



# INTSO EDUCATION

## SCIENCE TALENT SEARCH OLYMPIAD (STSO) 2015-16

STAGE - 1

TIME : 60 min.

CLASS : VII

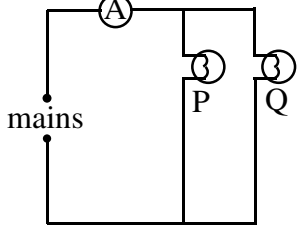
Max. Marks : 50

### Instructions:

- ⇒ Fill the OMR sheet completely and carefully.
- ⇒ Each question carries one mark and has only one correct answer. No negative marks
- ⇒ The question paper contains 50 questions to be answered in 60 minutes.

### PHYSICS

- Ravi is observing his image in a plane mirror. The distance between the mirror and his image is 2m. If he moves 1m towards the mirror, then the distance between Ravi and his image will be  
 1) 4 m                                      2) 2 m                                      3) 1 m                                      4) 6 m                                      [    ]
  - If a marble is beyond curvature C and is allowed to roll on plane surface towards concave mirror having focus 'f'. Describe change in the image of marble as it rolls from beyond the curvature towards the mirror. [    ]  
 1) Image size increases upto C, same as marble at C  
 2) Image size decrease upto C, same as marble at C  
 3) Image size Increases upto C, no image at C  
 4) Image size decrease upto C, no image at C
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- A student performs an experiment in which he puts two mirrors perpendicular to each other as shown in the figure. If angle 'P' is 30°, then [    ]  
 1)  $\angle Q = 60^\circ$ ,  $\angle R = 60^\circ$   
 2)  $\angle Q = 30^\circ$ ,  $\angle R = 45^\circ$   
 3)  $\angle Q = 30^\circ$ ,  $\angle R = 60^\circ$   
 4)  $\angle Q = 60^\circ$ ,  $\angle R = 30^\circ$
- 
- A 1 cm object is placed perpendicular to the principal axis of a convex mirror of focal length 7.5cm. Its distance from the mirror if the image formed is 0.6 cm in size is [    ]  
 1) 10 cm                                      2) 15 cm                                      3) 20 cm                                      4) 5 cm
  - A faulty thermometer reads 5°C in melting ice and 99°C in steam. The correct temperature in °F when this faulty thermometer reads 52°C is [    ]  
 1) 142°F                                      2) 130°F                                      3) 117°F                                      4) 122°F
  - Statement (A) :** Woollen clothes keep the body warm in winter [    ]  
**Statement (B) :** Air is a bad conductor of heat  
 1) Both A and B are true                                      2) Both A and B are false  
 3) A is true, B is false                                      4) A is false , B is true
  - Two large holes are cut in a metal sheet. If this is heated, distances AB and BC [    ]  
 1) AB decreases  
 2) AB increases  
 3) BC decreases  
 4) BC remains same
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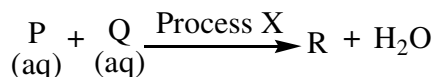
8. The physical quantity that determines the direction of flow of heat energy from one body to another body is [ ]  
 1) mass                                      2) volume                                      3) temperature                                      4) speed
9. The meter reading in Ramu's house in January is 400 units, February 500 units. The unit cost is Rs3.00. How much he has to pay towards electricity bill of February ? [ ]  
 1) 100/-                                      2) 500/-                                      3) 300/-                                      4) 150/-
10. How will the reading in the ammeter A be affected if another identical bulb 'Q' is connected in parallel to P in the given figure. The voltage is maintain at a constant value [ ]  
 1) The reading will be reduced to one half  
 2) The reading will not be affected  
 3) The reading will be double the previous value  
 4) The reading will be increases four times
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11. **Assertion (A) :** Insulators do not allow flow of current through them [ ]  
**Reason (R) :** Insulators have no free charge carriers  
 1) Both A and R are correct and R is correct explanation of A  
 2) Both A and R are correct but R is not correct explanation of A  
 3) A is correct , R is incorrect  
 4) A is incorrect, R is correct
12. **Statement (A) :** Air expands on Heating [ ]  
**Statement (B) :** Uneven heating on the earth causes wind movements.  
 1) Both A and B are true                                      2) Both A and B are false  
 3) A is true, B is false                                      4) A is false , B is true
13. The instrument that measures the wind speed is called [ ]  
 1) speedometer                                      2) hydrometer                                      3) manometer                                      4) anemometer
14. In India more cyclones tend to occur on the [ ]  
 1) Western side                                      2) Northern side                                      3) Eastern side                                      4) Southern side
15. Between two stations a train accelerates from rest uniformly at first, then moves with constant velocity, and finally retards uniformly to come to rest. If the ratio of the time taken is 1 : 8 : 1 and the maximum speed attained be 60 kmph, then what is the average speed over the whole journey ? [ ]  
 1) 48 kmph                                      2) 52 kmph                                      3) 54 kmph                                      4) 56 kmph
16. A particle moves in a straight line with constant speed of 4m/s for 2 seconds, then with 6m/s for 3 seconds. The average speed of the particle in the given time interval is \_\_\_ m/s [ ]  
 1) 5.2                                      2) 6.2                                      3) 5                                      4) 2
17. Two bodies P and Q start from rest and from the same point with a uniform acceleration of  $2\text{m/s}^2$ . If B starts one second latter, then the two bodies are separated, at the end of the next second, by [ ]  
 1) 1m                                      2) 2m                                      3) 3m                                      4) 4m

## CHEMISTRY

18. On a fine day, wind blows with very high speed. Latha's father asked that speed of the wind can be measured by using which apparatus. Can you guess what the answer was given by Latha.  
 1) Thermometer                                      2) Speedometer                                      3) Kelideoscope                                      4) Anemometer [ ]
19. Pick up the odd one out from the following with respect to daily weather report [ ]  
 1) Temperature                                      2) Pressure                                      3) Humidity                                      4) Rainfall



25. Nature of the soil is [ ]  
 1) Neutral                      2) Acidic                      3) Basic                      4) All of these
26. Sanjay's father will treat his soil with which of the following substance for better cropping [ ]  
 1) Composted manure                      2) Vinegar  
 3) Chalk powder                      4) No need to add any substance
27. **P** : I am a substance which can produce  $H_2$  gas by reacting with Zn metal [ ]  
**Q** : I am a substance which can be used for testing of  $CO_2$  gas and I am converting into milky white when  $CO_2$  gas is passed through mine



Which of the following are correctly matched

P	Q	R	Process X.
1) HCl	NaOH	NaCl	Neutralisation
2) $H_2SO_4$	KOH	$K_2SO_4$	Double decomposition
3) $Ca(OH)_2$	HCl	$CaCl_2$	Neutralisation
4) HCl	$Ca(OH)_2$	$CaCl_2$	Neutralisation

28. Which of the following combination of two substances do not produce brisk effervescence of  $CO_2$  gas [ ]  
 1) vinegar + baking soda                      2) lemon juice + washing soda  
 3) water + surf powder                      4) all of these will liberate  $CO_2$  gas
29.  $M_2O + H_2O \rightarrow X$ . common name of the product X is caustic soda. Here, in this reaction symbol of the element 'M' is [ ]  
 1) Na                      2) K                      3) Mg                      4) Ca
30. **Beaker A** : It consists of 1 litre of HCl solution containing 1 mole of HCl  
**Beaker B** : It consists of 1 litre of NaOH solution having 2 moles of HCl  
**Beaker C** : It consists of solution obtained by mixing of the above two solutions containing in beaker A and beaker B  
 Which of the following statement is correct regarding the above solutions [ ]  
 1) solution present in the beaker A turns methyl orange indicator to Red  
 2) Solution present in the beaker B turns phenolphthalein indicator to pink  
 3) Solution present in the beaker C turns turmeric paper to red                      4) All are correct
31. Pick up the odd one out from the following pair of substances [ ]  
 1) Grapes, Tamarind    2) Spinach, Tomato    3) Buttermilk, Curd    4) Apple, Orange
32. Which of the following reactions are responsible for acid rains [ ]  
 a)  $CO_2 + H_2O \rightarrow H_2CO_3$                       b)  $SO_2 + H_2O \rightarrow H_2SO_3$   
 c)  $4NO_2 + O_2 + 2H_2O \rightarrow 4HNO_3$                       d)  $Cl_2O_7 + H_2O \rightarrow 2HClO_4$   
 1) All of these                      2) Only a, b and c                      3) Only b, c, d                      4) c and d only
33.  $A_2 + B_2 \rightarrow 2AB \xrightarrow{H_2O} \text{Substance X}$  [ ]  
 'X' can be used as glass cleaner. Choose the correct set regarding A, B and AB

A	B	AB
1) Element	Element	Compound
2) Compound	Compound	Compound
3) Element	Compound	Compound
4) Compound	Element	Element



