CAREER POINT
STAR ★
Scholastic **T**est for **A**nalysis and **R**eward

CLASS - 10th

(Class 10th Studying Students)

Duration: 2:00 hours   **Maximum marks: 300**

Instructions to Candidates

1. CP Star Test paper consists of total 75 questions and has been divided in three sections as follows:

   a. Science   25 Questions   Que. No. 01 to 25

   b   Maths   25 Questions   Que. No. 26 to 50

   c. Mental Ability   25 Questions   Que. No. 51 to 75

2. All questions are compulsory.

3. All the answers will be encircled in OMR sheet which is being provided along with this paper.

4. For every correct answer marked by you, **4** marks will be allotted.

5. For every incorrect answer marked by you, **1** marks will be deducted.

5. Use of calculator is not permitted in any case.

7. Any kind of malpractice will expel you from exam immediately.

8. For any confusion please talk to the invigilator in the examination hall.

9. For any kind of suggestions or complaints send Email at **info@cpil.in**

⊂P CAREER POINT

SECTION-a [SCIENCE]

Q.1 The image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should be the position of the object?

(1) Between the principal focus and the centre of curvature

(2) At the centre of curvature

(3) Beyond the centre of curvature

(4) Between the pole of the mirror and its principal focus.

Q.2 The human eye can focus objects at different distances by adjusting the focal length of the eye lens. Thus is due to

(1) Presbyopia.   (2) accommodation.

(3) near-sightedness   (4) far-sightedness

Q.3 A piece of wire of resistance R is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is R', then the ratio R/R' is

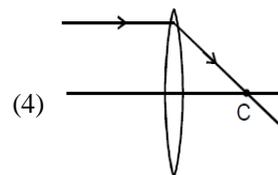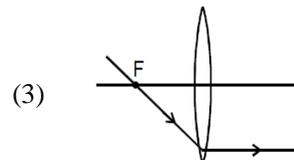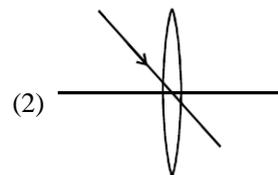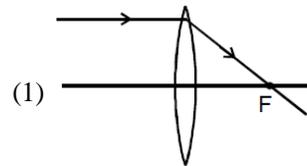(1) $\dfrac{1}{25}$ (2) $\dfrac{1}{5}$

(3) 5   (4) 25

Q.4 An object 0.5 m tall is in front of a plane mirror at a distance of 0.2 m. The size of the image formed is:

(1) 0.2 m   (2) 0.5 m

(3) 0.1 m   (4) 1 m

Q.5 Astigmatism (for a human eye) can be removed by using:

(1) Concave lens   (2) Convex lens

(3) Cylindrical lens   (4) Prismatic lens

Q.6 Identify the wrong figure:

(1)

(2)

(3)

(4)

Q.7 According to Ohm's law the graph of potential difference and current is ....

(1) Straight line passing through origin

(2) Curved

(3) Line having an intercept on X-axis

(4) Circular

Space for rough work

Q.8 Three resistances of magnitude 2, 3 & 5 ohm are connected in parallel to a battery of 10 volts and of negligible resistance. The potential difference across 3Ω resistance will be:

(1) 2 volts   (2) 3 volts

(3) 5 volts   (4) 10 volts

Q.9 Metal carbonates and hydrogen carbonates react with acids to give

(1) Carbon dioxide.   (2) Hydrogen.

(3) Sulphur dioxide.   (4) Carbon monoxide.

Q.10 The chemical formula of bleaching powder is

(1) $Ca(OH)_2$.   (2) $Ca(OCl)_2$.

(3) $CaCl_2$.   (4) $CaOCl_2$.

Q.11 The mixture consisting of hydrochloric acid and nitric acid in the ratio 3:1 (by parts) is known as

(1) aqua fortis.   (2) anti-freeze.

(3) aqua regia.   (4) foal's gold.

Q.12 On electrolysis of brine solution, the gas liberated at cathode, is

(1) oxygen.   (2) hydrogen.

(3) chlorine.   (4) nitrogen.

Q.13 The antioxidant which is used to prevent rancidity in foods is

(1) butylated hydroxyl anisole.

(2) sodium hydroxide.

(3) sodium carbonate.

(4) methylated hydroxyl anisole.

Q.14 In the reaction of formation of hydrochloric acid from hydrogen sulphide

(1) Cl_2 is oxidised.

(2) H_2S is reduced.

(3) Cl_2 is an oxidising agent.

(4) H_2S is an oxidising agent.

Q.15 The metal which burns in air with a dazzling white flame is

(1) Sodium.   (2) Iron.

(3) Copper .   (4) Magnesium.

Q.16 Zinc oxide reacts with sodium hydroxide to form sodium zincate and water. The sodium zincate formed is

(1) Na_2ZnO_2.   (2) $NaZnO_2$.

(3) Na_2ZnO_3.   (4) $NaZnO_3$.

Q.17 Emulsification is the digestion of

(1) proteins.

(2) fats.

(3) carbohydrates.

(4) vitamins and minerals.

Q.18 Breakdown of pyruvate using oxygen takes place in

(1) golgi bodies.   (2) chloroplast.

(3) mitochondria.   (4) nucleus

Q.19 In the event of kidney failure, the process used to remove nitrogenous wastes is

(1) dialysis.   (2) osmosis.

(3) diffusion.   (4) plasmolysis.

Space for rough work

Q.20 The tissue fluid, which is also involved in transportation is
(1) lymph.   (2) vitamins.
(3) hormones.   (4) enzymes.

Q.21 The process of digestion begins with
(1) amylase.   (2) pepsin.
(3) trypsin.   (4) lactase.

Q.22 The difference between the arteries and veins is
(1) arteries have thick and elastic walls but veins do not have thick walls.
(2) veins have thick and elastic walls but arteries do not have thick walls.
(3) arteries have valves and veins do not have valves.
(4) veins divide to form capillaries and arteries do not.

Q.23 An injury to hypothalamus would effect the patient's ability to regulate
(1) body temperature.
(2) body movement.
(3) reflex action.
(4) anger.

Q.24 Table salt is iodised to prevent
(1) acromegaly.
(2) rickets.
(3) goitre.
(4) high blood pressure.

Q.25 The pea plant develops tendrils which help it to climb up a support. Which of the following statements is not true regarding the movement of tendrils in pea plant
(1) As the tendrils come in contact with a support, the part of tendril away from the support grows faster than the part in contact with the support.
(2) More auxin is diffused from its site of synthesis towards the side of tendril in contact with the support than the side away from the support.
(3) The side of the tendril having more auxin grows faster then the side having less auxin.
(4) The tendrils exhibit directional movement due to growth in response to touch,

SECTION-b [MATHS]

Q.26 If $a \cot\theta + b \csc\theta = p$ and $b \cot\theta + a \csc\theta = q$ then $p^2 - q^2$ is equal to :
(1) $a^2 - b^2$ (2) $b^2 - a^2$
(3) $a^2 + b^2$ (4) $b - a$

Q.27 In the figure given below, if DE ∥ BC, then x equals to :
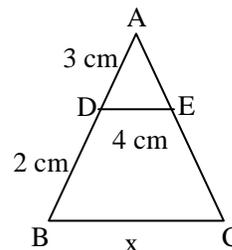
(1) $\dfrac{8}{3}$ cm   (2) $\dfrac{16}{3}$ cm   (3) $\dfrac{10}{3}$ cm   (4) $\dfrac{20}{3}$ cm

Space for rough work

Q.28 If $\tan A = \dfrac{5}{12}$,

find the value of $(\sin A + \cos A) \times \sec A$:

(1) $\dfrac{6}{13}$ (2) $\dfrac{7}{12}$ (3) $\dfrac{17}{12}$ (4) $\dfrac{12}{17}$

Q.29 If least prime factor of a is 3 and least prime factor of b is 7, the least prime factor of $(a + b)$ is:

(1) 2   (2) 3   (3) 5   (4) 11

Q.30 If n is a natural number, then $9^{2n} - 4^{2n}$ is always divisible by –

(1) 5   (2) 13

(3) Both 5 & 13   (4) None of these

Q.31 What is the largest number that divides 245 and 1029, leaving remainder 5 in each case?

(1) 15   (2) 16   (3) 9   (4) 5

Q.32 If α, β be the zeros of the polynomial $x^2 - 8x + k$ such that $\alpha^2 + \beta^2 = 40$, then k = ?

(1) 6   (2) 9   (3) 12   (4) –12

Q.33 Four watches are ringing alarm bells in the interval of 6, 12, 15 and 18 seconds. If they start at same time, how many times they will ring together in 4 hrs.

(1) 79 times   (2) 81 times

(3) 20 times   (4) 21 times

Q.34 $\dfrac{2}{3}(\cos^4 30° - \sin^4 45°) - 3(\sin^2 60° - \sec^2 45°)$

$+ \dfrac{1}{4}\cot^2 30° = ?$

(1) $\dfrac{53}{12}$ (2) $\dfrac{73}{24}$ (3) $\dfrac{113}{24}$ (4) $\dfrac{83}{12}$

Q.35 If α, β and γ are zeroes of the polynomial $f(x) = x^3 - px^2 + qx - r$, then $\dfrac{1}{\alpha\beta} + \dfrac{1}{\beta\gamma} + \dfrac{1}{\gamma\alpha}$ is equal :

(1) $-\dfrac{r}{p}$ (2) $\dfrac{r}{p}$ (3) $-\dfrac{p}{r}$ (4) $\dfrac{p}{r}$

Q.36 If α and β are the zeros of $p(x) = x^2 - 5x + 6$, then value of $\alpha + \beta - 3\alpha\beta$ is :

(1) – 23   (2) – 13   (3) 13   (4) 23

Q.37 How many prime factors are there in the prime factorization of 5005?

(1) 2   (2) 4   (3) 6   (4) 7

Q.38 If $\sec x + \tan x = p$, then $\sec x$ is equal to :–

(1) $\dfrac{p^2 - 1}{p}$ (2) $\dfrac{p^2 - 1}{2p}$ (3) $\dfrac{p^2 + 1}{p}$ (4) $\dfrac{p^2 + 1}{2p}$

Q.39 The area of a rectangle gets reduced by 9 square units if its length is reduced by 5 units and breadth is increased by 3 units. If we increase the length by 3 units and breadth by 2 units, the area increases by 67 square units. Find the dimensions of the rectangle.

(1) 17, 9   (2) 16, 10   (3) 15, 11   (4) None

Q.40 A person invested some amount at the rate of 12% simple interest and some other amount at the rate of 10% simple interest. He received an yearly interest of Rs. 13000. But if he had interchanged the invested amounts, he would have received Rs. 400 more as interest. How much amount did he invest at different rates?

(1) 90000, 140000   (2) 110000, 130000

(3) 130000, 90000   (4) None of these

Space for rough work

Q.41 In a ΔABC, D and E are points on sides AB and AC respectively such that BCED is a trapezium. If $\dfrac{DE}{BC} = \dfrac{3}{5}$, then $\dfrac{\text{Area }(\Delta ADE)}{\text{Area (Trap.BCED)}}$ is equal to :

(1) $\dfrac{3}{4}$ (2) $\dfrac{9}{16}$ (3) $\dfrac{3}{5}$ (4) $\dfrac{9}{25}$

Q.42 If m^{th} term of an A.P. is $\dfrac{1}{n}$ and n^{th} term is $\dfrac{1}{m}$, then the sum of first mn term is :

(1) $mn + 1$ (2) $\dfrac{mn+1}{2}$

(3) $\dfrac{mn-1}{2}$ (4) $\dfrac{mn-1}{3}$

Q.43 If $y = x + \sqrt{x^2+1}$ then $y - \dfrac{1}{y}$ is equal to :

(1) 2   (2) $2x$

(3) $2\sqrt{x^2+1}$ (4) x

Q.44 Sum of n terms of the series $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + ...$ is :

(1) $\dfrac{n(n+1)}{2}$ (2) $2n(n + 1)$

(3) $\dfrac{n(n+1)}{\sqrt{2}}$ (4) 1

Q.45 The sum of a two digit number and the number formed by interchanging its digits is 110.If 10 is subtracted from the original number, the new number is 4 more than 5 times the sum of the digits in the original number. Find the number.

(1) 46   (2) 64   (3) 55   (4) 65

Q.46 If $\sqrt{13 - x\sqrt{10}} = \sqrt{8} + \sqrt{5}$, then the value of x is :

(1) –5   (2) –6   (3) –4   (4) –2

Q.47 A swimming pool is filled with pipes with uniform flow. The first two pipes operating simultaneously, fill the pool in the same time during which the pool is filled by the third pipe alone the second pipe fills the pool five hours faster than the first pipes and four hours slower than the third pipe. The time required by each pipes to fill the pool individually is :

(1) 15h, 10h, 6h   (2) 12h, 8h, 6h
(3) 15h, 10h, 10h   (4) 12h, 10h, 8h

Q.48 If the centroid of the triangle formed by the points (a, b), (b, c) and (c, a) is at the origin, then $a^3 + b^3 + c^3$ is equal to :

(1) abc   (2) 0
(3) a + b + c   (4) 3abc

Q.49 The points of trisection of line joining the points A(2, 1) and B(5, 3) are :

(1) $\left(3, \dfrac{5}{3}\right), \left(4, \dfrac{7}{3}\right)$ (2) $\left(3, \dfrac{3}{5}\right), \left(4, \dfrac{3}{7}\right)$

(3) $\left(-3, \dfrac{5}{3}\right), \left(4, -\dfrac{7}{3}\right)$ (4) $\left(3, -\dfrac{5}{3}\right), \left(4, \dfrac{3}{7}\right)$

Q.50 If the centroid of a triangle is (1, 4) and two of its vertices are (4, –3) and (–9, 7), then the area of the triangle is :

(1) 183 sq. units   (2) $\dfrac{183}{2}$ sq. units

(3) 366 sq. units   (4) $\dfrac{183}{4}$ sq. units

Space for rough work

Q.51 Find the missing term.

77, 49, 36, 18, ?

(1) 8   (2) 9   (3) 4   (4) 12

Q.52 Find the wrong term.

126, 62, 30, 15, 6, 2

(1) 15   (2) 30   (3) 6   (4) 62

Q.53 What comes in place of question mark(s) in the following letter series?

DC, DE, FE, ?, HG, HI

(1) FE   (2) FG   (3) GF   (4) GH

Q.54 Which sequence of letters when placed at the blanks one after the other will complete the given letter series ?

b__ b __ bb __ __ bbb __ bb __ b

(1) bbbbba   (2) bbaaab

(3) ababab   (4) aabaab

Directions: (Q.55 to Q.56) Find the missing terms.

Q.55

	3				7				1	
6	25	2		11	70	8		4	–12	5
	4				6				?	

(1) 10   (2) 6   (3) 2   (4) 1

Q.56

6	18	15
3	2	5
4	3	?
8	27	9

(1) 11   (2) 6   (3) 3   (4) 2

Q.57 Use the following information :

$X \cup Y$ means divide X by Y

$X \uparrow Y$ means multiply X by Y

X # Y means subtract Y from X

$X \cap Y$ means add Y to X

One-fifth of one-tenth of two-third of a number X is given by :

(1) $X \uparrow (1 \cup 5)(1 \cup 10)(2 \cup 3)$

(2) $X(1 \uparrow 5)(1 \uparrow 10)(2 \cap 3)$

(3) $X(1 \uparrow 5)(1 \uparrow 10)(2 \uparrow 3)$

(4) can't be determined

Q.58 If every alternate letter, starting with A, is removed from the alphabet, which letter among the remaining letters would be the third to the right of the fifth letter from the right?

(1) X   (2) V   (3) L   (4) J

Directions : (Q.59 to Q.60) In the following questions, two columns I and II have been given. In column I few words are given and in column II their codes have been given using a particular rule. The order of the smaller letter have been placed in jumbled up form. You have to decode the language and choose the alternative which is equal to letter asked in the question.

| Column I	Column II
1. DESIGN	(A) uklbjz
2. INFORM	(B) cbxkqy
3. MOTHER	(C) ygzwxc
4. RIGHTS	(D) bjucgw
5. TAILOR	(E) wcpybv
6. GARDEN	(F) vzcjlk

Space for rough work

Q.59 What is the code for letter N ?
(1) u   (2) k   (3) c   (4) g

Q.60 What is the code for letter S ?
(1) z   (2) w   (3) u   (4) x

Q.61 I start from my home and walk two kilometers straight. Then I turn towards my right and walk one kilometer. I turn again towards my right and walk one kilometer again. If I am North-West from my house then in which direction did I started walking in the beginning ?
(1) North   (2) South
(3) East   (4) West

Q.62 One evening before sunset, Suresh was standing facing pole. The shadow of the pole fell exactly to his right. In which direction was he facing ?
(1) North   (2) East
(3) North-East   (4) South-West

Directions (Q.63 to Q.64) : These questions are based on the following information:
α, β, γ, δ, ∈, φ, ψ, η are sitting on a merry-go-round facing at the centre. δ is second to the left on η who is third to the left of α. β is fourth to the right of γ who is immediate neighbour of η . ψ is not a neighbour of β or γ . φ is not a neighbour of β.

Q.63 In which of the following pairs is the first person sitting to the immediate right of the second person ?
(1) δ, ψ   (2) β, ∈
(3) η , β   (4) ψ , η

Q.64 What is φ's position with respect to Ψ ?
(1) Third towards right
(2) Third towards left
(3) Second towards right
(4) Second towards left

Q.65 S × T means that S is the father of T, S + T means that S is the mother of T, S –T means that S is the sister of T. On the basis of this information, you have to select the option which shows that A is the grandfather of T.
(1) A × S × B – T   (2) A × B + C – T
(3) A + C – T   (4) A + B – C × T

Q.66 A and B are brother. C and D are sisters. A's son is D's brother. How is B related to C ?
(1) Brother   (2) Father
(3) Uncle   (4) Son

Q.67 Which of the following diagrams correctly represents the relationship among Drinkers, Beer Drinkers, Liver disorder patients.

(1)   (2)

(3)   (4)
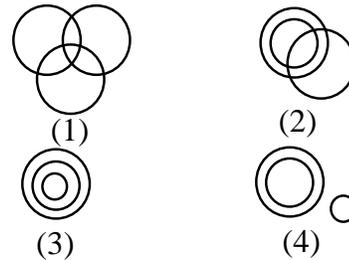
Q.68 Choose the word which is least like the other words in the group
(1) Cathedral   (2) Mosque
(3) Church   (4) Monastery

Space for rough work

Q.69 Choose the numeral pair/group which is different from others.

(1) 70 – 80   (2) 54 – 62

(3) 28 – 32   (4) 21 – 24

Q.70 On what day of the week India will celebrate its Republic Day on 26th January, 2015 ?

(1) Sunday   (2) Monday

(3) Tuesday   (4) Wednesday

Q.71 If 14 th july of 1995 was Friday, then what was the day on 30th March of 1994 ?

(1) Sunday   (2) Monday

(3) Tuesday   (4) Wednesday

Q.72 At what time between 5:30 and 6 will the hands of a clock be at right angle ?

(1) $43\frac{5}{11}$ minutes past 5

(2) $43\frac{7}{11}$ minutes past 5

(3) 40 minutes past 5

(4) 45 minutes past 5

Q.73 A watch, which gains uniformly, is 2 minutes slow at noon on Monday, and is 4 minutes, 48 seconds fast at 2 P.M. on the following Monday. What time It was correct ?

(1) 2 p.m. on Tuesday

(2) 2 p.m. on Wednesday

(3) 3 p.m. on Thursday

(4) 1 p.m. on Friday

Q.74 The following question are based on a solid cube with each side measuring 4 cm. The cube has been shaded as shown on pairs of opposite faces. It is then cut into smaller cubes with each side measuring 1 cm. Answer the question that follow.

Black
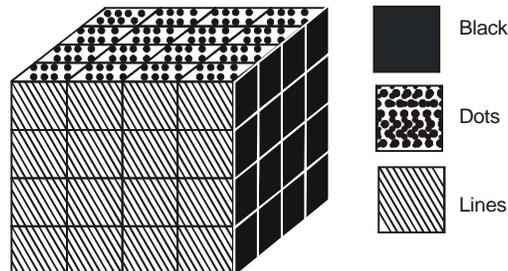
Dots

Lines

How many cubes will have one face shaded with lines and another shaded with dots (all other faces are unshaded) ?

(1) 16   (2) 12

(3) 8   (4) 4

Q.75 Which of the following dices is identical to the unfolded figure as shown here ?
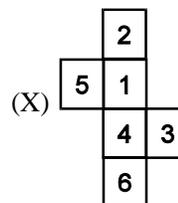
(1)   (2)   (3)   (4)

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