

Discover the Star within you and Get Rewarded

Sample Paper

# CAREER POINT STAR

Scholastic Test for Analysis and Reward

## CLASS - 12<sup>th</sup>

(Class 12<sup>th</sup> Studying Students)

Duration: 1:00 hours

Maximum Marks (PCM): 120

Maximum Marks (PCB): 160

### Instructions to Candidates

1. CP Star Test paper consists of total 40 questions and has been divided in three sections as follows:

|                |              |                   |
|----------------|--------------|-------------------|
| a. Physics     | 10 Questions | Que. No. 01 to 10 |
| b. Chemistry   | 10 Questions | Que. No. 11 to 20 |
| c. Mathematics | 10 Questions | Que. No. 21 to 30 |
| d. Biology     | 20 Questions | Que. No. 31 to 40 |

**Note:** PCM student will attempt section a, b, c and PCB student will attempt section a, b, d.

- All questions are compulsory.
- All the answers will be encircled in OMR sheet which is being provided along with this paper.
- For every correct answer marked by you, **4** marks will be allotted.
- For every incorrect answer marked by you, **0** marks will be deducted.
- Use of calculator is not permitted in any case.
- Any kind of malpractice will expel you from exam immediately.
- For any confusion please talk to the invigilator in the examination hall.
- For any kind of suggestions or complaints send Email at [cpinfo@cpuniverse.in](mailto:cpinfo@cpuniverse.in)



# CAREER POINT

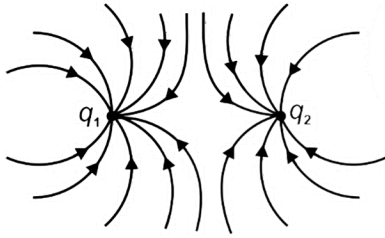
CP Tower, Road No.1, IPIA, Kota (Raj)-5 | Tel: 080-40246443

[www.careerpoint.ac.in](http://www.careerpoint.ac.in) | [careerpoint.ac.in/lp/cp-star/](http://careerpoint.ac.in/lp/cp-star/) | [cpinfo@cpuniverse.in](mailto:cpinfo@cpuniverse.in)

DO NOT OPEN THE PAPER WITHOUT BEING INSTRUCTED TO DO SO BY THE INVIGILATOR  
निरीक्षक के अनुदेशों के बिना पेपर न खोलें

## SECTION-a [PHYSICS]

- Q.1** Identify the correct statement about the charges  $q_1$  and  $q_2$ .



- (1)  $q_1$  and  $q_2$  both are positive
- (2)  $q_1$  is positive but  $q_2$  is negative
- (3)  $q_2$  is positive and  $q_1$  is negative ( $|q_1| > |q_2|$ )
- (4) Both are negative ( $|q_1| > |q_2|$ )

- Q.2** There are two concentric conducting shells. The potential of outer shell is 10 V and that of inner shell is 15 V. If the outer shell is grounded, the potential of inner shell is -
- (1) 25 V    (2) 15 V    (3) 10 V    (4) 5 V

- Q.3** **Assertion :** When charges are shared between two bodies, there occurs no loss of charge but there does occur a loss of energy

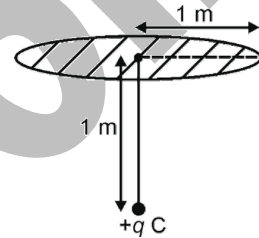
**Reason :** In case of sharing of charges conservation of energy fails

- (1) Both Assertion & Reason are True & Reason is a correct explanation of the Assertion.
- (2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
- (3) Assertion is True but the Reason is False.
- (4) Both Assertion and Reason are False.

- Q.4** A point charge  $q$  is placed at  $x = 0$ . The electric field at  $x = L$  is  $\vec{E}$ . When another charge  $4q$  is placed at  $x = 2L$ , the net electric field vector at  $x = L$  is -

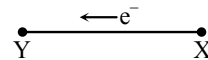
- (1)  $2\vec{E}$     (2)  $4\vec{E}$     (3)  $3\vec{E}$     (4)  $-3\vec{E}$

- Q.5** The electric flux passing through the disc as shown in figure is approximately



- (1)  $0.5 q/\epsilon_0$     (2)  $0.45 q/\epsilon_0$
- (3)  $0.30 q/\epsilon_0$     (4)  $0.15 q/\epsilon_0$

- Q.6** Twenty million electrons reaches from point X to point Y in two micro second as shown in the figure. Direction and magnitude of the current is



- (1)  $1.5 \times 10^{-10}$  A from X to Y
- (2)  $1.6 \times 10^{-6}$  A from Y to X
- (3)  $1.5 \times 10^{-13}$  A from Y to X
- (4)  $1.6 \times 10^{-4}$  A from X to Y

- Q.7** A wire is stretched so as to change its diameter by 0.25%. The percentage change in resistance is -

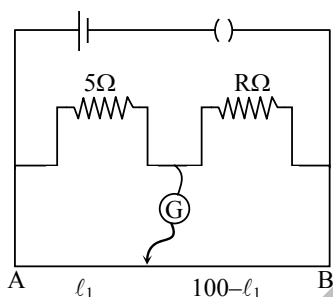
- (1) 4.0%    (2) 2.0%    (3) 1.0%    (4) 0.5%

*Space for rough work*

**Q.8** A silver wire has a resistance of  $2.1 \Omega$  at  $27.5^\circ\text{C}$  and a resistance of  $2.7 \Omega$  at  $100^\circ\text{C}$ . Determine the temperature coefficient of resistivity of silver.

- (1)  $0.39/^\circ\text{C}$  (2)  $0.039/^\circ\text{C}$   
(3)  $0.009/^\circ\text{C}$  (4)  $0.0039/^\circ\text{C}$

**Q.9** The resistances in the two arms of the meter bridge are  $5 \Omega$  and  $R \Omega$ , respectively. When the resistance  $R$  is shunted with an equal resistance, the new balance point is at  $1.6 \ell_1$ . The resistance  $R$ , is -



- (1)  $10 \Omega$  (2)  $15 \Omega$  (3)  $20 \Omega$  (4)  $25 \Omega$

**Q.10** **Assertion:** With increase in temperature resistance of a conducting wire increases.

**Reason:** With the increase in temperature length and area of cross-section of wire changes but resistivity remain constant.

- (1) Both Assertion & Reason are True & Reason is a correct explanation of the Assertion.  
(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.  
(3) Assertion is True but the Reason is False.  
(4) Both Assertion and Reason are False.

## SECTION-b [CHEMISTRY]

**Q.11** A compound  $\text{MX}_2$  has observed and normal molar masses 65.6 and 164 respectively. Calculate the apparent degree of ionization of  $\text{MX}_2$  :

- (1) 75% (2) 85% (3) 65% (4) 25%

**Q.12** The freezing point order of the solution of glucose is :

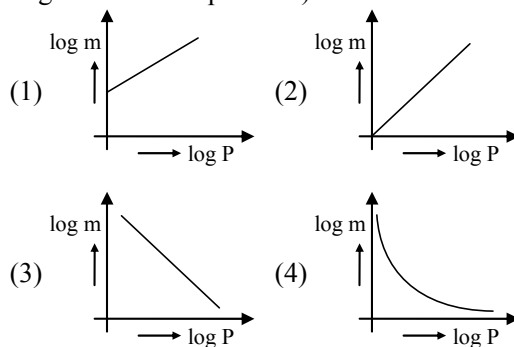
- (1)  $10\% > 3\% > 2\% > 1\%$   
(2)  $1\% > 2\% > 3\% > 10\%$   
(3)  $1\% > 3\% > 10\% > 2\%$   
(4)  $10\% > 1\% > 3\% > 2\%$

**Q.13** **Assertion :** The sum of the mole fraction of all the components are unity.

**Reason :** Mole fraction is a temperature dependent mode of concentration.

- (1) Both Assertion & Reason are True & Reason is a correct explanation of the Assertion.  
(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.  
(3) Assertion is True but the Reason is False.  
(4) Both Assertion and Reason are False.

**Q.14** Which of the following curves represents the Henry's law ? (here  $m$  is concentration of gas in g/litre and  $P$  is pressure)

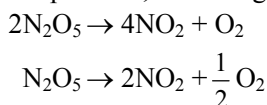


Space for rough work

**Q.15** Which one of the statements given below concerning properties of solutions describes a colligative effect ?

- (1) Boiling point of pure water decreases by the addition of ethanol
- (2) Vapour pressure of pure water decreases by the addition of nitric acid
- (3) Vapour pressure of pure water decreases by the addition of NaCl
- (4) Boiling point of pure benzene increases by the addition of toluene

**Q.16** For the decomposition of  $\text{N}_2\text{O}_5$  at a particular temperature, according to the equation :



the activation energy are  $E_1$  &  $E_2$  respectively, then

- (1)  $E_1 > E_2$
- (2)  $E_1 < E_2$
- (3)  $E_1 = 2E_2$
- (4)  $E_1 = E_2$

**Q.17** For a zero order reaction. Which of the following statement is false -

- (1) the rate is independent of the temp. of the reaction
- (2) the rate is independent of the conc. of the reactants
- (3) the half life depends as the conc. of the reactants
- (4) the rate constant has the unit  $\text{mole lit}^{-1} \text{sec}^{-1}$ .

**Q.18** The rate constant of the reaction,  $2\text{H}_2\text{O}_2(\text{aq}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g})$ , is  $3 \times 10^{-3} \text{ min}^{-1}$ . At what concentration of  $\text{H}_2\text{O}_2$ , the rate of the reaction will be  $2 \times 10^{-4} \text{ M s}^{-1}$  ?

- (1)  $6.67 \times 10^{-3} \text{ M}$
- (2)  $2 \text{ M}$
- (3)  $4 \text{ M}$
- (4)  $0.08 \text{ M}$

**Q.19** Plotting a graph of  $\log t_{1/2}$  against  $\log [\text{A}]_0$  of a reactant for a first order reaction, the slope will be

- (1) -1
- (2) -2
- (3) 0
- (4) +1

**Q.20** **Assertion :** The rate of a reaction is accelerated by the presence of a catalyst.

**Reason :** The presence of a catalyst makes the value of  $\Delta G^\circ$  more negative.

- (1) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.
- (2) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (3) Assertion is true but Reason is false.
- (4) Assertion is false but Reason is true.

### SECTION-c [MATHEMATICS]

**Q.21** If  $\Delta = \begin{vmatrix} a & 1 & 1 \\ 1 & b & 1 \\ 1 & 1 & c \end{vmatrix} > 0$ , then -

- (1)  $abc > 1$
- (2)  $abc > -8$
- (3)  $abc < -8$
- (4)  $abc > -2$

**Q.22** If the entries in a  $3 \times 3$  determinant are either 0 or 1, then the greatest value of their determinat is

- (1) 1
- (2) 2
- (3) 3
- (4) 9

**Q.23** If  $f(x) = \begin{vmatrix} x-2 & (x-1)^2 & x^3 \\ x-1 & x^2 & (x+1)^3 \\ x & (x+1)^2 & (x+2)^3 \end{vmatrix}$ , then

coefficient of  $x$  in  $f(x)$  is :

- (1) 0
- (2) 2
- (3) -2
- (4) None of these

*Space for rough work*

**Q.24** If p, q, r are in A.P., then the determinant

$$\begin{vmatrix} a^2 + 2^{n+1} + 2p & b^2 + 2^{n+2} + 3q & c^2 + p \\ 2^n + p & 2^{n+1} + q & 2q \\ a^2 + 2^n + p & b^2 + 2^{n+1} + 2q & c^2 - r \end{vmatrix} =$$

- (1) 1 (2) 0  
(3)  $a^2b^2c^2 - 2^n$  (4)  $(a^2 + b^2 + c^2) - 2^n q$

**Q.25** Let  $\Delta = \begin{vmatrix} 1 & \sin \theta & 1 \\ -\sin \theta & 1 & \sin \theta \\ -1 & -\sin \theta & 1 \end{vmatrix}$ . The  $\Delta$  lies in

the interval -

- (1) [3, 4] (2) [2, 4]  
(3) [1, 4] (4) None of these

**Q.26** If  $A = \begin{bmatrix} 0 & 5 \\ 0 & 0 \end{bmatrix}$  and  $f(x) = 1 + x + x^2 + \dots + x^{16}$ ,

Then  $f(A) =$

- (1) 0 (2)  $\begin{bmatrix} 1 & 5 \\ 0 & 1 \end{bmatrix}$   
(3)  $\begin{bmatrix} 1 & 5 \\ 0 & 0 \end{bmatrix}$  (4)  $\begin{bmatrix} 0 & 5 \\ 1 & 1 \end{bmatrix}$

**Q.27** If A is a square matrix satisfying the equation  $A^2 - 4A - 5I = O$ , then  $A^{-1} =$

- (1)  $A - 4I$  (2)  $\frac{1}{3}(A - 4I)$   
(3)  $\frac{1}{4}(A - 4I)$  (4)  $\frac{1}{5}(A - 4I)$

**Q.28** If  $\begin{bmatrix} a & b \\ c & -a \end{bmatrix}$  is a square root of the  $2 \times 2$

identity matrix, then a, b, c satisfy the relation -

- (1)  $1 + a^2 + bc = 0$  (2)  $1 - a^2 + bc = 0$   
(3)  $1 + a^2 - bc = 0$  (4)  $a^2 + bc - 1 = 0$

**Q.29** The solution of the equation

$$\begin{bmatrix} 1 & 0 & 1 \\ -1 & 1 & 0 \\ 0 & -1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix} \text{ is -}$$

- (1)  $x=1, y=1, z=1$   
(2)  $x=-1, y=0, z=2$   
(3)  $x=-1, y=2, z=2$   
(4)  $x=0, y=-1, z=2$

**Q.30** Let  $A = \begin{bmatrix} 1 & -1 & -1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$  and  $10B =$

$$\begin{bmatrix} 4 & 2 & 2 \\ -5 & 0 & \alpha \\ 1 & -2 & 3 \end{bmatrix}, \text{ if B is the inverse of matrix A,}$$

then  $\alpha$  is-

- (1) -2 (2) 1  
(3) 2 (4) None of these

### SECTION-d [BIOLOGY]

**Q.21** One of the most resistant biological material present in the exine of pollen grain is

- (1) pectocellulose (2) sporopollenin  
(3) suberin (4) cellulose

**Q.22** \_\_\_\_\_ of the pollen grain divides to form two male gametes.

- (1) Vegetative cell  
(2) Generative cell  
(3) Microspore mother cell  
(4) None of these

*Space for rough work*

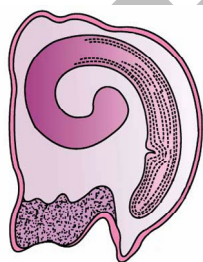
**Q.23** The female gametophyte of a typical dicot at the time of fertilisation is -  
 (1) 8-celled (2) 7-celled  
 (3) 6-celled (4) 5-celled

**Q.24** Plants producing pollen grains with filiform apparatus and mucilaginous covering are pollinated by -  
 (1) Wind (2) Water  
 (3) Insects (4) Birds

**Q.25** Single cotyledon of grass embryo is called as -  
 (1) Epiblast (2) Epicotyl  
 (3) Scutellum (4) Coleoptile

**Q.26** Select the incorrect pair of type of pollination and the corresponding pollinating agency.  
 (1) Anemophily – Wind  
 (2) Hydrophily – Water  
 (3) Ornithophily – Birds  
 (4) Chiropterophily – Insects

**Q.27** The given seed is -



- (1) Dicot endospermic
- (2) Monocot endospermic
- (3) Dicot nonendospermic
- (4) Monocot nonendospermic

**Q.28** Eight-nucleate embryo sacs are :  
 (1) Always bisporic  
 (2) Always tetrasporic  
 (3) Sometimes monosporic, sometimes bisporic and sometimes tetrasporic  
 (4) Always monosporic

**Q.29** The ovule represented is -



- (1) Atropous (2) Amphitropous
- (3) Hemitropous (4) Anatropous

**Q.30** **Assertion :** Cleistogamy assured confirm seed set in plants.

**Reason :** New variation are not observed in plants showing Cleistogamy.

- (1) Both Assertion & Reason are True & Reason is a correct explanation of the Assertion.
- (2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
- (3) Assertion is True but the Reason is False.
- (4) Both Assertion and Reason are False

**Q.31** Zona pallucida in mammals is -

- (1) Primary egg membrane
- (2) Secondary egg membrane
- (3) Tertiary egg membrane
- (4) Egg follicle

*Space for rough work*

- Q.32** Cleavage is a unique form of mitotic cell-division in that -  
 (1) Spindle formation do not take place  
 (2) There is no growth of cells  
 (3) The nucleus does not participate  
 (4) Plasma membrane of daughter cells do not separate
- Q.33** Foetal circulation differs from that of an adult because -  
 (1) Blood does not circulate through the lungs.  
 (2) Foetal liver is not developed.  
 (3) Foetus utilizes  $\text{CO}_2$  and adult utilizes  $\text{O}_2$   
 (4) Heart is not functional
- Q.34** In most mammals, the testes are located in scrotal sac for -  
 (1) More space to visceral organs  
 (2) Spermatogenesis  
 (3) Sex differentiation  
 (4) Independent functioning of kidney
- Q.35** Interstitial cells secretes -  
 (1) Progesterone (2) Androgen  
 (3) Estrogen (4) T.S.H
- Q.36** The nutritive cells found in seminiferous tubules are -  
 (1) Leydig's cells  
 (2) Atretic follicular cells  
 (3) Sertoli cells  
 (4) Chromaffin cells
- Q.37** Lower narrow end of uterus is called -  
 (1) Urethra (2) Cervix  
 (3) Clitoris (4) Valva
- Q.38** The cervix differs from the rest of uterus in having -  
 (1) very less muscles  
 (2) more connective tissue  
 (3) both of above  
 (4) none of these
- Q.39** Nebenkern is a part of  
 (1) Human sperm head & neck part  
 (2) Human sperm mid piece & human sperm tail part  
 (3) Human sperm mid piece only  
 (4) All of above
- Q.40** **Assertion :** In morula stage, the cells divide without any increase in size.  
**Reason :** Zona pellucida remains intact till implantation.  
 (1) Both Assertion & Reason are True & Reason is a correct explanation of the Assertion.  
 (2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.  
 (3) Assertion is True but the Reason is False.  
 (4) Both Assertion and Reason are False.

---

*Space for rough work*



## CP STUDY CENTRES

|              |               |                |                |                |               |
|--------------|---------------|----------------|----------------|----------------|---------------|
| Ahmedabad    | : 99742-24998 | Hyderabad      | : 97979-72277  | Nagpur         | : 97666-61445 |
| Anantpur     | : 83400-38384 | (Kukatpally    | : 73311-22699) | Pandharpur     | : 98223-19133 |
| Bhubaneshwar | : 82601-03344 | (Madhapur      | : 73311-22904) | Patna          | : 72097-76655 |
| Bhusawal     | : 87932-14122 | (ECIL          | : 73311-22839) | Pune (Kharadi) | : 88558-86372 |
| Bihar Sharif | : 98011-10036 | (Suchitra      | : 73311-22836) | Raipur         | : 88893-33026 |
| Bikaner      | : 86909-90951 | (Taranaka      | : 73311-22848) | Rajahmundry    | : 73822-37999 |
| Buldana      | : 95038-32962 |                |                | Ranchi         | : 72091-35999 |
| Chikli       | : 95038-32962 | Imphal         | : 81328-69797  | Rangia         | : 91011-35918 |
| Chennai      | : 93630-79993 | Jhajjar        | : 99962-62381  | Rourkela       | : 82602-03344 |
| Darbhanga    | : 92979-29716 | Kalaburagi     | : 96616-26969  | Salumbar       | : 80039-76237 |
| Delhi        | : 98009-70077 | Kosli          | : 88855-57261  | Solapur        | : 87886-34831 |
| Dumka        | : 70610-95466 | Mahendragarh   | : 74040-30077  | Thane          | : 84240-30390 |
| Ghaziabad    | : 99710-39444 | Malda          | : 62941-51177  | Una            | : 98161-33351 |
| Gurugram     | : 99110-20565 | Morena         | : 62662-86638  |                |               |
|              |               | Nagpur-1       | : 84848-15902  |                |               |
|              |               | (Butibori      | : 84848-15802) |                |               |
|              |               | (Hanuman Nagar | : 84848-15902) |                |               |

# CAREER POINT

KOTA (Head Office): Career Point Ltd, CP Tower, Road No.1, IPIA Kota-5 (Raj.)

For Detail Call: 87400-50501 | Mail: info@cpil.in

[www.careerpoint.ac.in](http://www.careerpoint.ac.in) | [www.ecareerpoint.com](http://www.ecareerpoint.com)

[dlp.careerpoint.ac.in](http://dlp.careerpoint.ac.in) | <https://careerpoint.ac.in/lp/cpsl/>