Specification Grid – 2081

First Terminal Examination

Class : 10 Subject : Science and Technology F.M. : 50Time : 2 Hours

S.N.	Unit	Working Hour	Group wise Marks	Unit wise Marks	Cognitive Level			
					K 15 %	U 30 %	A 30 %	HA 25 %
1	Scientific Learning	5	7	7	MCQ 1×1 V Short 1×1 Short 1×2 Long 1×4	MCQ 2×1 V Short 1×1 Short 2×2 Long 2×4	MCQ 1×1 V Short 2×1 Short 4×2 Long 1×4	MCQ 3×1 V Short 1×1 Short 2×2 Long 1×4
2	Classification of Organisms	9	14	9 ± 2				
3	Lifecycle of Honeybee	4		5 ± 2				
7	Force and Motion	10	16	9 ± 2				
8	Pressure	5		7 ± 2				
14	Classification of Elements	9	13	8 ± 2				
15	Chemical Reaction	6		5 ± 2				
Total		48	50	50	8	15	15	12

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

Specification Grid – 2081

Second Terminal Examination

Class : 10 Subject : Science and Technology F.M. : 50Time : 2 Hours

S.N.	Unit	Working Hour	Group wise Marks	Unit wise Marks	Cognitive Level			
					K 15 %	U 30 %	A 30 %	HA 25 %
1	Scientific Learning	5	7	3 + 2	MCQ 1×1	MCQ 2×1	MCQ 1×1	MCQ 3×1
13	Information and Communication Technology	10		4 + 2				
2	Classification of Organisms	9	14	3 + 2				
3	Lifecycle of Honeybee	4		2 + 2				
4	Heredity	16		5 + 2	V Short 1×1	V Short 1×1	V Short 2×1	V Short 1×1
5	Physiological Structure and Life Process	12		4 + 2				
7	Force and Motion	10	16	4 + 2				
8	Pressure	5		3 + 2	Short 1×2	Short 2×2	Short 4×2	Short 2×2
9	Heat Energy	10		4 + 2				
10	Wave	15		5 + 2	Long 1×4	Long 2×4	Long 1×4	Long 1×4
14	Classification of Elements	9	13	3 + 2				
15	Chemical Reactions	6		2 + 2				
16	Some Gases	8		5 + 2				
17	Metals	5		3 + 2				
Total		124	50	50	8	15	15	12

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

Specification Grid – 2081

Third Terminal Examination and Pree SEE Examination

Class : 10 Subject : Science and Technology F.M. : 75Time : 3 Hours

S.N.	Unit	Working Hour	Group wise Marks	Unit wise Marks	Cognitive Level			
					K 15 %	U 30 %	A 30 %	HA 25 %
1	Scientific Learning	5	10	3 ± 2	MCQ 1×1	MCQ 3×1	MCQ 3×1	MCQ 3×1
13	Information and Communication Technology	10		7 ± 2				
2	Classification of Organisms	9	19	3 ± 2				
3	Lifecycle of Honeybee	4		2 ± 2				
4	Heredity	16		6 ± 2				
5	Physiological Structure and Life Process	12		5 ± 2	V Short 1×1	V Short 3×1	V Short 3×1	V Short 2×1
6	Nature and Environment	7		3 ± 2				
7	Force and Motion	10	26	4 ± 2				
8	Pressure	5		3 ± 2				
9	Heat Energy	10		5 ± 2	Short 3×2	Short 4×2	Short 4×2	Short 3×2
10	Wave	15		6 ± 2				
11	Electricity and Magnetism	12		5 ± 2				
12	Universe	5		3 ± 2				
14	Classification of Elements	9	20	4 ± 2	Long 1×4	Long 2×4	Long 2×4	Long 2×4
15	Chemical Reactions	6		2 ± 2				
16	Some Gases	8		5 ± 2				
17	Metals	5		3 ± 2				
18	Hydrocarbon and Its Compound	6		3 ± 2				
10	Chemicals Used in Daily Life	6		3 ± 2				
Total		160	75	75	12	22	22	19

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

Note : Third Terminal Examination and Pree SEE Examination questions will be asked according to CDC model question.

Second Terminal Examination – 2081
Model Question

Class : 10 F.M.: 50

Subject : Science and Technology Time : 2 Hours

Group A (Multiple Choice Questions) 7×1=7

Tick the best answer from given alternatives.

1. How many combinations are there in the ASCII code of 8 bits?
   i. 254 ii. 255 iii. 256 iv. 257
2. Pine have cones and naked seed in them. Which sub-division do they belong to?
   i. angiosperm ii. pteridophyta
   ii. gymnosperm iv. bryophyta
3. Which one is the first aid if a person is unconscious due to heart attack?
   i. angiography ii. heart bypass surgery
   ii. ultrasonography iv. CPR
4. Why does a hydrometer float more in seawater than in freshwater?
   i. seawater has a lesser density than freshwater
   ii. freshwater has a lesser mass
   iii. seawater has more density than freshwater
   iv. the hydrometer floats in water
5. Why does diamond spark a lot?
   i. it is transparent ii. its critical angle is 24 degree
   ii. it is hard iv. it is made of glass
6. Which of the following is the most reactive non-metal?
   i. Chlorine ii. Fluorine
   ii. Iodine iv. Bromine
7. Why does phenolphthalein solution turn pink, when ammonia is passed through it?
   i. Ammonia is base, so it can turn phenolphthalein pink.
   ii. Ammonia is acid, so it can turn phenolphthalein pink.
   iii. Ammonia is pink, so it changes everything into pink.
   iv. Ammonia dissolve in water to produce strong acid.

Group B (Very Short Questions) 5×1=5

Answer the questions in very short.

8. What is the type of variable if its magnitude is constant throughout the experiment?
9. List out any two applications that are used to edit audio.
10. Which type of assisted reproductive technologies can be used for a man who has underdeveloped testicles, weak sperm, sperm count is low or sperms are immotile?
11. A person has a blood pressure of 120/80 mmHg. What does it mean?
12. How much is the specific gravity of gold?

Group C (Short Questions) 9×2=18

Answer the questions in short.

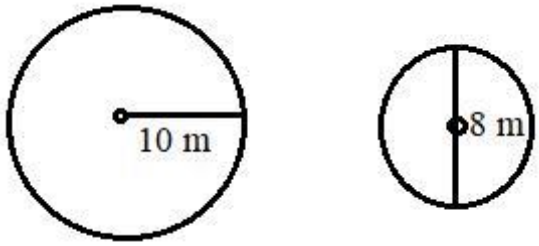
13. Mohan has a cow farm. He increased the food to one group of cow and kept constant for others. The group that ate more food gave more milk than the others. Enlist dependent and independent variables in this experiment along with their reason.

14. Write any two differences between class crustacea and class insecta.
15. Why is spirogyra kept in the division algae? Give any two suitable reasons.
16. Honey bee plays a vital role in pollination, how?
17. The probability of getting hurt is more when jumped from a significant height, why?
18. The mass of the moon is 7.2×10^{22} kg and its radius is 1.7×10^{3} km. Calculate the value of acceleration due to gravity on the surface of the moon.
19. Why does the reactivity of elements increase on moving from top to bottom in group IA of modern periodic table?
20. A reaction between sodium hydroxide and hydrochloric acid is called a neutralization reaction. Show chemical equations along with the reasons.
21. Write any two limitations of the balanced chemical equations.

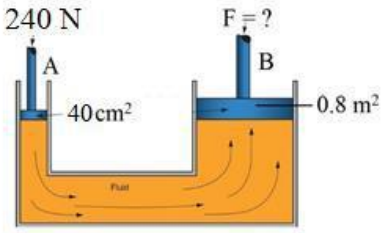
Group D (Long Questions) 5×4=20

Answer the questions in detail.

22. Based on units, check whether the following equations are correct or not?
    i. $V^2 = \underline{u^2} + 2as$ ii. $S^2 = ut + at^2$
23. Make a table and compare gymnosperm and angiosperm based on their habitat, structure, leaf, flower, fruits and seeds.
24. Mass of large object is 50 kg and that of small object is 20 kg are shown in the diagram. The gravitational force between them is 5×10^{-5} N. If they are separated by 14 m between their surface, what force will be exerted between them?



25. Study the given diagram and answer the following questions.
    i. What is the name of this instrument?
    ii. The cross sectional area of piston A and B is $40cm^2$ and $0.8cm^2$ respectively. Then how much load can be balanced on piston B if 240 N force is applied on Piston A?



26. Study the given tables and answer the following questions.

Li	Be
Na	Mg

    i. On what basis, elements are arranged from left to right?
    ii. Which one is more active in between Li and Na and why?
    iii. Write a formula of a compound made from Mg and Cl.

The End

Second Terminal Examination – 2080

Model Question

Class : 10 F.M.: 50

Subject : Science and Technology Time : 2 Hours

Group A (Multiple Choice Questions) 7×1=7

Tick the best answer from given alternatives.

1. How many combinations are there in the ASCII code of 8 bits?
   i. 254 ii. 255 iii. 256 iv. 257
2. Pine have cones and naked seed in them. Which sub-division do they belong to?
   i. angiosperm ii. pteridophyta
   ii. gymnosperm iv. bryophyta
3. Which one is the first aid if a person is unconscious due to heart attack?
   i. angiography ii. heart bypass surgery

ultrasonography iv. CPR

Why does a hydrometer float more in seawater than in freshwater?

seawater has a lesser density than freshwater

freshwater has a lesser mass

seawater has more density than freshwater

the hydrometer floats in water

Why does diamond spark a lot?

   i. it is transparent ii. its critical angle is 24 degree
   ii. it is hard iv. it is made of glass

6. Which of the following is the most reactive non-metal?
   i. Chlorine ii. Fluorine
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8. Why does phenolphthalein solution turn pink, when ammonia is passed through it?
   i. Ammonia is base, so it can turn phenolphthalein pink.
   ii. Ammonia is acid, so it can turn phenolphthalein pink.
   iii. Ammonia is pink, so it changes everything into pink.
   iv. Ammonia dissolve in water to produce strong acid.

Group B (Very Short Questions) 5×1=5

Answer the questions in very short.

13. What is the type of variable if its magnitude is constant throughout the experiment?
14. List out any two applications that are used to edit audio.
15. Which type of assisted reproductive technologies can be used for a man who has underdeveloped testicles, weak sperm, sperm count is low or sperms are immotile?
16. A person has a blood pressure of 120/80 mmHg. What does it mean?

An sw er th qu es io ns in sh

The productivity of some crops increases if nearby farmers keep some bees in those areas. Give reason.

17. Is it possible for objects denser than water to float? Describe the conditions required for the case.
18. Mention any two reasons of saying helium and argon are inert gases.
19. Complete and balance the following equations.

i. $HCL + Na_2CO_3 \rightarrow$ ……+ …….

ii. $NH_4CL + NaOH \rightarrow$ …… + …….

21. Write any two differences between iron and aluminium on the basis of their position in periodic table.

Group D (Long Questions) **5×4=20**

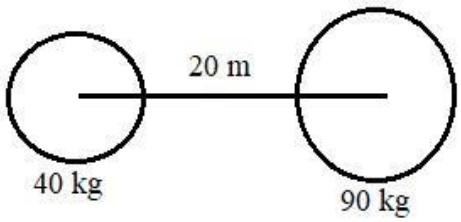
Answer the questions in detail.

22. Study the given table and answer the following questions.

	Male Gamate		
Female Gamate	X	R	R
	R	RR	Rr
	r	Rr	rr

i. Which filial generation does this result belong to?
ii. What is the ratio of the plant having dominant and recessive character?
iii. Which pair of genotype indicates the pure white flowering pea plant?
iv. What is the percentage of hybrid pea plant in this generation?

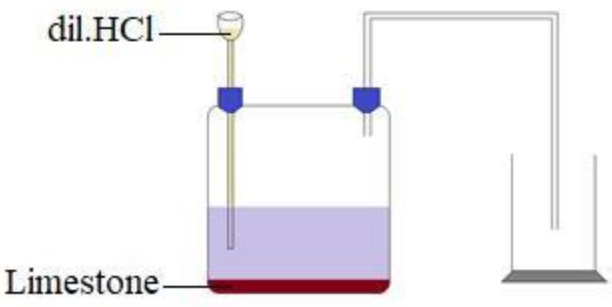
23. In between the object shown in the diagram, 6×10^6 N gravitational force is exerted. If the distance is halved and mass of 40 kg is doubled, what will be gravitational force between them?



24. **Enlist the applications of anomalous expansion of water. The ghee starts to solidify from bottom but water starts to solidify from the top. Explain this mechanism based on temperature, density and volume.**

25. A person can see distant sign board clearly but cannot read clearly on a book which is 25 cm away from his eye. Identify the defect. Draw a labelled ray diagram to show this defect and illustrate with a diagram how this defect can be corrected.
26. **Answer the following questions based on the given diagram.**

i. Which gas is being collected in the Gas jar?
ii. Write down a balanced chemical equation involved in it.
iii. Why is carbon dioxide gas collected in an erect and open gasjar?



The End

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