Duration : 60 min. **Maximum Marks : 180**
Class : 10th **Subject : SCIENCE**

International Talent Search Examination - 2023-24

अंतर्राष्ट्रीय प्रतिभा खोज परीक्षा - २०२३-२४

Organized by

Savitri Skill Development Institute, Training Partner with
Ministry of Micro Small & Medium Enterprises (MSME), Govt. of India.

TEST BOOKLET

Name : .....

Class : ..... School: .....

Father's Name : ..... Father's Occupation : .....

Mother's Name : ..... Mother's Occupation : .....

Categories : Gen ☐ OBC ☐ SC ☐ ST ☐

Correspondence Address :.....

Date of Birth : ☐☐ ☐☐ ☐☐☐☐

Father's Contact No : ☐☐☐☐☐☐☐☐☐☐

Home/Mother's Contact No. : ☐☐☐☐☐☐☐☐☐☐

WhatsApp No. : ☐☐☐☐☐☐☐☐☐☐

Basic Instructions:

i. Ensure that your personal data has been entered correctly.
ii. Immediately after opening the test booklet verify that all the pages are printed properly and are in order. If there is a problem with your test booklet, immediately inform the invigilator. You will provided with the replacement.
iii. All questions in are compulsory.
iv. For every correct answer you will be awarded with 4 marks and for all incorrect answer 1 mark will be deducted.
v. Directions for answering the questions are given. Read those directions carefully and answer the question by circling the bubble in the OMR Sheet Provided to you. Test booklet/OMR Sheet will be submitted at the end of the examination.
vi. Follow the instructions given by the invigilator. Students found violating the instructions will be disqualified.
vii. Rough work can be done separately or on the Question paper.
viii. Please fill the bubbles in OMR sheet with Blue or Black pen only.
ix. Do not tear the question paper or OMR sheet else you will be disqualified in the examination.

CLASS-10 (SCIENCE)

1. Consider the figure shown. The reflected ray is perpendicular to the incident ray. Angle of incidence for the ray is

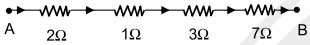
(A) 30° (B) 45° (C) 60° (D) 75°

2. A lens has a power of +0.5 D. It is
(A) a convex lens of focal length 5 m. (B) a convex lens of focal length 5 cm.
(C) a convex lens of focal length 2 m. (D) a concave lens of focal length 5 m.

3. If refractive index of water is 4/3 and that of glass is 3/2. What will be the refractive index of glass w.r.t water?
(A) 7/6 (B) 8/9 (C) 9/8 (D) None

4. A concave mirror of focal length 20 cm produces an image twice the height of the object. If the image is real, then the distance of the object from the mirror is
(A) 20 cm (B) 60 cm (C) 10 cm (D) 30 cm

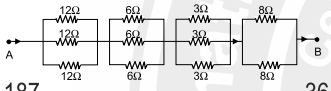
5. Find the equivalent resistance between A and B.



(A) 13 Ω (B) 8.5 Ω (C) $\frac{30}{13}\Omega$ (D) 11 Ω

6. Two lenses of power –15 D and +5 D are in contact with each other. The focal length of the combination is
(A) –20 cm (B) –10 cm (C) +20 cm (D) +10 cm

7. Find equivalent resistance between A and B.

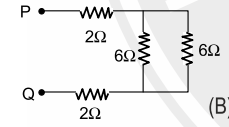


(A) $\frac{187}{12}\Omega$ (B) $\frac{36}{5}\Omega$ (C) 79 Ω (D) 11 Ω

8. The wavelengths corresponding to violet, yellow, red and blue are l_v, l_y, l_r and l_b respectively. Then :

(A) $\lambda_v > \lambda_y > \lambda_b > \lambda_r$ (B) $\lambda_y < \lambda_v < \lambda_r < \lambda_b$ (C) $\lambda_v < \lambda_b < \lambda_y < \lambda_r$ (D) $\lambda_y < \lambda_r < \lambda_v < \lambda_b$

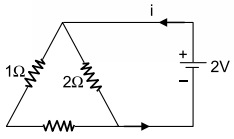
9. Find the effective resistance between the points P and Q in the following circuit.



(A) 16 Ω (B) 4 Ω (C) 2 Ω (D) 7 Ω

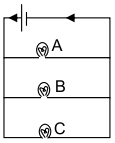
10. Conventionally, the direction of the current is taken as
(A) the direction of flow of negative charge (B) the direction of flow of atoms
(C) the direction of flow of molecules (D) the direction of movement of positive charge

11. Find the current 'i' in the circuit.



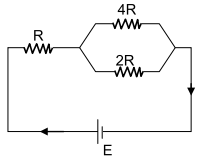
(A) 0.5 A (B) 2 A (C) 1.5 A (D) 1 A

12. For the given circuit diagram if the bulb 'B' is fused, then
(A) only bulb A will glow
(B) both bulbs A and C will glow
(C) only bulb C will glow
(D) none of the bulbs will glow



13. A ray of light passes through a plane rectangular glass slab of thickness t and refractive index m. The angle between incident and emergent ray is:
(A) 0^0 (B) 30^0 (C) 45^0 (D) 90^0

14. In the network shown in figure, find the potential difference across the resistance 2R.



(A) 2E (B) $\frac{4E}{7}$ (C) $\frac{E}{7}$ (D) E

15. A convex lens of focal length f_1 = 30 cm is placed in contact with a concave lens of focal length f_2 = 40 cm. The combination acts as a
(A) concave lens (B) convex lens (C) Glass slab (D) none of these

16. Which gas(es) is/are formed if Pb(NO3)2 is heated?
(A) NO_2 and NO (B) NO_2 and O_2 (C) N_2 and O_2 (D) NO and N_2

17. The reaction $Pb(OH)_2 + HNO_3 \rightarrow Pb(OH)NO_3 + H_2O$ shows that $Pb(OH)NO_3$ is
(A) an acidic salt (B) a basic salt (C) amphoteric (D) an acid

18. $H_2 + Cl_2 \rightarrow 2$ HCL is a redox reaction. In this reaction
(A) only oxidation takes place (B) only reduction takes place
(C) both oxidation and reduction takes place (D) neither oxidation nor reduction takes place

19. Which of the following is a neutralization reaction?
(A) $ZnCO_3 \longrightarrow ZnO + CO_2$ (B) $HNO_3 + NaOH \longrightarrow NaNO_3 + H_2O$
(C) $Ca + H_2SO_4 \longrightarrow CaSO_4 + H_2$ (D) $HCl(g) + H_2O \longrightarrow H^+(aq) + Cl^-(aq)$

20. When iron fillings are heated in a stream of dry hydrogen chloride the compound formed is $FeCl_x$, where x is
(A) 1 (B) 2 (C) 3 (D) 4

21. Which component of air is not responsible for rusting of iron?
(A) O_2 (B) H_2O vapour (C) N_2 (D) None of these

22. Which non-metal is used for bleaching and disinfecting water?
(A) N_2 (B) Cl_2 (C) C (D) S

23. Articles made of silver acquire a black coating when exposed in air for a few days due to the formation of _____.
(A) silver sulphide (B) silver oxide (C) silver carbonate (D) silver hydroxide

24. Plaster of Paris is obtained
(A) by adding water to calcium sulphate (B) by adding sulphuric acid to calcium hydroxide
(C) by heating gypsum to a very high temperature (D) by heating gypsum to 393 K

25. Which of the following produce a salt when mixed with NaOH solution?
(A) $Ca(OH)_2$ (B) HCl (C) Li_2O (D) $Ba(OH)_2$

26. Which of the following gases on dissolution in water make the solution acidic?
(I) CO (II) CO_2 (III) SO_3 (IV) PH_3
(A) I, II (B) II, III (C) III, IV (D) III, IV

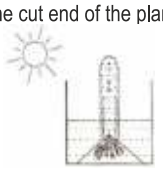
27. From the reaction below:
(I) $Cl_2 + 2KBr \rightarrow 2KCl + Br_2$ (ii) $Cl_2 + KI \rightarrow 2KCl + I_2$ (iii) $I_2 + 2KBr \rightarrow$ Noreaction
It follows that the reactivities of the halogens decreases in the order
(A) $Cl_2 > Br_2 > I_2$ (B) $Br_2 > I_2 > Cl_2$ (C) $I_2 > Cl_2 > Br_2$ (D) $Cl_2 > I_2 > Br_2$

28. A colourless gas produced by the reaction of Sodium hydroxide and Ammonium chloride gives dense white fumes with HCl and produces a compound which shows the phenomena of sublimation. The colourless gas is
(A) NO (B) NH_4Cl (C) NH_3 (D) None of these

29. Which among the following statement(s) is / (are) true? Exposure of silver chloride to sunlight for a long duration turns grey due to
(i) the formation of silver by decomposition of silver chloride (ii) sublimation of silver chloride
(iii) formation of chlorine gas (iv) oxidation of silver chloride
(A) (i) only (B) (ii) and (iii) (C) (i) and (iv) (D) (iv) only

30. Plaster of Paris ($CaSO_4 . \frac{1}{2} H_2O$) on mixing with water sets to form
(A) CaSO4.H2O (B) $CaSO_4 . 1\frac{1}{2} H_2O$ (C) $CaSO_4.2H_2O$ (D) $CaSO_4 . 2\frac{1}{2} H_2O$

31. Photosynthesis in an aquatic plant was measured by counting the number of O_2 bubbles coming out of the cut end of the plant. What will happen to O_2 production if you use a pipe blow air from your mouth into water in the beaker?



(A) Air from mouth contains O_2 which is being added to the plant. Hence increase in O_2 production
(B) Air from mouth contains CO_2 which is utilized in photosynthesis. Hence increase in O_2 production
(C) Bacteria from mouth will infect plant. Hence reduction in O2 production
(D) Water is already in contact with air. Hence air from mouth will have no effect.

32. The phenomenon of normal breathing in a human being comprises
(A) an active inspiratory and a passive expiratory phase
(B) a passive inspiratory and an active expiratory phase
(C) both active inspiratory and expiratory phases
(D) both passive inspiratory and expiratory phases

33. A farmer made an observation in a backwater paddy field of coastal Kerala that the paddy plants wilt during noon onwards everyday but appear normal next morning. What would be the possible reasons for wilting?
(A) The rate of water absorption is less than the rate of transpiration in the afternoon.
(B) The rate of water absorption is more than the rate of transpiration in the after noon.
(C) The changes in the rate of water absorption and transpiration are not associated with wilting.
(D) The rate of water absorption is not related to the rate of transpiration.

34. What would happen to the person if cerebellum of his brain is damaged?
(A) He will lose his memory power
(B) He will not be able to swallow food properly
(C) He will be unable to coordinate and stand properly
(D) He will lose his powers of vision and hearing

35. Sequence of events which occur in a reflex action are
(A) Receptor - motor neuron - CNS - sensory neuron - effector muscle
(B) Effector muscle - CNS - sensory nerve - sensory organ
(C) CNS - sensory neuron - motor neuron - effector muscle
(D) Receptor organ - sensory neuron - CNS - motor neuron - effector muscle

36. When touched, the leaflets of Touch-me-not plant are closed. Closing of leaflets, starts from the point of contact to the leaflets away. The leaflets are closed due to
(A) Change in turgor pressure (B) Specialized proteins (C) Growth hormone retardation (D) Capillary action

37. Pancreas is composed of
(A) Only exocrine cells.
(B) Only endocrine cells.
(C) Both endocrine and exocrine cells.
(D) Nephrons

38. Hormones produced in one part of the organism reach the distantly located target via
(A) Muscles (B) Bone (C) Cartilage (D) Blood

39. In flowers, which one of the following conditions will increase chances of self – pollination?
(A) Pistil is longer than stamens in a flower.
(B) Stamens are just above the stigma of a pistil in a flower.
(C) In all flowers of the plant only pistil is present.
(D) In all flowers of the plant only stamens are present.

40. Which one of the following is correct route for passage of sperms?
(A) Testes — scrotum — vas deferens — urethra — penis
(B) Scrotum — testes — urethra — vas deferens — penis
(C) Testes — vas deferens — urethra — seminal vesicles
(D) Testes — vas deferens — urethra — penis

41. In human female, immature eggs are for the first time seen in ovary
(A) At puberty (B) Before birth, at the foetus stage (C) During the first menstrual cycle (D) After the first year of birth

42. The human embryo gets nutrition from the mother blood with the help of a special organ called ___
(A) Zygote (B) Ovary (C) Oviduct (D) Placenta

43. Which one of the following statements is NOT true about evolution?
(A) Evolution leads to generation of diverse forms of life.
(B) Time dating and fossil studies help in understanding of evolution.
(C) Evolution is not always progressive series of changes that occur in organism.
(D) Human beings have not evolved from chimpanzees.

44. A pea plant with round green (RRyy) pea seed is crossed another pea plant with wrinkled yellow (rrYY) seeds. What would be the nature of seed in the first generation (F1 generation)?
(A) Round green (B) Wrinkled green (C) Wrinkled yellow (D) Round yellow

45. A group of laboratory mice having tails are bred together and their progeny studied. The progeny had tails. However, scientist surgically removed the tails of the progeny and again bred them for four successive generations. What do you think would be the nature of the new progeny?
(A) All mice born will have tails
(B) All mice born will have no tails
(C) The ratio of tail less to tailed mice will be 1 : 3
(D) The ratio of tail less to tailed mice will be 1 : 4