbon has catenation?			
i. Carbon dioxide ii. Methan	e iii. Carbon- mon	oxide iv. Hexane		

## Group B (Very Short Questions)

#### 9 × 1 = 9

## Answer the questions in very short.

- 2. Why are mushrooms called saprophytes?
- 3. What evidence is obtained from the study of embryos of human, chick, fish, horse?
- 4. A woman has developed symptoms like hair loss, constipation, confusion, weight changes, etc. Which hormone might be responsible for such symptoms?
- 5. State Newton's first law of motion.
- 6. What is the distance moved by effort in an inclined plane having length 'x' units and height 'y' units?
- 7. Pradip kumar Rai is a prosperous farmer residing in one of the villages of Terai region of Nepal. He owns some cattles and does sugarcane farming in his field. Mention any 2 alternative sources of energy that he can produce at his home.
- 8. Sagar sir wanted his students to identify various waves as longitudinal wave and Transverse wave. His students classified sound wave and ripples produced in water as Transverse wave and light wave and waves produced in slinky spring as Longitudinal wave. Correct the mistakes done by students if they did any.
- 9. Why carbon is a reducing agent?

Answer the questions in short.

## Group C (Short Questions)



- 11. A rectangular garden is 2000 cm long and 1500 cm wide, then calculate its area. Also Express your answer in scientific notation.
- 12. Differentiate between: F.M. and A.M.
- 13. During the observation of permanent slide of organisms by Ram, Ram found a slide of organism without definite nucleus. Name the kingdom to which the organism belongs to. Also write one more character of that organism.
- 14. Who is said to be the father of taxonomy? Why?
- 15. Hari collected two different species of mushroom from the nearby forest having following characteristics:
  - i. White gills, yellow slime in the pileus
  - ii. Presence of rings and volva in the stipe, brightly coloured

which of these mushrooms are edible and poisonous?

- 16. Differentiate between: Homologous and Analogous organs
- 17. Observe the given tissue and name 'A' and 'B'. Write one function of this tissue.
- 18. 'The efficiency of a simple machine is 80%'.

What does this statement mean? What can be done to increase its efficiency? Write any 1 method to do so.

- 19. If you have a pulley, rope and wooden support, how can you combine them to draw water from well. Show it with a well labelled diagram. What type of pulley is it?
- 20. Define wavelength and frequency.
- 21. Hari has a broken limb due to an accident whereas his wife Urmila is pregnant. They both went to hospital for treatment. Which medical imaging technique would you suggest them to get appropriate diagnosis, Why?
- 22. Write the molecular formula of Ammonium chloride and calculate its molecular weight.
- 23. What are the informations obtained from balanced chemical equation?
- 24. Identify the given allotropes of carbon and also state whether they are crystalline or amorphous:
- Ui. Black in colour, non-lustrous, used as fuel in various industries.
  - ii. Black in colour, lustrous, used to make lead of pencil



#### **Group D** (Long Questions) $7 \times 4 = 28$

### Answer the questions in detail.

- 25. What are the steps of creating Gmail account? Mention all the necessary steps.
- 26. Answer the following questions on the basis of given diagram:
  - i. Which phenomenon is shown in the given diagram?
  - ii. Write any two applications of this phenomenon in our daily life.
  - iii. If the velocity of sound in air is 1500 m/s and time taken by sound to return back to the source is 4 seconds, then calculate the depth of ocean.
- 27. Answer the following questions on the basis of given diagram:
  - i. Write any two functions of part A.
  - ii. What happens when part B gets injured.
  - iii. Which action is controlled by part D.
  - iv. Name the part C.
- 28. i. Mention the action and reaction force in given conditions:
  - a) Launching of rocket b) Swimming in river
  - ii. An apple falls down a tree and reaches the bottom of tree after 3 seconds. Calculate distance travelled by the apple in that time.
- 29. Draw a diagram to show the construction of biogas plant. Write any 2 advantages of using biogas.
- 30. Answer the following questions on the basis of given diagram:
  - i. Which compound is shown in the given figure.
  - ii. Name the bond shown in the given diagram.
  - iii. Write any two properties of this compound.
  - iv. Name any 2 more compounds having such bonding.
- 31. Stratosphere of Atmosphere contains a protective layer that protects life on Earth from the harmful radiations of Sun. Based on this answer the following questions:
  - i. Name the gas which helps in this action?
  - ii. Write balanced chemical equation for the formation of this gas naturally.
  - iii. Which air pollutant is the major cause behind the destruction of this gas?
  - iv. What effects are seen after the depletion of this layer of gas? Mention any 2 effects.

# **\*\*THE END\*\***









a	⊳क्षा∶९ विषय	ः विज्ञान	तथा प्रविधि		पूर्णांड्क : ७४	6	समय : ३	घण्टा
क्र.स.	एकाइ	कार्यघण्टा		संज्ञान	ात्मक तह		समुहगत	एकाइगत
			ज्ञान (११%)	ন্দ্রীয় (২০%)	प्रयोग (३०%)	उच्च दक्षता । २४%)	— अड्कभार	अद्कभार
۹.	वैज्ञानिक अध्ययन	3					0.0	ą
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x.	शारीरिक संरचना र जीवन पुक्रिया	95	प्रश्न (२×९)	444 ( 6×1)	364 (581)	प्रश्न (२×१)	17	5
٩.	प्रकृति र वातायरण	4	1					3
9	वल र चाल	99	चेरे कोटो प्रान	चेरै छोटो	धेरै छोटो प्रश्न	चेरे लोगे पान		×
ς.	यन्त्र	×	(9×9)	प्रश्न	(2×9)	(9×9)	8	2
٩.	ऊर्जा	5		((x xd)		1.	200	¥
90	तरङ्ग	95					19	9
99.	विद्युत्	92			छोटो प्रश्न			÷.
92	वत्माण्ड	×	चाटा प्रश्न	छोटो प्रश्न	(X × ?)	झाटा प्रश्न		2
98.	परमाण संरचना र रासायनिक बन्ड	93	((***)	(\$×?)	0.000000000	(5×4)		٩
98.	रासायनिक प्रतिक्रिया	5	1					2
94	ग्यांसहरु	4	लामो प्रश्न	वाणे एव	लामा प्रश्न	लामो प्रश्न		ą.
99	धातु र अधातु	x	(9×8)	(28%)	(4×8)	(8×8)	50	2
95.	कार्वन र यसका यौगिकहरू	4	1	1355.54				ą
99.	दैनिक जीवनमा प्रयोग हुने रसायनहरू	J						ą.
	जम्मा	960	9२	२२	२२	99	্যধ	ઝષ્ટ
_	प्रश्नको प्रकार	प्रति प्रश्न अडकभार		प्रश्न र	सङ्ख्या		जम्मा प्रश्न संहख्या	जम्मा अडकभार
۹.	बहुबैकल्पिक प्रश्न	१ अड्क	2	Y	2	3	90	90
-	भेरे लोगो पहल	0 1000	2	~	2	0		

## विशिष्टीकरण तालिका २०७८

द्रष्टव्य

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 प्रश्न निर्माण गर्दा तल्लो तहका प्रश्न (ज्ञान, बोध र प्रयोग) तथा उच्च तहका प्रश्न (विश्लेषण, मूल्याड्कन र सिर्जना) लाई माथि उल्लिखित कार्यघण्टा र अड्कभारअनुसार बनाउनुपर्ने छ ।

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- बहुवैकल्पिक प्रश्न र अति छोटो प्रश्न १ अड्क, छोटो प्रश्न २ अड्क र लामो प्रश्न ४ अड्कका दरले सोध्नुपर्ने छ ।
- समूहको जम्मा अङ्कभारमा घटबढ गर्न पाइने छैन तर समूहभित्रका एकाइहरुमा ±२ हुन सक्ने गरी प्रश्न बनाउन सकिने छ । तर कुनै एकाइलाई शून्य गर्न पाइने छैन ।
- २ वा ४ अङ्कका प्रश्नको लागि एक तत्त्वको एक अड्क (1 mark will be assigned per element expected as correct response) आउने गरी प्रश्न निर्माण गर्नुपर्ने छ ।
- छोटो र लामो प्रश्न एउटै तहको वा दुई वा एक भन्दा वढी संज्ञानात्मक क्षेत्रअन्तगंतका तहहरु समेट्ने गरी प्रश्न बनाउन पनि सकिने छ । तर समग्रमा उल्लिखित तहको जम्मा भारसँग मिल्ने हुनुपर्छ ।

क स	एकाइ	कार्यघण्टा					समूहगत	एकाइगत	
			ज्ञान (१४%)	ৰীয় (২০%)	प्रयोग। ३०%।	उच्च दक्षता ( २ <b>१%</b> )	अङ्कमार	अद्कभार	
۹.	वैज्ञानिक अध्ययन	э		1VS	15		100	÷.	
93.	मूचना तथा सञ्चार प्रथिति	98	1MCQ	1\$/1VS	IS/IVS		40	6	
5	सजीवहरूको वगीकरण	ę	15	1MCQ			98	5	
ą.	ৰ্বাখন খক	X				15		8	
Y,	कम विकास	Ę		15	1MCQ			ŧ	
X.	शांसीरेक सरचना र जीवन प्रक्रिया	95	1L	1MCQ	15				¢
ŧ.	प्रकृति र वातावरण	4				1L		¥	
o	वल र चाल	99	1S/1VS		1MCQ	15			X
ς.	यन्त्र	x		1MCQ				\$	
٩.	ক্ৰমা	Ę				1L	1 22	¥	
90	तरङ्ग	94		1L	IS/IVS			ف	
99	विवृत्	9२	1MCQ	IVS	1L		1	1	
92	बह्माण्ड	x		15			1	\$	
98,	परमाण संरचना र रासायनिक बन्ह	9३		1L	15	1MCQ		٤	
98.	रासायनिक प्रतिक्रिया	Ę				15	]	ŧ	
95	म्यांसहरु	Ę	1VS			15	-	ş	
99	धातु र अधातु	x		1MCQ		IVS	10	2	
95	कावंन र यसका यौगिकहरू	ų.				1MCQ	1	ş	
٩٩	दैनिक जीवनमा प्रयोग हुने रसायनहरू	ى		1VS	IL			ą	
	जम्मा	950					UX	at .	

# विशिष्टीकरण तालिकाअनुसार प्रश्नपत्र निर्माण गर्दा प्रयोग गर्न सकिने नमुना चेकलिष्ट १ (Checklist-1)

MCQ = Multiple Choice Question, VS = Very Short, S = Short, L = Long Question

6

#### नमुना प्रश्न (Model question)

#### विषय : विज्ञान तथा प्रविधि (Science and Technology)

कक्षा : ९

पूर्णाड्क : अर्

समूह (क) (Group A) समय (Time): 25 Minutes. बहुवैकल्पिक प्रश्नहरू (Multiple Choice Question - MCQs)

#### तलका प्रश्नको सही उत्तरमा गोलो चिहन (O) लगाउनुहोस् ।

90 × 9 = 90

(Circle the correct answer to the following questions)

- जीवहरूको शरीरको भाग कुहाएर खाना प्राप्त गर्ने युक्यारियोटिक जीव कुन जगत्मा पर्छन् ? Eukaryotic organisms that obtain food by decomposing the body parts of organisms belong to which kingdom??
- A. एनिमलिया (animalia)
- B. फन्जाइ (fungi)
- C. मोनेरा (monera)
- D. प्रोटिस्टा (protista)

 दिइएको चित्रबाट क्रम विकासको प्रमाण सम्बन्धमा मुख्यतया कुन जानकारी प्राप्त गर्न सकिन्छ ? Which information about evidence of organic evolution can be obtained from given picture?

- A. लाखौँ वर्ष पहिले उत्पत्ति भएका सजीवको जानकारी लिन (take information about organism originated millions of years ago)
- B. अस्तित्वमा रहेका जीवहरूको आयु निर्धारण गर्न (determine the age of existing organism)
- C. जीवहरूको समानता र भिन्नता पत्ता लगाउन (find similarities and differences between organism)



- D. फरक समुहका पुर्खाको जनाकारी लिन (get information about ancestors of different groups)
- 3. यदि एउटा बिरुवाबाट सबै जाइलम निकालियो भने त्यो बिरुवामा कस्तो असर देखा पर्छ ? If all the xylem tissues are removed from a plant, what effects will be seen in that plants?
  - A. पानी र खनिजको प्रवाह र यान्त्रिक शक्तिको कमीले गर्दा विरुवा कमजोर हुन्छ । (Lack of water supply and mineral and less mechanical strength make plants weak.)
  - B. खानाको कम प्रवाह र यान्त्रिक शक्तिको कमीले गर्दा विरुवा लचकदार हुन्छ । (Lack of food supply and less mechanical strength make plants feeble.)

- C. पानी र खनिजको छिटो प्रवाह तथा लचकदार नहुनका कारणले विरुवा बलियो हुन्छ । (Fast supply of water and mineral and more rigidity make plants strong.)
- D. खनिज र हरितकणको धेरै प्रवाह भएकाले र धेरै लचकदार भएकाले विरुवा पहेंलो हुन्छ । (More supply of minerals and chlorophyll and more flexibility make plants yellowish)
- विद्युत् हिटरको क्वाइल कुन पदार्थवाट बनाइन्छ ? Which substance is commonly used in heating coil of electric heater?
  - A. नाइक्रोम (nichrome)
  - B. टड्गस्टेन (tungesten)
  - C. आल्मिनियम (aluminium)
  - D. तामा (copper)
- 5. एकल अचल घिनींका बारेमा कुन भनाइ सही छ ?

Which of the following statement is correct about single fixed pulley?

- A. गति अनुपात 1 हुन्छ । (Velocity ratio is one.)
- B. यान्त्रिक फाइदाको मान एकभन्दा वही हुन्छ । (Mechanical advantage is greater than one.)
- C. डोरीको दुई खण्डले लोड थामेको हुन्छ । (Load is supported by two rope segment.)
- D. लोडले पार गर्ने दुरीभन्दा इफोर्टले पार गर्ने दुरी दोव्वर हुन्छ । (Distance moved by load is twice of the distance moved by effort.)

6. चित्रमा देखाइएको स्थानान्तरण समय ग्राफ अध्ययन गरी अन्तिम 50 s मा हुने गति

कति हुन्छ ? Study the given displacement-time graph to find the

velocity in last 50 s motion.

- A. 0.4 m/s
- B. 2.5 m/s
- C. 0.4 m/s
- D. 2.5 m/s

 सञ्चार भूउपग्रहलाई कुन कक्षमा प्रक्षेपण गरिन्छ ? In which orbit the communication satellites are launched from the earth?

- A. भूस्यायी कक्ष (geostationary orbit)
- B. निम्न पृथ्वी कक्ष (low earth orbit)
- C. मध्यम पृथ्वी कक्ष (medium earth orbit)
- D. जियोसिन्क्रोनस कक्ष (geosynchronous orbit)



- 8. निम्न अणुहरूकोविचमा वन्ने वोन्डको प्रकृतिका आधारमा कुनको उम्लने तापक्रम सबैभन्दा वही हुन्छ ? On the basis of the nature of the bond formed in the following molecule, which of the molecules has a high boiling point?
  - A. H<sub>2</sub>
  - B. Cl<sub>2</sub>
  - C. HCl
  - D. MgCl<sub>2</sub>
- रगतमा कुन धातुको कमीको कारण छोटो दुरी हिंड्दा पनि थकान लाग्छ ? Due to lack of which metal in the blood, even walking a short distance causes fatigue?
  - A. Potassium
  - B. Iron
  - C. Sodium
  - D. Calcium
- 10. तलका मध्ये कुन रासायनिक प्रतिक्रियाले कार्वनको रिड्युसिड गुणलाई जनाउँछ ? Which of the following could show reducing nature of carbon?
  - A. कार्वनबाट कार्बाइड बन्नु (formation of carbide from carbon)
  - B. कावंनबाट कावंन डाइअक्साइड बन्नु (formation of carbon dioxide from carbon
  - C. कार्वनवाट कार्वन मोनोअक्साइड वन्नु (formation of carbon monoxide from carbon)
  - D. कार्बनको उपस्थितिमा फेरिक अक्साइडवाट फलाम बन्नु (formation of iron from ferric oxide in presence of carbon

C

#### समूह (ख) (Group B)

#### तलका प्रश्नको अति छोटो उत्तर लेख्नुहोस् :

#### 9 × 9 = 9

- 1. वैज्ञानिक सिकाइ किन महत्त्वपूर्ण मानिन्छ ? Why scientific learning is important ?
- 2. इनर्सिया भनेको के हो ? What is inertia ?
- 3. इन्टरनेटको कुनै एउटा महत्त्व लेख्नुहोस् । Write an importance of internet.
- 4. चित्रमा विद्युत् चुम्वकीय वर्णपट (electromagnetic spectrum) का खण्डहरूलाई फरकफरक स्थानमा आवृत्तिको क्रम विगारेर राखिएको छ । ती खण्डहरूलाई कुन क्रममा मिलाउँदा आवृत्तिमा आधारित एक सरलीकृत विद्युत् चुम्वकीय वर्णपट बन्छ ?

There are different sections of an electromagnetic spectrum shown the given figure with zigzag order of frequency. In which order the given sections should be arranged to give a simplified electromagnetic spectrum based on frequency?



- ग्राहंस्थ विद्युतीकरणमा प्रयोग हुने न्युट्रल तार महत्त्वपूर्ण मानिन्छ, किन ? Neutral wire in domestic wiring is important, why?
- प्रयोगशालामा हाइड्रोजन ग्याँस तयार पार्दा प्रयोग हुने रसायनहरूको नाम लेख्नुहोस् । Write the name of chemicals used in laboratory preparation of hydrogen gas.
- तलको तालिकामा केही ग्याँसहरुको बारेमा जानकारी दिइएको छ । The below table presents some information about some gases.

प्रयोगशालामा ग्याँस उत्पादन विधि (laboratory preparation of a gas)	ग्याँसको परीक्षण विधि (testing method of the gas)
A. अल्काली धातुको क्लोरेटलाई तताएर (by heating chlorate of alkali metal)	<ol> <li>वलिरहेको सलाईको काँटी ग्याँसजारको मुखमा लैजाँदा "पप" आवाज आउँछ । (When a burning match stick is brought in contact with the gas, it gives a 'pop' sound.</li> </ol>
B. जिङ्क धातुलाई फिक्का अम्लसँग प्रतिक्रिया गराएर (By reacting zinc metal with dilute acid)	<ol> <li>बलिरहेको म्याग्नेसियम रिवनलाई ग्याँसजारभित्र घुसाउँदा केहीवेरमा पहेँलो रडको धुलो वन्छ। (When a burning magnesium is inserted into the gas jar, a yellow powder is formed after sometime)</li> </ol>

यसका आधारमा पहिलो कोलममा उत्पादन भएको ग्याँसको परीक्षण दोस्रो कोलममा लेखिएको कुन विधिबाट गर्न सकिन्छ ? Based on this, the gas produced in the first column can be tested by which method written in the second column ?

- बिरुवाको तीव्र वृद्धिका लागि Na<sub>3</sub>PO<sub>4</sub> भन्दा (NH<sub>2</sub>)<sub>2</sub>CO को प्रयोग गर्ने गरिन्छ, किन ? Why is the use of (NH<sub>2</sub>)<sub>2</sub>CO preferred over Na<sub>3</sub>PO<sub>4</sub> for the rapid growth of the plant?
- 9. चित्रमा देखाइएको सञ्चार प्रविधिको प्रयोगका क्रममा दुरसञ्चारको कार्य सिद्धान्त ( ट्रान्समिटर→ च्यानल→रिसिभर) कसरी लागु भएको छ ? How is the principle of telecommunication (transmitter→channel→receiver) applied while using the communication technology shown in the given figure?

## समूह (ग) (Group C)

#### तलका प्रश्नको छोटो उत्तर लेख्नुहोस् :

#### $9x \times 5 = 5z$

- 10. (a) 0.0000025 लाई वैज्ञानिक सङ्केतनमा लेख्नुहोस् । Write 0.0000025 in scientific notation.
   (b) 10 cm लाई किलोमिटरमा परिवर्तन गर्नुहोस् । Convert 10 cm into kilometer.
- 11. मोनेराको कुनै दुई विशेषताहरू लेख्नुहोस् । Write any two characteristics of Monera.
- 12. रातो रडको पाइलस भएको किरा नलागेको च्याउ र सेतो तर वरिपरिबाट कमिलाले घेरेको च्याउ मध्ये कुन च्याउ खान उपयुक्त हुन्छ स्पष्ट पार्नुहोस् । Explain which mushroom is suitable for eating between the mushroom with red pilus and the mushroom without worms and the white mushroom surrounded by ants.
- होमोलोगस र एनालोगस अड्गहरू विच दुईओटा भिन्नता लेखनुहोस् । Write any two differences between homologous and analogous organs.
- 14. सिरिशाले एउटा विरुवालाई भुष्प बनाउन त्यस विरुवाको टुप्पो भाँचिदिइन् । बनस्पति तन्तुसम्बन्धी बुकाइका आधारमा यसरी भुष्प बनाउने कार्य कसरी सम्भव भएको होला व्याख्या गर्नुहोस् । Sirisha pluck out the tip of a plant to make it bushy. Based on understanding of plant tissue, explain how will it grow bushy?
- 15. प्लास्टिसिटी भनेको के हो ? यसको एउटा उपयोगिता लेखनुहोस् । What is plasticity? Write one application of plasticity.
- 16. इन्टरनेट सुविधा भएको तपाँइको कम्प्युटरको डेस्कटपमा भएको एउटा letter नामको फाइल साथीको email मा कसरी पठाउनु हुन्छ ? आवश्यक सबै चरणहरू लेख्नुहोस् ।

How do you send a file named "letter" from your desktop connected to the internet to your friend? write all necessary steps.

17. ताराको जीवनचक्रका चरणहरू देखाउने फ्लोचार्ट तयार पानुंहोस् । Make a flow chart to show different steps in lifecycle of stars.



- एण्लिच्युड मोडुलेसन (AM) र फ्रिक्वेन्सी मोड्युलेसन (FM) विच दुईओटा भिन्नताहरू लेख्नुहोस् । Write two differences between amplitude modulation (AM) and frequency modulation (FM).
- 19. सामान्यत टेवुल टेनिस वलको पिण्ड 2.7 g र लन टेनिस वलको पिण्ड 56 g हुन्छ । टेवल टेनिस व्याटभन्दा लन टेनिस ऱ्याकेट लामो हुन्छ । वलको पिण्ड र उक्त वल हिकांउन प्रयोग हुने व्याट/ऱ्याकेटको साइजविचको सम्बन्धलाई इनसिंयाको नियमका आधारमा व्याख्या गर्नुहोस् । Generally, mass of a table tennis ball is 2.7 g and that of lawn tennis ball is 56 g. The lawn tennis racket is longer than table tennis bat. Explain the relation between mass of ball and the size of corresponding bat/racket on the basis of the law of inertia.
- 20. एउटा स्लिङ्की (Slinky) को प्रयोगवाट लङ्गिच्युडिनल तरड्ग कसरी उत्पन्न गराउन सकिन्छ ? How can a longitudinal wave be produced by using a slinky?

   तत्व
   रेडिकल
- 21. तालिकामा दिइएको तत्त्व र रेडिकलबाट बन्ने कुनै एक यौगिकको आणविक सूत्र लेख्नुहोस् । उक्त अणुको आणविक भारसमेत गणना गर्नुहोस् । Write molecular formula of any two compounds formed by the cloment and the rediced sizes in the table. Coloulate the molecular

तत्व Element	रेडिकल Radical
Mg	OH.
к	CO3-

element and the radical given in the table. Calculate the molecular mass of anyone of the compound.

- 22. हाइड्रोजन, नाइट्रोजन र अक्सिजन तत्त्वहरु मध्ये कुनै दुई तत्त्वको संयोजनवाट वन्ने यौगिकले ओजोन तहलाई विनास गर्छ। उक्त यौगिक वन्ने र सो यौगिकले ओजोन तहलाई विनास गर्ने प्रक्रियाको सन्तुलित रासायनिक समीकरण लेख्नुहोस्। Ozone layer depleting compound is formed by the combination of any two elements among Hydrogen, Nitrogen, and Oxygen. Write the balanced chemical equations for the process of forming the compound and depletion of ozone layer caused by the compound.
- 23. पारमाणविक सङ्ख्या 19 भएको तत्त्वको क्लोरेट लवणलाई म्यान्गानिज डाईअक्साइडसँग तताउँदा कुन ग्याँस बन्छ । which gas is produced whenchlorate of an element having atomic number 19 is heated with manganese dioxide ?
  - यसरी बनेको ग्यांस र ग्लुकोजबिच आवश्यक अवस्थामा हुने रासायनिक प्रतिक्रियाको सन्तुलित रासायनिक समीकरण लेख्नुहोस् । Write the balanced chemical equation when the gas thus obtained reacts with glucose under the required conditions.
  - ii. उक्त ग्याँसलाई चुन पानीमा पठाउँदा के हुन्छ ? What would happen when the gas is passed into a vessel containing lime water?

#### समूह (घ) (Group D)

#### तलका प्रश्नहरूको लामो उत्तर लेख्नुहोस् ।

#### 9 x ¥ = ?5

- 24. जन्तु तन्तुका प्रमुख चार प्रकारको एक एक ओटा कार्य लेख्नुहोस् । Write one function of each of the four major types of animal tissues.
- 25. सँगैको चित्र A र B मा पारिस्थितिक प्रणालीमा हुने शक्ति प्रशारण देखाइएको छ । Energy transfer in an ecosystem is shown in the alongside figure A and B.

i.

शक्ति प्रशारणका आधारमा चित्र A र B विच कुनै एउटा भिन्नता

लेख्नुहोस् । Write a difference between figure A and B in terms of energy transfer 1 mark

- मंद चित्र B को पारिस्थितिक प्रणालीमा खरायो र मुसाको सड्ख्या अप्रत्यासित रूपमा बढ्यो भने उक्त पारिस्थितिक प्रणालीमा के असर देखिन्छ ? What effect will be seen in the ecosystem if the number of rabbits and rats are suddenly increased in the ecosystem shown in figure B? 1 mark
- iii. चित्र B मा रहेको मुसाको ट्रफिक लेभल व्याख्या गर्नुहोस् । Explain the trophic level of rat in figure B. 2 mark
- 26. (क) दुईओटा समान अवरोध भएका बल्बहरुलाई 6 V को व्याट्रिसँग कुन प्रकारले जडान गर्दा अधिकतम चम्किलो प्रकाश पाउन सकिन्छ ? उक्त जडान देखाउने विद्युत् परिपथको चित्र कोर्नुहोस् । How can be connected the given two bulbs of identical resistance with a battery

of 6V to glow them with maximum brightness? Draw circuit diagram showing that connection.

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(ख) चित्रमा देखाइएको विद्युत् परिपथमा जडान गरिएका दुईओटा अवरोध मध्ये 8 Ω

अवरोध भएको अवरोधकका दुई छेउविचको पोटेन्सियल फरक हिसाव गर्नुहोस् । Find the potential difference across two terminals of 8 Ω resistor connected as shown in the given diagram.

27. एक्स रे र अल्ट्रासाउन्डको प्रयोगले मानव अड्ग चेकजाँच कसरी सहज भएको छ ? एकएक उदाहरणसहित व्याख्या गर्नुहोस् । How the use of X-ray and Ultrasound has made it easier for human organ diagnosis? Explain with an example of each. 28. नेपालको प्राकृतिक स्रोतका सम्बन्धमा दिइएका तथ्याङ्क अध्ययन गरी तलका प्रश्नको उत्तर दिनुहोस् । Study the given data regarding natural resources of Nepal and answer the following questions.

भौगोलिक रूपमा नेपाल लगभग 28° उत्तरी अक्षांशमा अवस्थित छ। यहाँ वर्षमा सरदर 300 दिनभन्दा बढी समय सूर्यको चम्किलो घाम लाग्ने गर्छ। त्यस्तै नेपालको लगभग 44 % भूभाग वनजड्गलले ढाकेको छ। यहाँका लगभग 66 % मानिस कृषि पेसामा आधारित छन्। Geographically, Nepal is located at about 28° Northern latitude. There are about 300 sun shine days in a year. Nepal has almost 44 % of the land occupied by forest. About 66 % of people in Nepal are involved in agriculture.

- (क) नेपालका लागि उपयुक्त हुने कुनै दुई वैकल्पिक ऊर्जाका स्रोतहरू सुभाव दिनुहोस् । Suggest any two alternative sources of energy appropriate for Nepal.
- (ख) तपाईँको सुभगव कार्यान्वयन योग्य छन् भन्ने कुरा कसरी पुष्टि गर्नुहुन्छ ? How can you justify that your suggestions are applicable?

29. दिइएको चित्रको अध्ययन गरी सोधिएका प्रश्नको उत्तर दिनुहोस् ।

- वित्रमा धातुको परमाणु संरचना देखाइएको छ, कसरी ? In the given figure, atomic structurer of a metal is shown, how?
- b. उक्त परमाणुको संयुज्यता 1 हुन्छ, किन ? The valency of that element is 1, why?
- c. उक्त परमाणुले इलेक्ट्रोन लिएर वा दिएर कसरी रासायनिक प्रतिक्रिया गर्छ ? How does the atom take part in chemical reaction; by gaining or losing the electron?



- d. उक्त परमाणुले क्लोरिनसँग रासायनिक प्रतिक्रिया गर्दा बन्ने अणुको नाम लेख्नुहोस् । Write the name of molecule formed by reacting it with chlorine.
- 30. एक किसानले आफ्नो खेतमा लामो समयदेखि धान खेती मात्र गरे र युरिया मल मात्र प्रयोग गरे तर वर्सेनी उत्पादन कम हुँदै गयो। उक्त किसानलाई आफ्नो उत्पादन बढाउन कुनै चार सुफाव दिनुहोस्। A farmer has been cultivating only paddy in his field for a long time and continuously using urea. But the production has been decreasing every year. Give him any four suggestions for better production.