

Test Date	13/04/2026
Test Time	2:00 PM - 5:00 PM
Subject	PGT Biology

Section : **Mental Ability and Reasoning Ability**

Q.1 This question is based on the following words

OWN VIE AIN ALP

In each of the words, each vowel is changed to the second letter preceding it in the English alphabetical order and each consonant is changed to the letter immediately following it in the English alphabetical order. In how many letter-clusters thus formed, will no vowel appear?

- Ans**
- ☒ 1. Two
 - ☐ 2. One
 - ☐ 3. Four
 - ☐ 4. Three

Q.2 Each of D, E, F, G, R, S and T has exam on a different day of a week, starting from Monday and ending on Sunday of the same week. F has exam on Thursday and E has exam on Saturday. R has exam immediately before S. D has exam on one of the days after T. G has exam immediately after S. Who has exam on the last day of the week?

- Ans**
- ☒ 1. D
 - ☐ 2. T
 - ☐ 3. S
 - ☐ 4. G

Q.3 Read the given statement(s) and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

Statements: All pens are candles. All candles are nets. All nets are mats.

Conclusions (I) : All pens are mats

Conclusions (II) : Some mats are candles

- Ans**
- ☐ 1. Only conclusion (II) follows
 - ☐ 2. Only conclusion (I) follows
 - ☐ 3. Neither conclusion (I) nor (II) follows
 - ☒ 4. Both conclusions (I) and (II) follow

Q.4 Eight people are sitting in two parallel rows containing 4 people each, in such a way that there is equal distance between adjacent persons.
In row 1 – P, R, E and Y are seated and all of them are facing south.
In row 2 – L, O, T and S are seated and all of them are facing north.
Thus each person faces another person from the other row.
E sits third to the right of Y. The one facing S is an immediate neighbour of Y. The one facing R is an immediate neighbour of S. The one facing E is an immediate neighbour of T. O sits at some place to the left of L. Which of the following represents both people sitting at extreme ends of the line?

- Ans**
- ☒ 1. E and L
 - ☐ 2. R and S
 - ☐ 3. Y and T
 - ☐ 4. P and L

Q.5 Based on the alphabetical order, three of the following four are alike in a certain way and thus form a group. Which is the one that does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter cluster)

- Ans**
- ☒ 1. OLZD
 - ☐ 2. KHEZ
 - ☐ 3. TQNI
 - ☐ 4. CZWR

Q.6 16 is related to 96 following certain logic. Following the same logic, 37 is related to 222. To which of the following is 51 related, following the same logic?
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

- Ans**
-  1. 308
 -  2. 304
 -  3. 306
 -  4. 302

Q.7 Soham starts from point A and drives 16km towards West. He then takes a left turn and drives 9km. He takes a final left turn and drives 12km and stops at point B. Natasha starts from point P, which is 19km East of point A, and drives 3km towards East. He then takes a right turn and drives 9km. He takes a final left turn and drives 3km and stops at point Q. What is the shortest distance between point Q and point B? (All turns are 90 degree turns only)

- Ans**
-  1. 28km
 -  2. 26km
 -  3. 29km
 -  4. 27km

Q.8 In a certain code language,
E + F means 'E is the brother of F',
E – F means 'E is the mother of F',
E x F means 'E is the wife of F' and
E ÷ F means 'E is the father of F'.
How is P related to T if 'P + Q – R x S ÷ T'?

- Ans**
-  1. Mother's Mother's Brother
 -  2. Mother's Brother
 -  3. Father's Brother
 -  4. Father's Mother's Brother

Q.9 If '+' means '–', '–' means 'x', 'x' means '÷', '÷' means '+', then what will come in place of the question mark (?) in the following equation?

$$19 - 3 \div 20 + 21 \times 7 = ?$$

- Ans**
-  1. 74
 -  2. 78
 -  3. 76
 -  4. 73

Q.10 A situation is given followed by two conclusions I and II. Read the situation and both the statements carefully to select the correct answer.
Situation:
The Government of country X has decided to reduce the interest rates by 1% on loans taken by entrepreneurs in the technology sector.
Conclusions:
I. Almost none of the entrepreneurs in country X want to start a business in technology.
II. The number of entrepreneurs in the technology sector of country X will double in the next few years.

- Ans**
-  1. Only I can be concluded
 -  2. Neither I nor II can be concluded
 -  3. Both I and II can be concluded
 -  4. Only II can be concluded

Q.11 Each of T, R, O, U, B, L and E has an exam on a different day of a week, starting from Monday and ending on Sunday of the same week. E has the exam on one of the days after L. L has the exam on Thursday. B has the exam immediately after R. T has the exam on one of the days before L and on one of the days after B. U has the exam immediately before O. E has the exam on one of the days after L and on one of the days before U. How many people have their exams between U and B?

- Ans**
- ☐ 1. Four
 - ☐ 2. One
 - ☒ 3. Three
 - ☐ 4. Two

Q.12 Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of :: ?
: LOM :: PSQ : %

- Ans**
- ☐ 1. # = MPN, % = OSP
 - ☐ 2. # = MPO, % = ORP
 - ☒ 3. # = MPN, % = ORP
 - ☐ 4. # = MON, % = ORP

Q.13 Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of :: ?
: DFI :: FIK : %

- Ans**
- ☐ 1. # = EFG , % = HJK
 - ☐ 2. # = DEG , % = FHL
 - ☐ 3. # = EFH , % = GIK
 - ☒ 4. # = DEH, % = FJL

Q.14 Given below is a situation followed by two conclusions. Read all the information carefully and decide which conclusion/s follow/s and mark that as your answer.

Situation: For the last three years Deepti has been scoring the highest in her class. However, she still hasn't ever received the award for "Student of the year" in School X.
Conclusion (I): She may have scored highest in her class but there were better scorers in the school who deserved the award more.
Conclusion (II): Many students and teachers of her class do not like Deepti.

- Ans**
- ☐ 1. Only (II) can be concluded.
 - ☒ 2. Neither (I) nor (II) can be concluded.
 - ☐ 3. Both (I) and (II) can be concluded.
 - ☐ 4. Only (I) can be concluded.

Q.15 In a certain code,
'he knew that this' is coded as 're fd vc bn'
'that this is not' is coded as 'vc bn gh ty'
'the right knew time' is coded as 'iu kj fd nh'
'that not now right' is coded as 'vc ty ju kj'
(all the codes are two letter coded only)
What is the possible code for 'time'?

- Ans**
- ☐ 1. Either 'kj' or 'nh'
 - ☐ 2. Either 'fd' or 'kj'
 - ☒ 3. Either 'nh' or 'iu'
 - ☐ 4. Either 'nh' or 'fd'

Q.16 What will come in place of "?" in the following equation, if "+" and "÷" are interchanged and "-" and "x" are interchanged ?
 $286 + 26 \times 3 - 8 \div 161 = ?$

- Ans**
- ☐ 1. 145
 - ☐ 2. 152
 - ☒ 3. 148
 - ☐ 4. 141

Q.17 Based on the English alphabetical order, three of the following four letter cluster pairs are alike in a certain way and thus form a group. Which is the one that does not belong to that group?

- Ans**
-  1. SX - RW
 -  2. MR - LP
 -  3. QV - PU
 -  4. GL - FK

Q.18 What should come in place of the question mark (?) in the given series?

29 60 40 82 62 126 ?

- Ans**
-  1. 106
 -  2. 119
 -  3. 110
 -  4. 98

Q.19 Below are given two sets of numbers. In each set of numbers, a certain mathematical operation on first number results in the second number. Similarly, certain mathematical operation on second number results in the third number and so on. Which of the given options follows the same set of operations as in question?

(NOTE – A two/three digit number cannot be broken into individual digits for operations e.g. if 37 is followed by 10, the operation cannot be 3+7 as a two digit number cannot be broken into individual digits)

5 – 13 – 9 – 15 ; 11 – 25 – 21 – 27

- Ans**
-  1. 11 – 25 – 21 – 15
 -  2. 8 – 19 – 15 – 21
 -  3. 10 – 23 – 27 – 33
 -  4. 13 – 23 – 19 – 25

Q.20 This question is based on the five, three-digit numbers given below.

(Left) 762 905 175 350 385 (Right)

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

NOTE - All operations to be done from left to right.

What will be the resultant if second digit of the highest number is added to the second digit of lowest number?

- Ans**
-  1. 8
 -  2. 4
 -  3. 7
 -  4. 9

Section : General Awareness

Q.1 The Board of Control was created under which of the following Acts to supervise civil, military, and revenue affairs in India?

- Ans**
-  1. Regulating Act 1773
 -  2. Charter Act 1833
 -  3. Pitt's India Act 1784
 -  4. Indian Councils Act 1909

Q.2 In which economic system are most of the economic resources and property owned and controlled by the state rather than general public?

- Ans**
-  1. Communism
 -  2. Totalitarianism
 -  3. Socialism
 -  4. Capitalism

Q.3 Which 1856 Act legalized the remarriage of widows as part of British social reform efforts?

- Ans**
- ☒ 1. Widow Remarriage Act
 - ☐ 2. Women's Protection Act
 - ☐ 3. Sati Prohibition Act
 - ☐ 4. Hindu Code Bill

Q.4 How does the Swachh Bharat Abhiyan (SBA) aim to achieve its goals?

- Ans**
- ☐ 1. Through the distribution of free healthcare services
 - ☐ 2. By implementing high taxes on pollution-causing industries
 - ☒ 3. Through the promotion of cleanliness and the construction of toilets to eliminate open defecation
 - ☐ 4. By focusing solely on the construction of physical infrastructure like roads and bridges

Q.5 When was the State of India's Environment 2025 report released by the Centre for Science and Environment (CSE)?

- Ans**
- ☐ 1. June 4, 2025
 - ☐ 2. March 15, 2025
 - ☐ 3. July 1, 2025
 - ☒ 4. February 26, 2025

Q.6 Which country won the 2025 World Men's Handball Championship held in Croatia, Denmark, and Norway from January 14 to February 2, 2025?

- Ans**
- ☒ 1. Denmark
 - ☐ 2. Germany
 - ☐ 3. France
 - ☐ 4. Sweden

Q.7 When did the Gram Nyayalayas Act come into force in India?

- Ans**
- ☐ 1. 2012
 - ☐ 2. 2010
 - ☒ 3. 2009
 - ☐ 4. 2011

Q.8 The Parwan Major Multipurpose Project is being constructed in which state?

- Ans**
- ☐ 1. Punjab
 - ☐ 2. Gujarat
 - ☐ 3. Haryana
 - ☒ 4. Rajasthan

Q.9 Which of the following Schedules of the Indian Constitution deals with the administration and control of scheduled areas and the scheduled tribes in any state except Assam, Meghalaya, Tripura and Mizoram?

- Ans**
- ☒ 1. 6th Schedule
 - ☐ 2. 2nd Schedule
 - ☐ 3. 1st Schedule
 - ☐ 4. 5th Schedule

Q.10 Which type of corrective lenses are often used by people suffering from both myopia and hypermetropia?

- Ans**
- ☐ 1. Convex lenses
 - ☒ 2. Bi-focal lenses
 - ☐ 3. Concave lenses
 - ☐ 4. Cylindrical lenses

Q.11 The Peninsular Plateau is composed of old crystalline, igneous, and metamorphic rocks, formed due to the breaking and drifting of which landmass?

- Ans**
- ☐ 1. Pangea
 - ☒ 2. Gondwana
 - ☐ 3. Laurasia
 - ☐ 4. Eurasia

Q.12 Which of the following is not a style of Hindustani Classical music?

- Ans**
- ☒ 1. Gotra
 - ☐ 2. Tarana
 - ☐ 3. Dhrupad
 - ☐ 4. Sargam

Q.13 Which type of lens is primarily used to focus parallel rays of light?

- Ans**
- ☐ 1. Concave lens
 - ☐ 2. Bifocal lens
 - ☒ 3. Convex lens
 - ☐ 4. Cylindrical lens

Q.14 Which among the following reforms is associated with the beginning of Dyarchy at the provincial level in India?

- Ans**
- ☐ 1. Indian Councils Act, 1909
 - ☒ 2. Government of India Act, 1919
 - ☐ 3. Indian Councils Act, 1892
 - ☐ 4. Government of India Act, 1858

Q.15 Which film by Neeraj Ghaywan premiered at the 78th Cannes Film Festival in the Un Certain Regard section in May 2025?

- Ans**
- ☐ 1. Masaan
 - ☐ 2. Sacred Games
 - ☐ 3. Geeli Pucchi
 - ☒ 4. Homebound

Q.16 Which of the following is the correct title of the PART IX-B of the Indian Constitution?

- Ans**
- ☒ 1. The Cooperative Societies
 - ☐ 2. The Panchayats
 - ☐ 3. The Municipalities
 - ☐ 4. The Tribunals

Q.17 According to the National Commission on Agriculture, social forestry has been classified into how many categories?

- Ans**
- ☐ 1. Seven
 - ☐ 2. Five
 - ☒ 3. Three
 - ☐ 4. Four

Q.18 In which of the following inscriptions is the Kalinga war described?

- Ans**
- ☐ 1. 5th inscription
 - ☒ 2. 13th inscription
 - ☐ 3. 12th inscription
 - ☐ 4. 2nd inscription

Q.19 Which Punjab minister unveiled Project Hifazat to improve the response mechanism for women and children facing violence and abuse?

- Ans**
- ☐ 1. Rajinder Kaur
 - ☒ 2. Baljit Kaur
 - ☐ 3. Aruna Chaudhary
 - ☐ 4. Harsimrat Kaur

Q.20 What is the budget allocation for the India AI Mission in the Union Budget 2025-26?

- Ans**
- ☐ 1. ₹5,000 crore
 - ☐ 2. ₹10,000 crore
 - ☐ 3. ₹1,000 crore
 - ☒ 4. ₹2,000 crore

Section : Numerical Aptitude and Data Interpretation

Q.1 In what time will ₹5,000 fetch an interest of ₹400 at 8% per year simple interest?

- Ans**
- ☐ 1. 4 years
 - ☒ 2. 1 year
 - ☐ 3. 3 years
 - ☐ 4. 2 years

Q.2 The following table shows the total exports of goods of 5 companies over 5 years (in lakhs)

Companies Year	R	S	T	U	V
2012	60	40	15	45	25
2013	30	60	70	15	90
2014	51	25	55	100	110
2015	45	51	20	70	65
2016	24	35	60	55	125

By what percentage is the average export of Company R over all the years less than the average export of Company V over all the years? (Round off to the nearest integer)

- Ans**
- ☐ 1. 52%
 - ☐ 2. 97%
 - ☐ 3. 71%
 - ☒ 4. 49%

Q.3 A trader purchases oranges at ₹160 per hundred. He spends another 25% of the cost of purchase on transportation. What should be the selling price (in ₹) per hundred oranges to earn a profit of 25%?

- Ans**
- ☒ 1. 250
 - ☐ 2. 249
 - ☐ 3. 253
 - ☐ 4. 252

Q.4 Veena borrowed a sum of ₹5000 from a bank at compound interest at a rate of 6% per year. What would be the amount due if the interest was compounded half-yearly?

- Ans
- ☐ 1. ₹5500
 - ☒ 2. ₹5304.50
 - ☐ 3. ₹5460
 - ☐ 4. ₹5285.55

Q.5 After decreasing 76% in the actual cost price, the reduced cost price of an article is ₹1,044. The actual cost price of the article (in ₹) is:

- Ans
- ☐ 1. 793.44
 - ☐ 2. 250.56
 - ☒ 3. 4,350
 - ☐ 4. 1,860

Q.6 A train P going at the speed of 72 km/hr completely passes train Q of length 367 m, going in the same direction on parallel tracks, at 47 km/hr, in 7.5 minutes. How much time (in seconds) will P take to cross completely train R of length 132 m, going at 30 km/hr in the opposite direction?

- Ans
- ☒ 1. 102
 - ☐ 2. 117
 - ☐ 3. 99
 - ☐ 4. 98

Q.7 Simplify: $\frac{5}{4} + \frac{1}{1 + \frac{5}{7}} - \frac{5}{4}$

- Ans
- ☐ 1. $\frac{3}{14}$
 - ☐ 2. $\frac{8}{21}$
 - ☒ 3. $\frac{7}{12}$
 - ☐ 4. $\frac{10}{7}$

Q.8 Pipe A can fill an empty cistern alone in 10 hours and pipe B can fill the same cistern alone in 32 hours. The time taken by them to fill half of the cistern by operating together will be:

- Ans
- ☐ 1. $2\frac{17}{21} \text{ hours}$
 - ☐ 2. $9\frac{17}{21} \text{ hours}$
 - ☒ 3. $3\frac{17}{21} \text{ hours}$
 - ☐ 4. $10\frac{17}{21} \text{ hours}$

Q.9 Calculate the cost required to paint a football shaped like a sphere with a radius of 21 cm, if the painting cost is ₹3.50 per square cm. (Take $\pi = 22/7$)

- Ans
- ☐ 1. ₹19,400
 - ☒ 2. ₹19,404
 - ☐ 3. ₹19,424
 - ☐ 4. ₹19,442

Q.10 Riya covers a certain distance going from P to Q with a speed of 70 km/h, while during the round trip she covers the same distance with a speed of 60 km/h. Calculate Riya's average speed for the journey.

- Ans
- ☒ 1. $64\frac{8}{13}$ km/h
 - ☐ 2. $64\frac{7}{13}$ km/h
 - ☐ 3. $64\frac{9}{13}$ km/h
 - ☐ 4. $64\frac{6}{13}$ km/h

Q.11 An article is sold at a profit of 63%. If the cost price is increased by ₹28 and the selling price is reduced by ₹57, then the profit would be 62.5%. What is the original cost price (in ₹) of the article?

- Ans
- ☒ 1. 20500
 - ☐ 2. 20300
 - ☐ 3. 20700
 - ☐ 4. 20800

Q.12 The value of $2.\overline{2} + 1.\overline{54} - 1.\overline{4}$ is:

- Ans
- ☐ 1. $\frac{227}{96}$
 - ☐ 2. $\frac{228}{97}$
 - ☐ 3. $\frac{237}{98}$
 - ☒ 4. $\frac{230}{99}$

Q.13 Arrange the following ratios in ascending order:
20 : 28, 19 : 13, 26 : 5, 17 : 2

- Ans
- ☐ 1. 19:13, 26:5, 20:28, 17:2
 - ☐ 2. 19:13, 20:28, 26:5, 17:2
 - ☐ 3. 17:2, 26:5, 19:13, 20:28
 - ☒ 4. 20:28, 19:13, 26:5, 17:2

Q.14 The value of $4^2 + \sqrt{6^2} - 6\sqrt{49} - 19$ is

- Ans
- ☐ 1. -35
 - ☒ 2. -39
 - ☐ 3. -40
 - ☐ 4. -41

Q.15 A can complete a piece of work in 22 days and B can complete it in 16 days. If they work on alternate days, starting with B on first day, then in how many days will the work be finished?

Ans

 1. $\frac{5}{11}$

 2. $18\frac{5}{11}$

 3. 18

 4. $19\frac{5}{11}$

Q.16 A car's radiator should contain a solution of 69% antifreeze. A motorist has 15 litres of 60% antifreeze. How many litres (rounded off to 2 decimal places) of 80% antifreeze liquid should he add to his solution to produce a 69% antifreeze?

Ans

 1. 10.96

 2. 12.27

 3. 9.79

 4. 13.92

Q.17 The diagonals of a rhombus are 12 cm and 13 cm, respectively. The area of the rhombus (in cm^2) is:

Ans

 1. 30

 2. 72

 3. 84

 4. 78

Q.18 The ratio of milk and water in a 168-litre mixture is 7:5. Find the quantity (in litres) of water to be added to the mixture to make the ratio 1:1.

Ans

 1. 34

 2. 31

 3. 24

 4. 28

Q.19 A vessel is in the form of a hollow hemisphere mounted on a hollow cylinder. The diameter of the hemisphere is 16 cm, and the total height of the vessel is 20 cm. Find the inner surface area of the vessel.

Ans

 1. $320\pi \text{ cm}^2$

 2. $768\pi \text{ cm}^2$

 3. $576\pi \text{ cm}^2$

 4. $384\pi \text{ cm}^2$

Q.20 If a shopkeeper gives two successive discounts of 24% and 35% on an article whose marked price is ₹500, then what will be the selling price (in ₹) of the article?

Ans

 1. 246

 2. 247

 3. 250

 4. 245

Q.1 In the conversation, Identify the antonym of the underlined word.

Teacher: The new school rules seem really strict, don't they?

Student: Yeah, some of them feel pretty draconian, particularly about the rule of using no phones even during breaks.

Teacher: True, draconian means excessively harsh or severe. Sometimes rules like that can feel unfair.

Student: I get that rules are important, but there has to be a balance.

- Ans**
- ☒ 1. Punitive
 - ☒ 2. Indulgent
 - ☒ 3. Ruthless
 - ☒ 4. Authoritarian

Q.2 Select the option that can be used as a substitute for the given phrase.
A person who pretends to have more knowledge or skill than they actually possess

- Ans**
- ☒ 1. Veteran
 - ☒ 2. Novice
 - ☒ 3. Sagacious
 - ☒ 4. Charlatan

Q.3 Rearrange the following sentences to form a meaningful paragraph.

P. This is where scientists explore space.

Q. It orbits the Earth at about 400 kilometers altitude.

R. The International Space Station is a marvel of engineering.

S. It is a joint project by multiple countries.

- Ans**
- ☒ 1. RQPS
 - ☒ 2. QRSP
 - ☒ 3. RQSP
 - ☒ 4. PRSQ

Q.4 Rearrange the following sentences to form a coherent and meaningful paragraph.

A. But without regular exercise, this diet alone may not yield long-term benefits.

B. A balanced diet is crucial to maintaining a healthy body.

C. Many nutritionists now advocate a combination of food and physical activity.

D. Healthy habits develop over time and require consistency.

E. Still, most people focus only on food choices.

- Ans**
- ☒ 1. BAECD
 - ☒ 2. BEACD
 - ☒ 3. BECAD
 - ☒ 4. BACED

Q.5 Choose the correct option to complete the sentence.

The plane flew ____ over the mountain peaks.

- Ans**
- ☒ 1. highest
 - ☒ 2. high
 - ☒ 3. altitude
 - ☒ 4. height

Q.6 Select the most suitable option to complete the sentence with the correct question tag.

Although the committee discussed the proposal for hours, they did not reach a unanimous decision, _____?

- Ans**
- ☒ 1. didn't they?
 - ☒ 2. don't they?
 - ☒ 3. did they?
 - ☒ 4. do they?

Q.7 Read the following paragraph carefully. One of the words in the paragraph is spelled incorrectly. Identify the misspelled word and select its correct spelling from the options given.

The researcher accentuated that the pernicious dissemination of misinformation across digital platforms exerts a subtle yet detrimental influence on impressionable minds, progressively undermining not only their academic concentration but also their capacity for independent and critical reasoning.

- Ans**
- ☒ 1. missinformation
 - ☐ 2. pernicious
 - ☒ 3. concentration
 - ☒ 4. dissemination

Q.8 Fill in the blanks with the most appropriate options.
She _____ the documents carefully before signing them.

- Ans**
- ☒ 1. had read
 - ☒ 2. is reading
 - ☒ 3. reading
 - ☒ 4. has reading

Q.9 Identify the synonym of the underlined word in the following conversation.
Designer: I noticed the new office design is very minimal. What was the idea behind it?
Architect: The office space is intentionally austere. It has no art, no color, just raw concrete and steel.

- Ans**
- ☒ 1. Spartan
 - ☒ 2. Lavish
 - ☒ 3. Opulent
 - ☒ 4. Extravagant

Q.10 Substitute the underlined segment with an appropriate idiom.

Heer thought switching jobs would make things better, but it turned out to be a situation where things went from bad to worse, as the new job was even more stressful.

- Ans**
- ☒ 1. on the fence
 - ☒ 2. know the ropes
 - ☒ 3. barking up the wrong tree
 - ☒ 4. out of the frying pan and into the fire

Q.11 Select the most appropriate option to complete the sentence.
She can't speak Spanish, ____?

- Ans**
- ☒ 1. isn't she
 - ☒ 2. can she
 - ☒ 3. won't she
 - ☒ 4. didn't she

Q.12 Select the most appropriate option to complete the sentence.

The boy was very dressed and looked unclean.

- Ans**
- ☒ 1. uniformly
 - ☒ 2. tidily
 - ☒ 3. neatly
 - ☒ 4. shabbily

Q.13 From the given paragraph, one word is misspelt. Identify that word:
The research paper was highly praised for its originality and methodological rigor. However, a common critique emerged from the peer review process, where several experts noted its failure to properly contextualize findings within the broader discipline. One reviewer even flagged a specific paragraph for being ambiguous, as it lacked a clear and definitive interpretation.

- Ans**
- ☒ 1. Contextualize
 - ☒ 2. Discipline
 - ☒ 3. Methodological
 - ☒ 4. Ambiguous

Q.14 Replace the highlighted phrase with the most appropriate proverb.

Being very careful not to offend anyone is a delicate art.

- Ans**
- ☒ 1. Making hay while the sun shines
 - ☒ 2. Looking before you leap
 - ☒ 3. Striking while the iron is hot
 - ☒ 4. Walking on eggshells

Q.15 Select the most appropriate one-word substitute for the underlined phrase.
Due to his past experiences, he had become a person who dislikes or distrusts mankind, avoiding most social interactions and questioning others' intentions.

- Ans**
- ☒ 1. misogynist
 - ☒ 2. philanthropist
 - ☒ 3. misanthropist
 - ☒ 4. cynic

Comprehension:

Read the passage carefully and answer the questions that follow.

By mid-2025, the global water crisis is expected to reach unprecedented levels. According to the 2024 UN World Water Development Report, approximately 2.2 billion people lack access to safely managed drinking water, and 3.5 billion lack safely managed sanitation services. Meanwhile, nearly half of the world's population experiences severe water scarcity for at least part of each year. Agriculture consumes about 70% of global freshwater withdrawals, while industry and municipal use account for roughly 20% and 12%, respectively. Climate change is further destabilizing the hydrological cycle. Rising temperatures, glacial melt, and changing precipitation patterns are reducing freshwater availability, while floods and droughts increase in frequency and severity. Coastal aquifers face growing salinization: studies show that by 2100, as much as 77% of coastal aquifers could be affected by saltwater intrusion due to sea-level rise and declining recharge. Water scarcity today already affects 40% of the global population, and demand is expected to surpass supply by 40% by 2030. Groundwater depletion continues, especially in densely populated regions like India, China, and Pakistan, where aquifer recharge lags behind extraction. Many megacities now face "Day Zero" scenarios, where municipal taps could run dry without drastic conservation and infrastructure reform. While innovative technologies—such as biodegradable hydrogels that extract water from the air—offer promise for remote or water-stressed regions, current investments fall significantly short of what's needed (a shortfall of \$85 billion per year) to achieve universal access by 2030. Experts warn that without coordinated global investment, transparent governance, equitable distribution, and water-efficient infrastructure, the world risks escalating conflict, agricultural collapse, economic instability, and public health crises on a global scale.

SubQuestion No : 16

Q.16 Which facts are stated in the passage?
A. 2.2 billion people lack safe drinking water
B. 77 % of aquifers are currently polluted
C. Agriculture uses 70 % of global freshwater
D. Water demand to decline by 2030

- Ans**
- ☒ 1. Both D and A
 - ☒ 2. Both A and C
 - ☒ 3. Both B and D
 - ☒ 4. Both A and D

Comprehension:

Read the passage carefully and answer the questions that follow.

By mid-2025, the global water crisis is expected to reach unprecedented levels. According to the 2024 UN World Water Development Report, approximately 2.2 billion people lack access to safely managed drinking water, and 3.5 billion lack safely managed sanitation services. Meanwhile, nearly half of the world's population experiences severe water scarcity for at least part of each year. Agriculture consumes about 70% of global freshwater withdrawals, while industry and municipal use account for roughly 20% and 12%, respectively. Climate change is further destabilizing the hydrological cycle. Rising temperatures, glacial melt, and changing precipitation patterns are reducing freshwater availability, while floods and droughts increase in frequency and severity. Coastal aquifers face growing salinization: studies show that by 2100, as much as 77% of coastal aquifers could be affected by saltwater intrusion due to sea-level rise and declining recharge. Water scarcity today already affects 40% of the global population, and demand is expected to surpass supply by 40% by 2030. Groundwater depletion continues, especially in densely populated regions like India, China, and Pakistan, where aquifer recharge lags behind extraction. Many megacities now face "Day Zero" scenarios, where municipal taps could run dry without drastic conservation and infrastructure reform. While innovative technologies—such as biodegradable hydrogels that extract water from the air—offer promise for remote or water-stressed regions, current investments fall significantly short of what's needed (a shortfall of \$85 billion per year) to achieve universal access by 2030. Experts warn that without coordinated global investment, transparent governance, equitable distribution, and water-efficient infrastructure, the world risks escalating conflict, agricultural collapse, economic instability, and public health crises on a global scale.

SubQuestion No : 17

Q.17 What is the central theme of the passage?

- Ans**
- ☐ 1. Distribution of industrial waste use
 - ☐ 2. Urban hygiene education initiatives
 - ☐ 3. Technological advances in sewage treatment
 - ☒ 4. Rising water scarcity driven by climate and mismanagement

Comprehension:

Read the passage carefully and answer the questions that follow.

By mid-2025, the global water crisis is expected to reach unprecedented levels. According to the 2024 UN World Water Development Report, approximately 2.2 billion people lack access to safely managed drinking water, and 3.5 billion lack safely managed sanitation services. Meanwhile, nearly half of the world's population experiences severe water scarcity for at least part of each year. Agriculture consumes about 70% of global freshwater withdrawals, while industry and municipal use account for roughly 20% and 12%, respectively. Climate change is further destabilizing the hydrological cycle. Rising temperatures, glacial melt, and changing precipitation patterns are reducing freshwater availability, while floods and droughts increase in frequency and severity. Coastal aquifers face growing salinization: studies show that by 2100, as much as 77% of coastal aquifers could be affected by saltwater intrusion due to sea-level rise and declining recharge. Water scarcity today already affects 40% of the global population, and demand is expected to surpass supply by 40% by 2030. Groundwater depletion continues, especially in densely populated regions like India, China, and Pakistan, where aquifer recharge lags behind extraction. Many megacities now face "Day Zero" scenarios, where municipal taps could run dry without drastic conservation and infrastructure reform. While innovative technologies—such as biodegradable hydrogels that extract water from the air—offer promise for remote or water-stressed regions, current investments fall significantly short of what's needed (a shortfall of \$85 billion per year) to achieve universal access by 2030. Experts warn that without coordinated global investment, transparent governance, equitable distribution, and water-efficient infrastructure, the world risks escalating conflict, agricultural collapse, economic instability, and public health crises on a global scale.

SubQuestion No : 18

Q.18 What is the tone of the passage?

- Ans**
- ☐ 1. Philosophical and data driven
 - ☐ 2. Promotional and humorous
 - ☒ 3. Data-driven and urgent
 - ☐ 4. Humorous and technical

Comprehension:

Read the passage carefully and answer the questions that follow.

By mid-2025, the global water crisis is expected to reach unprecedented levels. According to the 2024 UN World Water Development Report, approximately 2.2 billion people lack access to safely managed drinking water, and 3.5 billion lack safely managed sanitation services. Meanwhile, nearly half of the world's population experiences severe water scarcity for at least part of each year. Agriculture consumes about 70% of global freshwater withdrawals, while industry and municipal use account for roughly 20% and 12%, respectively. Climate change is further destabilizing the hydrological cycle. Rising temperatures, glacial melt, and changing precipitation patterns are reducing freshwater availability, while floods and droughts increase in frequency and severity. Coastal aquifers face growing salinization: studies show that by 2100, as much as 77% of coastal aquifers could be affected by saltwater intrusion due to sea-level rise and declining recharge. Water scarcity today already affects 40% of the global population, and demand is expected to surpass supply by 40% by 2030. Groundwater depletion continues, especially in densely populated regions like India, China, and Pakistan, where aquifer recharge lags behind extraction. Many megacities now face "Day Zero" scenarios, where municipal taps could run dry without drastic conservation and infrastructure reform. While innovative technologies—such as biodegradable hydrogels that extract water from the air—offer promise for remote or water-stressed regions, current investments fall significantly short of what's needed (a shortfall of \$85 billion per year) to achieve universal access by 2030. Experts warn that without coordinated global investment, transparent governance, equitable distribution, and water-efficient infrastructure, the world risks escalating conflict, agricultural collapse, economic instability, and public health crises on a global scale.

SubQuestion No : 19

Q.19 Which summary best fits the passage?

- Ans
- ☒ 1. Financial spec sheet for water infrastructure financing
 - ☒ 2. Overview of global water stress, its drivers and scarcity trends
 - ☒ 3. A review of new water purification technologies
 - ☒ 4. A case study of desalination in Cyprus

Comprehension:

Read the passage carefully and answer the questions that follow.

By mid-2025, the global water crisis is expected to reach unprecedented levels. According to the 2024 UN World Water Development Report, approximately 2.2 billion people lack access to safely managed drinking water, and 3.5 billion lack safely managed sanitation services. Meanwhile, nearly half of the world's population experiences severe water scarcity for at least part of each year. Agriculture consumes about 70% of global freshwater withdrawals, while industry and municipal use account for roughly 20% and 12%, respectively. Climate change is further destabilizing the hydrological cycle. Rising temperatures, glacial melt, and changing precipitation patterns are reducing freshwater availability, while floods and droughts increase in frequency and severity. Coastal aquifers face growing salinization: studies show that by 2100, as much as 77% of coastal aquifers could be affected by saltwater intrusion due to sea-level rise and declining recharge. Water scarcity today already affects 40% of the global population, and demand is expected to surpass supply by 40% by 2030. Groundwater depletion continues, especially in densely populated regions like India, China, and Pakistan, where aquifer recharge lags behind extraction. Many megacities now face "Day Zero" scenarios, where municipal taps could run dry without drastic conservation and infrastructure reform. While innovative technologies—such as biodegradable hydrogels that extract water from the air—offer promise for remote or water-stressed regions, current investments fall significantly short of what's needed (a shortfall of \$85 billion per year) to achieve universal access by 2030. Experts warn that without coordinated global investment, transparent governance, equitable distribution, and water-efficient infrastructure, the world risks escalating conflict, agricultural collapse, economic instability, and public health crises on a global scale.

SubQuestion No : 20

Q.20 What real-world connection applies?

- Ans
- ☒ 1. Desalination is the only solution
 - ☒ 2. Climate has no impact on water access
 - ☒ 3. Water stress affects food security, conflict, and health globally
 - ☒ 4. Scarcity is confined to small islands only

Section : Hindi Language and Comprehension

Q.1 निम्नलिखित वाक्य के रिक्त स्थान में उचित विशेषण की पूर्ति कीजिए-
'यहाँ _____ लड़के बैठे हैं।'

- Ans
- ☒ 1. तेजी
 - ☒ 2. पास
 - ☒ 3. नजदीक
 - ☒ 4. सात

Q.2 निम्न विकल्पों में अर्थानुसार उचित मुहावरे को चुनिए-
'बहुत चतुर होना'

- Ans
- ☒ 1. तेज तर्रार होना
 - ☒ 2. एक आँख से देखना
 - ☒ 3. आधा तीतर आधा बटेर
 - ☒ 4. कान का कच्चा

Q.3	उचित कारक चिन्ह का प्रयोग करते हुए वाक्य पूर्ण करें- गंगा हिमालय.....निकलती है
Ans	✗ 1. पर ✓ 2. से ✗ 3. के ✗ 4. द्वारा
Q.4	निम्नलिखित अव्यवस्थित क्रम वाले वाक्यों को क,ख,ग,घ की संज्ञा दी गई है इन्हें ध्यान से पढ़कर,दिए गए विकल्पों में से उचित वाक्य क्रम वाला विकल्प चुनिए, जिससे सही अनुच्छेद का निर्माण हो – क - जो समग्र कल्याण को बढ़ावा देती है । ख - योग प्राचीन पद्धति का एक अभिन्न अंग हैं । ग - जिसने अपने कई शारीरिक, मानसिक और आध्यात्मिक लाभों के कारण दुनिया भर में अपार लोकप्रियता हासिल की है । घ – साथ ही योग में शारीरिक मुद्राओं की एक विस्तृत शृंखला शामिल है ।
Ans	✗ 1. ग क ख घ ✗ 2. क ग ख घ ✓ 3. ख ग घ क ✗ 4. घ ग ख क
Q.5	निम्नलिखित में से कौन -सा ‘अनेक शब्दों के लिए एक शब्द’ युग्म अशुद्ध है?
Ans	✗ 1. जिसे अक्षर ज्ञान हो- साक्षर ✗ 2. जिसकी ग्रीवा सुंदर हो- सुग्रीव ✗ 3. जो आसानी से मिल सके-सुलभ ✓ 4. जो स्वर्ग सिधार गया हो- स्थानापन्न
Q.6	निम्नलिखित में से ‘दूर’ के विलोम का किस एक वाक्य में उचित प्रयोग हुआ है?
Ans	✗ 1. उसको आपकी जरूरत है । ✗ 2. उसने किस फ्लाइट का टिकट लिया है? ✗ 3. आपका बेटा किस किस संस्था का छात्र है? ✓ 4. मैं सदैव अपने परिवार के पास रहूँगा ।
Q.7	निम्नलिखित वाक्य के रिक्त स्थान में उचित क्रिया-विशेषण की पूर्ति कीजिए- ‘साँप _____ चलता है ।’
Ans	✗ 1. भर ✗ 2. बुरी तरह ✗ 3. दरअसल ✓ 4. रेंगकर
Q.8	दिये गये वाक्य के किस भाग में त्रुटि है ? ‘आपका भविष्य उज्ज्वल है’
Ans	✗ 1. भविष्य ✗ 2. आपका ✓ 3. उज्ज्वल ✗ 4. है
Q.9	दिए गए विकल्पों में से वाक्य का उचित क्रम चुनिए- मैं मोबाइल अ निहारते हुए ढंग से ब की स्क्रीन पर स चिंतन मनन करना चाहता था द नाना प्रकार की रील
Ans	✗ 1. अ, द, स, ब ✓ 2. ब, द, अ, स ✗ 3. अ, स, ब, द ✗ 4. स, अ, द, ब

Q.10 निम्नलिखित वाक्य के रिक्त स्थान में उचित क्रिया-विशेषण की पूर्ति कीजिए-
'खुशबू _____ मुझे ही जानती है ।'

- Ans
- ☒ 1. कम
 - ☒ 2. केवल
 - ☒ 3. छोटा
 - ☒ 4. बहुत

Q.11 निम्नलिखित में से 'पर्व' के पर्याय का किस एक वाक्य में उचित प्रयोग हुआ है?

- Ans
- ☒ 1. उसे एक समारोह में सम्मान देने की घोषणा की गई है ।
 - ☒ 2. हमने उसे कितना समझाया, पर वह नहीं माना ।
 - ☒ 3. किरन ने इस वर्ष स्नातक में प्रवेश लिया है ।
 - ☒ 4. क्या आपको जलेबी पसंद है?

Q.12 निम्नलिखित में से कौन -सा 'अनेक शब्दों के लिए एक शब्द' युग्म अशुद्ध है?

- Ans
- ☒ 1. जो सर्वत्र व्याप्त हो- सर्वव्यापी
 - ☒ 2. जो सबको एक सा देखता हो-समदर्शी
 - ☒ 3. जो सभी को प्रिय हो- सव्यसाची
 - ☒ 4. जो सब कुछ जानता हो-सर्वज्ञ

Q.13 'फावड़ा चलाना' मुहावरे का अर्थ निम्न में से होगा—

- Ans
- ☒ 1. मेहनत का काम करना
 - ☒ 2. घर बनाना
 - ☒ 3. सब बर्बाद करना
 - ☒ 4. खेती करना

Q.14 दिये गये वाक्यों में से शुद्ध वर्तनी वाले वाक्य का चयन कीजिए ।

- Ans
- ☒ 1. यहाँ अपना हस्ताक्षर कर दीजिए ।
 - ☒ 2. यहाँ अपना हस्ताक्षर करा दीजिए ।
 - ☒ 3. यहाँ अपना हस्ताक्षर कार दीजिए ।
 - ☒ 4. यहाँ अपना हस्ताक्षर कर दीजिए ।

Q.15 निम्नलिखित वाक्य के रिक्त स्थान को भरने के लिए सबसे उपयुक्त विकल्प का चयन करें-

मेरा परम मित्र बार-बार याद दिलाने _____ बड़ी मुश्किल से उधार लिया गया सामान लौटाता है ।

- Ans
- ☒ 1. ने
 - ☒ 2. का
 - ☒ 3. से
 - ☒ 4. पर

Comprehension:

दिए गए गद्यांश के आधार पर पूछे गए प्रश्नों का उत्तर दीजिए ।

मानव जीवन में कुछ महान कर पाने की अदम्य लालसा ही महत्वाकांक्षा है । इस लालसा की पूर्ति का मार्ग परस्पर होड़ से जन्म लेता है । किसी अन्य से आगे बढ़ पाने की आकांक्षा बिना 'अन्य' के प्रति कठोर हुए नहीं पूर्ण की जा सकती । मनुष्य में आगे बढ़ने की जो भी स्वाभाविक इच्छा जन्म लेती है, उसके साथ अप्रत्यक्ष रूप से अन्य मानवों को पीछे छोड़ने की अदृश्य इच्छा भी जुड़ी रहती है । यदि सहृदय होकर इस पर विचार किया जाए तो इस प्रकार की समस्त प्रतिद्वंद्विता निष्ठुरता है, दूसरे के प्रति निर्ममता है, किंतु महानता को पाने के लिए यह निर्ममता या निष्ठुरता एक अनिवार्य दुर्गुण है । इसके अभाव में उस निष्ठा, संकल्प या दृढ़ता की कल्पना नहीं की जा सकती, जो मनुष्य को आगे बढ़कर अनछुई ऊँचाइयों को छूने के लिए प्रेरित करती है । हम सभी लोग अपने जीवन में न कुछ पाने का सपना देखते हैं । उसे हमारे जीवन का लक्ष्य कहा जा सकता है । महत्वाकांक्षा वह प्रेरणा शक्ति है जो हमें अपने लक्ष्यों को प्राप्त करने के लिए प्रेरित करती है । जीवन में महत्वाकांक्षी होना आवश्यक है ताकि हमारे जीने के पीछे एक मकसद हो । मकसद के बिना, जीवन एक बोझ की तरह है । हर किसी के जीवन में एक महत्वाकांक्षा होनी चाहिए । बिना उद्देश्य के जीवन निरर्थक है । जीवन में कुछ करने या बनने का उद्देश्य हमें उसी को पूरा करने के लिए सकारात्मकता और साहस के साथ आगे बढ़ाता है । यदि किसी के जीवन में कोई महत्वाकांक्षा नहीं रह जाती तो उसका जीवन निष्प्राण हो जाता है । महत्वाकांक्षा वह प्रेरक शक्ति है जो मनुष्य को गतिशील एवं प्राणवान बनाती है और कर्म करते रहने की प्रेरणा देती है ।

SubQuestion No : 16

Q.16 प्रस्तुत गद्यांश में 'कर्म' का विलोम क्या है?

- Ans
- ☒ 1. सक्रिय
 - ☒ 2. अकर्म
 - ☒ 3. सरोकार
 - ☒ 4. क्रिया

Comprehension:

दिए गए गद्यांश के आधार पर पूछे गए प्रश्नों का उत्तर दीजिए।

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SubQuestion No : 17

Q.17 दुर्गुण होते हुए भी निर्ममता को ज़रूरी माना गया है-

- Ans
- ☒ 1. महान बनने के लिए
 - ☒ 2. महत्वाकांक्षा के लिए
 - ☒ 3. शत्रु से टक्कर लेने के लिए
 - ☒ 4. लालसा की पूर्ति के लिए

Comprehension:

दिए गए गद्यांश के आधार पर पूछे गए प्रश्नों का उत्तर दीजिए।

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SubQuestion No : 18

Q.18 प्रस्तुत गद्यांश का उचित शीर्षक क्या है?

- Ans
- ☒ 1. आकांक्षा
 - ☒ 2. निष्ठुरता
 - ☒ 3. लालसा
 - ☒ 4. महत्वाकांक्षा

Comprehension:

दिए गए गद्यांश के आधार पर पूछे गए प्रश्नों का उत्तर दीजिए।

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SubQuestion No : 19

Q.19 मनुष्य में महत्वाकांक्षा क्यों होती है?

- Ans
- ☒ 1. दूसरों से ईर्ष्या करने के कारण
 - ☒ 2. स्वयं को सर्वश्रेष्ठ बनाने की लालसा से
 - ☒ 3. एक-दूसरे से जलन की भावना रखना
 - ☒ 4. दूसरों को पीछे छोड़ देने की ललक से

Comprehension:

दिए गए गद्यांश के आधार पर पूछे गए प्रश्नों का उत्तर दीजिए।

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SubQuestion No : 20

Q.20 प्रस्तुत गद्यांश का वास्तविक जीवन से सम्बन्ध क्या है?

- Ans**
- ☒ 1. जो आकांक्षा दूसरों के लिए की जाती है
 - ☒ 2. महत्वपूर्ण कार्य का पूरा होना
 - ☒ 3. मनुष्य की महत्वाकांक्षा और प्रेरणा
 - ☒ 4. जिस आकांक्षा या इच्छा का कोई महत्व न हो

Section : Discipline1

Q.1 Which of the following epidermal features directly enables guard cells to effect opening and closing of the stomatal pore?

- Ans**
- ☒ 1. Large intercellular spaces in the epidermis
 - ☒ 2. Unequal thickening of guard-cell walls and presence of chloroplasts in guard cells
 - ☒ 3. Presence of a multilayered epidermis
 - ☒ 4. Waxy cuticle covering the guard cells

Q.2 Which of the following characteristics would help you confirm that an algal specimen collected from the ocean belongs to Phaeophyceae?

- Ans**
- ☒ 1. Olive brown coloration and presence of fucoxanthin
 - ☒ 2. Habitat in freshwater and green colour
 - ☒ 3. Unicellular structure and flagella
 - ☒ 4. Presence of rhizoids and red pigments

Q.3 Which characteristic feature of pteridophytes is a precursor of the seed habit in the plant kingdom and is a significant step from the point of evolution?

- Ans**
- ☒ 1. Development of zygote into embryo within the female gametophyte, which is retained on a parent sporophyte for variable period.
 - ☒ 2. Spores germinate to give rise to prothallus which are inconspicuous, multicellular and free living.
 - ☒ 3. Majority of pteridophytes produces spores of similar kinds and are called homosporous.
 - ☒ 4. Presence of vascular elements in pteridophytes, makes their grouping with gymnosperms and angiosperms as Tracheophyta.

Q.4 Which of the following statements about the anatomy of a dicot root is INCORRECT?

- Ans**
- ☒ 1. The pericycle gives rise to lateral roots.
 - ☒ 2. The pith is prominent.
 - ☒ 3. The xylem bundles vary from two (diarch) to six (hexarch) in number.
 - ☒ 4. The cambium appears later as secondary growth.

Q.5 According to R.H. Whittaker, which of the following is the very basic characteristic of the kingdom Monera?

- Ans**
- ☒ 1. Prokaryotic cell type and well-defined nucleus.
 - ☒ 2. Eukaryotic cell type and well defined nucleus.
 - ☒ 3. Prokaryotic cell type and absence of nuclear membrane.
 - ☒ 4. Eukaryotic cell type and presence of nucleoid.

Q.6 Match the following classes of algae with their correct features.

- | | |
|------------------|---|
| a. Chlorophyceae | i. Possesses chlorophyll a and chlorophyll b; stores food as starch; and its cell wall is made up of cellulose. |
| b. Pheophyceae | ii. Possesses chlorophyll a and chlorophyll c; stores food as mannitol and laminarin; its cell wall is made up of cellulose and algin. |
| c. Rhodophyceae | iii. Possesses chlorophyll a and chlorophyll d; stores food as Floridean starch; its cell wall is made up of cellulose and sulfated galactans |
| d. Xanthophyceae | iv. Possesses chlorophyll a and chlorophyll e; stores food as chrysolaminarin; its cell wall is made up of cellulose and pectin. |

- Ans**
- ☒ 1. a ii, b i, c iii, d iv
 - ☒ 2. a iv, b iii, c ii, d i
 - ☒ 3. a i, b ii, c iii, d iv
 - ☒ 4. a i, b ii, c iv, d iii

Q.7 Which of the following statements about Cycas is INCORRECT?

- Ans**
- ☒ 1. Sago is obtained from Cycas revoluta
 - ☒ 2. Cycas possess apogeotropic coralloid roots
 - ☒ 3. Young leaves of Cycas are circinate folded
 - ☒ 4. Cycas possess pycnoxylic wood

Q.8 In a cockroach, which part of its digestive system is specifically adapted to grind food?

- Ans**
- ☒ 1. Hepatic caeca
 - ☒ 2. Maxillae
 - ☒ 3. Gizzard
 - ☒ 4. Mandibles

Q.9 Stipules are modified into tendrils in _____.

- Ans**
- ☒ 1. Smilax
 - ☒ 2. Pisum
 - ☒ 3. Nepenthes
 - ☒ 4. Clematis

Q.10 Match the following organisms with their correct features.

- | | |
|------------|--|
| a. Viruses | i. Non-cellular organisms having RNA or DNA as genetic material |
| b. Viroids | ii. Infectious agents having free RNA but lacking a protein coat |
| c. Prions | iii. Infectious agents smaller than viruses |
| d. Lichens | iv. Symbiotic associations between algae and fungi |

- Ans**
- ☒ 1. a i, b ii, c iv, d iii
 - ☒ 2. a ii, b i, c iii, d iv
 - ☒ 3. a iv, b iii, c ii, d i
 - ☒ 4. a i, b ii, c iii, d iv

Q.11 What is one important function of trichomes present on the stem?

- Ans**
- ☒ 1. Exchange of gases with the atmosphere
 - ☒ 2. Prevention of water loss through transpiration
 - ☒ 3. Absorption of water from soil
 - ☒ 4. Production of food by photosynthesis

Q.12 In the Two-Kingdom system, plants are primarily characterized by:

- Ans**
- ☒ 1. Absence of a nucleus
 - ☒ 2. Ingestion of food
 - ☒ 3. Ability to move from place to place
 - ☒ 4. Presence of cell wall and photosynthesis

Q.13 In earthworms, which of the following is true for the typhlosole region of the intestine?

- Ans**
- ☒ 1. It increases the absorptive surface area of the intestine.
 - ☐ 2. It stores calcium carbonate for the neutralization of soil acids.
 - ☐ 3. It connects gizzard to the stomach.
 - ☐ 4. It is a glandular structure that secretes digestive enzymes.

Q.14 Which of the following correctly describes the floral and reproductive characteristics of Asclepiadaceae?

- Ans**
- ☐ 1. Zygomorphic, hermaphrodite, bilabiate, didynamous stamens, axile placentation
 - ☒ 2. Actinomorphic, hermaphrodite, gynostegium, marginal placentation
 - ☐ 3. Zygomorphic, gamopetalous, epipetalous stamens, oblique ovary
 - ☐ 4. Actinomorphic, bisexual, polyandrous, superior ovary, axile placentation

Q.15 A student has written the floral formula of a flower with the symbol “(5)” in K(5), which indicates:

- Ans**
- ☐ 1. 5 floral whorls
 - ☐ 2. 5 sepals with free arrangement
 - ☐ 3. 5 incomplete sepals
 - ☒ 4. 5 sepals, united

Q.16 The inflorescence found in Arum and Alocasia is known as _____

- Ans**
- ☒ 1. Spadix
 - ☐ 2. Capitulum
 - ☐ 3. Catkin
 - ☐ 4. Corymb

Q.17 A scientist is planning to study biochemical processes and genetic mechanisms. Which fungus would be the most appropriate model organism?

- Ans**
- ☐ 1. Rhizopus
 - ☐ 2. Albugo
 - ☐ 3. Claviceps
 - ☒ 4. Neurospora

Q.18 What is the standard size of a herbarium sheet?

- Ans**
- ☒ 1. 28.75 × 41.25 cm
 - ☐ 2. 35.25 × 40.50 m
 - ☐ 3. 39.25 × 52.50 inch
 - ☐ 4. 45.50 × 55.75 cm

Q.19 Diadelphous condition is a characteristic feature of ____ family.

- Ans**
- ☐ 1. Asteraceae
 - ☒ 2. Papilionaceous
 - ☐ 3. Brassicaceae
 - ☐ 4. Rutaceae

Q.20 Which of the following shows the first appearance of vascular tissues in the evolutionary history of plants?

- Ans**
- ☐ 1. Bryophytes
 - ☒ 2. Pteridophytes
 - ☐ 3. Gymnosperms
 - ☐ 4. Angiosperms

Q.1 Why do some enzymes lose their activity at very high temperatures?

- Ans**
- ☐ 1. The enzyme becomes more soluble
 - ☐ 2. Concentration of the substrate decreases
 - ☒ 3. The enzyme gets denatured
 - ☐ 4. The pH becomes too acidic

Q.2 Which type of inhibition cannot be overcome by increasing substrate concentration and decreases only V_{max} , not K_m ?

- Ans**
- ☒ 1. Non-competitive inhibition
 - ☐ 2. Competitive inhibition
 - ☐ 3. Irreversible inhibition
 - ☐ 4. Uncompetitive inhibition

Q.3 Which of the following statements about nitrate reductase is INCORRECT?

- Ans**
- ☐ 1. It is a molybdenum-flavoprotein.
 - ☐ 2. FAD acts as a prosthetic group.
 - ☒ 3. It catalyses the reduction of NO_2^- to NH_4^+ .
 - ☐ 4. It is found in the cytosol.

Q.4 The term used for the bulk movement of substances through vascular tissues of plants is _____.

- Ans**
- ☐ 1. Guttation
 - ☐ 2. Osmosis
 - ☐ 3. Capillarity
 - ☒ 4. Translocation

Q.5 The non-protein component that is tightly and permanently bound to an enzyme is called a:

- Ans**
- ☒ 1. Prosthetic group
 - ☐ 2. Substrate
 - ☐ 3. Apoenzyme
 - ☐ 4. Ribozyme

Q.6 A plant progresses from the seedling stage to maturity, forms flowers and fruits, and finally ages. This complete sequence of changes is termed:

- Ans**
- ☒ 1. Development
 - ☐ 2. Growth
 - ☐ 3. Differentiation
 - ☐ 4. Morphogenesis

Q.7 Enzyme action in a single-substrate system becomes constant at high substrate concentrations because:

- Ans**
- ☐ 1. Substrates are used up
 - ☒ 2. All active sites are saturated
 - ☐ 3. Products inhibit further reaction
 - ☐ 4. All enzyme molecules are inactive

Q.8 A photoperiodic stimulus is perceived by _____.

- Ans**
- ☒ 1. Leaves
 - ☐ 2. Stem
 - ☐ 3. Apical tip
 - ☐ 4. Floral bud

Q.9 According to the ABC model of floral development, what would be the expected phenotype of a plant with a mutation in both B and C class genes?

- Ans**
- ☒ 1. Only sepals develop in all whorls
 - ☐ 2. Only sepals and petals develop
 - ☐ 3. Petal and stamens develop instead of sepals and carpels
 - ☐ 4. Only sepals and carpels develop

Q.10 The specific region of an enzyme where the substrate binds is called:

- Ans**
- ☒ 1. Active site
 - ☐ 2. Catalytic zone
 - ☐ 3. Substrate pocket
 - ☐ 4. Allosteric site

Q.11 Which of the following statements about allosteric inhibition is INCORRECT?

- Ans**
- ☐ 1. Allosteric enzymes possess a separate active site and an allosteric site.
 - ☐ 2. The accumulation of the end product may cause inhibition of the first enzyme.
 - ☒ 3. The allosteric inhibition is irreversible.
 - ☐ 4. The allosteric inhibition is reversible.

Q.12 Given below are the enzymes of different classes. What is the correct classification of enzymes?

- | | |
|------------|--------------------|
| a. Class 1 | i. Oxidoreductases |
| b. Class 2 | ii. Transferase |
| c. Class 3 | iii. Hydrolases |
| d. Class 4 | iv. Lyases |
| e. Class 5 | v. Isomerases |
| f. Class 6 | vi. Ligase |

- Ans**
- ☐ 1. a ii, b i, c iii, d iv, e v, f vi
 - ☐ 2. a i, b ii, c iv, d iii, e v, f vi
 - ☒ 3. a i, b ii, c iii, d iv, e v, f vi
 - ☐ 4. a iv, b iii, c ii, d i, e v, f vi

Q.13 To study the effect of nitrogen deficiency on root development, which setup is ideal for accurate observation?

- Ans**
- ☐ 1. Spraying nitrogen solution on leaves
 - ☐ 2. Planting in fertilized garden soil
 - ☒ 3. Growing in a hydroponic setup lacking nitrogen
 - ☐ 4. Using nitrate-rich water in pots

Q.14 Each enzyme is given a specific code consisting of four digits. Match the following digits with their correct features.

- | | |
|-----------------|-----------------------------|
| a. First digit | i. Major class |
| b. Second digit | ii. Sub class |
| c. Third digit | iii. Sub sub class |
| d. Fourth digit | iv. Specific name of enzyme |

- Ans**
- ☐ 1. a i, b ii, c iv, d iii
 - ☒ 2. a i, b ii, c iii, d iv
 - ☐ 3. a iv, b iii, c ii, d i
 - ☐ 4. a ii, b i, c iii, d iv

Q.15 Which of the following statements about non-cyclic photophosphorylation is correct?

- Ans**
- ☐ 1. It is associated with Photosystem I only.
 - ☐ 2. Photolysis of water does not take place.
 - ☒ 3. It is associated with both Photosystem I and Photosystem II.
 - ☐ 4. FAD is reduced.

Q.16 What is the main benefit of accessory pigments in photosynthesis?

- Ans**
- ☐ 1. They speed up cellular respiration
 - ☒ 2. They allow plants to capture light from a broader spectrum of wavelengths
 - ☐ 3. They help in regulating stomatal closure
 - ☐ 4. They decrease the plant's need for water

Q.17 The ability of plants to follow different developmental pathways in response to environment or life phase is called _____.

- Ans**
- ☐ 1. Senescence
 - ☒ 2. Plasticity
 - ☐ 3. Differentiation
 - ☐ 4. Induction

Q.18 Which is the primary photoreceptor in plants and plays a crucial role in synchronizing (entraining) the circadian clock to light-dark cycles?

- Ans**
- ☐ 1. Chlorophyll b
 - ☐ 2. Zeaxanthin
 - ☒ 3. Phytochrome B (PHYB)
 - ☐ 4. Phototropin 1 (PHOT1)

Q.19 Which of the following acts as an allosteric inhibitor of Threonine dehydratase?

- Ans**
- ☐ 1. Threonine
 - ☐ 2. Glucose
 - ☒ 3. Isoleucine
 - ☐ 4. Lactose

Q.20 In non-cyclic photophosphorylation, which sequence of photosystems is followed for electron flow?

- Ans**
- ☐ 1. Only PS II
 - ☒ 2. PS II → PS I
 - ☐ 3. Only PS I
 - ☐ 4. PS I → PS II

Section : **Discipline3**

Q.1 In which of the following types of muscle contraction does the length of the muscle remain unchanged, but the tension increases?

- Ans**
- ☐ 1. Eccentric contraction
 - ☐ 2. Concentric contraction
 - ☐ 3. Isotonic contraction
 - ☒ 4. Isometric contraction

Q.2 Which of the following is considered the most effective long-term reversible contraception method?

- Ans**
- ☐ 1. Withdrawal method
 - ☐ 2. Oral contraceptive pills
 - ☒ 3. Copper intrauterine device (IUD)
 - ☐ 4. Male condom

Q.3 Read the statements carefully and choose the correct option.
Statement I: Prothrombin is a glycoprotein synthesized in the liver, during which vitamin B is required.
Statement II: During clotting, prothrombin is converted into thrombin in the presence of thromboplastin, calcium ions and accelerating factors.

- Ans**
- ☐ 1. Statement I is correct, but Statement II is incorrect.
 - ☐ 2. Both Statement I and Statement II are correct, but Statement II does not explain Statement I.
 - ☐ 3. Both Statement I and Statement II are correct, and Statement II explains Statement I.
 - ☒ 4. Statement I is incorrect, but Statement II is correct.

Q.4 Which of the following is considered sexual behavior in pre-adolescence?

- Ans**
- ☒ 1. Engaging in adult sexual activities
 - ☒ 2. Curiosity about bodily changes during puberty
 - ☒ 3. Playing sports with friends
 - ☒ 4. Discussing academic subjects with peers

Q.5 System responsible for autonomic control of respiration is initiated by rhythmic discharge from 'pacemaker cells' in the _____.

- Ans**
- ☒ 1. Cerebellum
 - ☒ 2. Medulla oblongata
 - ☒ 3. Hypothalamus
 - ☒ 4. Pons

Q.6 Match the following primary precursors with their correct plant growth hormones.

- | | |
|---|----------------------|
| a. Tryptophan | i. Auxin |
| b. Isopentenyl Pyrophosphate | ii. Gibberellic acid |
| c. N ⁶ -(isopentenyl)-adenosine 5
monophosphate | iii. Cytokinin |
| d. 1 Amino Cyclopropane-1-Carboxylic acid | iv. Ethylene |
| e. Farnesyl diphosphate | v. Absciscic Acid |

- Ans**
- ☒ 1. a-i, b-ii, c-iv, d-iii, e-v
 - ☒ 2. a-i, b-ii, c-iii, d-iv, e-v
 - ☒ 3. a-iv, b-iii, c-ii, d-i, e-v
 - ☒ 4. a-ii, b-i, c-iii, d-iv, e-v

Q.7 What must be used with a Contraceptive diaphragm for it to work effectively?

- Ans**
- ☒ 1. Worn for at least 24 hours continuously
 - ☒ 2. Used with spermicides
 - ☒ 3. Used with hormonal contraceptives
 - ☒ 4. Inserted immediately after intercourse

Q.8 Which of the following best describes the shape of the uterus, a key organ of the female reproductive system in human?

- Ans**
- ☒ 1. Cone-shaped
 - ☒ 2. Cylindrical
 - ☒ 3. Inverted Pear-shaped
 - ☒ 4. Spherical

**Q.9 Given below are two statements:
Statement I: When oxygen is used for respiration, it is called anaerobic respiration.
Statement II: Food is oxidized with molecular oxygen in *Taenia*.
Choose the correct answer from the options given below.**

- Ans**
- ☒ 1. Both Statement I and Statement II are false
 - ☒ 2. Statement I is false, but Statement II is true
 - ☒ 3. Both Statement I and Statement II are true
 - ☒ 4. Statement I is true, but Statement II is false

Q.10 What term describes a hormone that acts on the same cells that secrete it?

- Ans**
- ☒ 1. Paracrine
 - ☒ 2. Autocrine
 - ☒ 3. Endocrine
 - ☒ 4. Neuroendocrine

Q.11 In tubectomy, which structure is cut and ligated to prevent pregnancy?

- Ans**
- ☐ 1. Ejaculatory duct
 - ☒ 2. Fallopian tube
 - ☐ 3. Vas deferens
 - ☐ 4. Ureter

Q.12 Which of the following enzymes digests starch in the oral cavity?

- Ans**
- ☐ 1. Pepsin
 - ☐ 2. Trypsin
 - ☐ 3. Lipase
 - ☒ 4. Salivary amylase

Q.13 Which sequence correctly describes the final common pathway of coagulation?

- Ans**
- ☐ 1. Thrombin → Prothrombin → Fibrinogen → Fibrin
 - ☒ 2. Prothrombin → Thrombin → Fibrinogen → Fibrin
 - ☐ 3. Fibrinogen → Prothrombin → Thrombin → Fibrin
 - ☐ 4. Fibrinogen → Fibrin → Thrombin → Prothrombin

Q.14 Which cellular mechanism triggers thigmonastic leaf drooping in *Mimosa pudica* after a mechanical stimulus?

- Ans**
- ☐ 1. Synthesis of structural proteins in the pulvinus region
 - ☒ 2. Turgor loss in upper pulvinus cells due to efflux of K⁺ ions and water
 - ☐ 3. Enlargement of pulvinus cells due to active mitosis
 - ☐ 4. Thickening of pulvinus cell walls to support leaflet folding

Q.15 A young adult complains of abdominal cramps, flatulence, and watery diarrhea after milk ingestion. Which laboratory test provides a definitive diagnosis of the underlying defect?

- Ans**
- ☐ 1. Fecal fat estimation
 - ☒ 2. Hydrogen breath test
 - ☐ 3. Serum amylase assay
 - ☐ 4. Fecal occult blood test

Q.16 Which of the following results from deposition of an abnormal proteinoid substance in the walls of the blood vessels and seriously damages the basement membrane of the glomeruli?

- Ans**
- ☐ 1. Lipedema
 - ☐ 2. Dercum disease
 - ☐ 3. Madelung disease
 - ☒ 4. Amyloidosis

Q.17 Which statement best describes the role of the trophoblast during implantation?

- Ans**
- ☒ 1. It produces enzymes to digest the endometrium facilitating blastocyst embedding
 - ☐ 2. It acts as a barrier preventing maternal blood flow
 - ☐ 3. It forms the inner cell mass developing into the embryo
 - ☐ 4. It develops into the vascular system of the fetus

Q.18 What is the fate of amino acids after they are absorbed into the bloodstream from the small intestine?

- Ans**
- ☒ 1. They are transported to body cells for protein synthesis and metabolic functions
 - ☐ 2. They are excreted unchanged through the urinary system
 - ☐ 3. They are converted into bile salts by the liver
 - ☐ 4. They are stored in adipose tissue for long-term energy reserves

Q.19 Which of the following is considered sexual behaviour in adults?

- Ans**
- ☐ 1. Expressing affection through non-sexual gestures
 - ☐ 2. Discussing financial matters
 - ☒ 3. Engaging in consensual sexual activity
 - ☐ 4. Participating in sports activities

Q.20 A flower is morphologically considered to be:

- Ans**
- ☐ 1. modified stem only
 - ☐ 2. modified leaf
 - ☒ 3. modified vegetative shoot
 - ☐ 4. modified root

Section : **Discipline4**

Q.1 The chiasmatype theory of crossing over was proposed by ____.

- Ans**
- ☐ 1. J. Belling
 - ☐ 2. C.D. Darlington
 - ☐ 3. L.W. Sharp
 - ☒ 4. F.A. Janssens

Q.2 Which of the following statements is INCORRECT about the theory of spontaneous generation of life?

- Ans**
- ☐ 1. The theory suggests that life can arise from non-living matter
 - ☒ 2. Louis Pasteur's experiments supported the theory of spontaneous generation
 - ☐ 3. The theory of spontaneous generation is also known as abiogenesis
 - ☐ 4. Francesco Redi's experiments challenged the validity of the theory

Q.3 What was the primary significance of the Miller-Urey experiment in the study of the origin of life?

- Ans**
- ☒ 1. Showed synthesis of organic compounds under prebiotic earth conditions
 - ☐ 2. Proved the RNA world hypothesis
 - ☐ 3. Identified the first living cell
 - ☐ 4. Demonstrated spontaneous generation of life from non-living matter

Q.4 The hereditary unit that independently controls a specific function leading to the appearance of a phenotypic trait is known as _____.

- Ans**
- ☐ 1. Chromosome
 - ☒ 2. Gene
 - ☐ 3. Allele
 - ☐ 4. Genome

Q.5 Which of the following scientists postulated the cosmozoic theory of the origin of life?

- Ans**
- ☒ 1. Hermann E. Richter
 - ☐ 2. Louis Pasteur
 - ☐ 3. Alexander Oparin
 - ☐ 4. Charles Darwin

Q.6 The process of evolution of different species in a given geographical area, starting from a point and radiating to other areas, is called _____.

- Ans**
- ☒ 1. Adaptive radiation
 - ☐ 2. Natural selection
 - ☐ 3. Speciation
 - ☐ 4. Genetic drift

Q.7 Which of the following naturalists proposed that the evolution of life forms occurred due to the use and disuse of organs?

- Ans**
- ☐ 1. Gregor Mendel
 - ☐ 2. Charles Darwin
 - ☐ 3. Alfred Wallace
 - ☒ 4. Jean-Baptiste Lamarck

Q.8 Red-green colour blindness inheritance is a type of ____.

- Ans**
- ☒ 1. X-linked recessive inheritance
 - ☐ 2. Autosomal dominant inheritance
 - ☐ 3. Y-linked inheritance
 - ☐ 4. Autosomal recessive inheritance

Q.9 In diplospory apomixis, the embryo sac develops directly from which of the following?

- Ans**
- ☐ 1. Nucellar cell without meiosis
 - ☐ 2. Egg cell after triple fusion
 - ☐ 3. Integumentary initial cell after meiosis
 - ☒ 4. Megaspore mother cell without meiosis

Q.10 During transcription, the strand of DNA that serves as the template is called:

- Ans**
- ☐ 1. Coding strand
 - ☐ 2. Sense strand
 - ☒ 3. Antisense strand
 - ☐ 4. Messenger strand

Q.11 Which of the following is NOT an application of RFLP in DNA fingerprinting?

- Ans**
- ☐ 1. Forensic identification
 - ☒ 2. Protein synthesis analysis
 - ☐ 3. Genetic diversity studies
 - ☐ 4. Paternity testing

Q.12 The smallest distance within which recombination can occur is called:

- Ans**
- ☒ 1. Recon
 - ☐ 2. Cistron
 - ☐ 3. Operon
 - ☐ 4. Muton

Q.13 Which of the following Italian scholar in 1765 tested the theory of spontaneous generation of microbes ?

- Ans**
- ☐ 1. A. Schneider
 - ☐ 2. A. Kolliker
 - ☐ 3. W. His
 - ☒ 4. Abbe Spallanzani

Q.14 When a homozygous colored rabbit is crossed with a Himalayan albino, the phenotype ratio in the F₂ generation would be ____.

- Ans**
- ☐ 1. 3 colored: 1 Himalayan
 - ☐ 2. 1 colored: 1 Himalayan: 2 albinos
 - ☐ 3. 2 colored: 1 Himalayan: 1 albino
 - ☒ 4. 1 colored: 2 Himalayan: 1 albino

Q.15 Which application is NOT a typical use of ribozyme technology?

- Ans**
- ☐ 1. Acting as a biosensor for detecting nucleic acid sequences
 - ☐ 2. Gene discovery and functional genomics
 - ☐ 3. Targeted cleavage of specific mRNA in gene therapy
 - ☒ 4. DNA replication at replication fork

Q.16 In genetics, when the heterozygous genotype shows a phenotype intermediate between the two homozygous genotypes, the phenomenon is called:

- Ans**
- ☐ 1. Overdominance
 - ☐ 2. Codominance
 - ☐ 3. Epistasis
 - ☒ 4. Incomplete dominance

Q.17 RNAi (RNA Interference) takes place in all eukaryotic organisms as a method of _____.

- Ans**
- ☐ 1. protein synthesis
 - ☒ 2. silencing
 - ☐ 3. ribosome assembly
 - ☐ 4. DNA replication

Q.18 The first division of the zygote in angiosperms is usually ?

- Ans**
- ☐ 1. Vertical producing two equal cells
 - ☒ 2. Horizontal producing a small terminal cell and a large basal cell
 - ☐ 3. Equatorial producing equal daughter cells
 - ☐ 4. Asymmetrical producing two identical cells

Q.19 Which of the following is INCORRECT about sex chromosomes?

- Ans**
- ☐ 1. Sex chromosomes determine the sex of an organism.
 - ☒ 2. Both X and Y chromosomes are autosomes.
 - ☐ 3. The X chromosome is larger and contains more genes than the Y chromosome.
 - ☐ 4. Males typically have one X and one Y chromosome, while females have two X chromosomes.

Q.20 The ABO blood group system in humans is governed by three alleles (I^A , I^B , i). What is the expected phenotypic ratio in the offspring of a cross between a parent with genotype $I^A I^B$ and one with genotype ii ?

- Ans**
- ☐ 1. 3:1 (A:B)
 - ☐ 2. 1:1:1:1 (A:B:AB:O)
 - ☐ 3. 1:1 (AB:O)
 - ☒ 4. 1:1 (A:B)

Section : **Discipline5**

Q.1 Which of the following enzymes is responsible for converting ATP into cyclic AMP (cAMP)?

- Ans**
- ☐ 1. Kinase
 - ☒ 2. Adenylate cyclase
 - ☐ 3. Phosphodiesterase
 - ☐ 4. ATP synthase

Q.2 Which of the following is CORRECTLY matched regarding the *lac* operon genes and the proteins they code

S. No.	Gene	S. No.	Protein
1	Gene lac A	A	Beta lactose permease
2	Gene lac Z	B	Beta galactosidase
3	Gene lac Y	C	Beta galactoside transacetylase

- Ans**
- ☐ 1. 1-C; 2-A; 3-B
 - ☐ 2. 1-A; 2-B; 3-C
 - ☐ 3. 1-A; 2-C; 3-B
 - ☒ 4. 1-C; 2-B; 3-A

Q.3 What is the function of the Cyclin D1 protein, and what disorder is caused by its dysregulation?

- Ans**
- ☒ 1. Cyclin D1 promotes cytokinesis, and its dysregulation leads to diabetes.
 - ☒ 2. Cyclin D1 controls the G1/S transition in the cell cycle, and its dysregulation leads to cancer.
 - ☒ 3. Cyclin D1 is involved in DNA repair, and its dysregulation causes muscular dystrophy.
 - ☒ 4. Cyclin D1 regulates apoptosis, and its dysregulation causes Alzheimer's disease.

Q.4 What is the importance of centromere during cell division?

- Ans**
- ☒ 1. It holds sister chromatids together and attaches spindle fibres.
 - ☒ 2. It stores genetic material.
 - ☒ 3. Centromere is always located at the chromosome tip.
 - ☒ 4. It is the site of rRNA synthesis.

Q.5 Which of the following tests employed the precipitation method to determine interrelationships among different animals, as developed by Dr. Georg H. F. Nuttall?

- Ans**
- ☒ 1. Serological Test
 - ☒ 2. Radioimmunoassay
 - ☒ 3. ELISA Test
 - ☒ 4. Western Blot Test

Q.6 Which of the following statements is CORRECT regarding the characteristics of the genetic code?

- Ans**
- ☒ 1. Each codon consists of four nucleotides
 - ☒ 2. The genetic code is overlapping
 - ☒ 3. A single codon can code for multiple amino acids
 - ☒ 4. The code is commaless

Q.7 Which motor proteins are responsible for vesicular transport along microtubules?

- Ans**
- ☒ 1. Myosin and troponin
 - ☒ 2. Keratin and vimentin
 - ☒ 3. Actin and tubulin
 - ☒ 4. Kinesin and dynein

Q.8 Which model of enzyme-substrate interaction explains that the enzyme active site is flexible and adapts its shape upon substrate binding?

- Ans**
- ☒ 1. Transition State Model
 - ☒ 2. Lock and Key Model
 - ☒ 3. Michaelis-Menten Model
 - ☒ 4. Induced Fit Model

Q.9 Allergy is due to the release of chemicals like histamine and serotonin from the _____ cells.

- Ans**
- ☒ 1. Epithelial
 - ☒ 2. Mast
 - ☒ 3. Macrophage
 - ☒ 4. Neutrophil

Q.10 Eicosanoid hormones are derived from which of the following?

- Ans**
- ☒ 1. Cholesterol
 - ☒ 2. Fatty acids
 - ☒ 3. Peptides
 - ☒ 4. Amino acids

Q.11 What does the FRAP technique primarily measure in cell biology?

- Ans**
- ☒ 1. RNA transcription rate
 - ☒ 2. DNA replication fidelity
 - ☒ 3. Protein synthesis rate
 - ☒ 4. Mobility and dynamics of molecules within membranes or cells

Q.12 Which structural feature is characteristic of the tertiary structure of proteins?

- Ans**
- ☐ 1. Sequence of amino acids linked by peptide bonds
 - ☐ 2. α -helix and β -sheet formation from peptide bonds
 - ☒ 3. Hydrogen and disulfide bonds stabilizing three-dimensional folding
 - ☐ 4. Combination of multiple polypeptide chains into a complex

Q.13 What is the role of RNase P in cells?

- Ans**
- ☐ 1. Degrades mature tRNA
 - ☐ 2. Splices exons from mRNA
 - ☐ 3. Adds CCA to the 3' end of tRNA
 - ☒ 4. Cleaves a 5' leader segment from precursor tRNA molecules

Q.14 Which of the following types of protein regulates progress through cell cycle checkpoints?

- Ans**
- ☐ 1. Histones
 - ☐ 2. Signal transducers
 - ☐ 3. Transcription factors
 - ☒ 4. Cyclin Dependent Kinases

Q.15 Which of the following is a glycoprotein hormone?

- Ans**
- ☐ 1. Growth hormone
 - ☐ 2. Cortisol
 - ☒ 3. Thyroid-stimulating hormone
 - ☐ 4. Epinephrine

Q.16 Simple multigene families are transcribed uniquely by which combination of RNA polymerase?

- Ans**
- ☐ 1. RNA polymerase II and Reverse Transcriptase
 - ☒ 2. RNA polymerase I and III
 - ☐ 3. RNA polymerase I and II
 - ☐ 4. RNA polymerase II and IV

Q.17 In many animal cells, a sodium-potassium exchange pump operates. For every ATP molecule used, how many sodium ions are pumped out of the cell and how many potassium ions are pumped into the cell?

- Ans**
- ☐ 1. 2 Na⁺ out, 3 K⁺ in
 - ☐ 2. 3 Na⁺ out, 3 K⁺ in
 - ☐ 3. 2 Na⁺ out, 2 K⁺ in
 - ☒ 4. 3 Na⁺ out, 2 K⁺ in

Q.18 Which of the following is an example of the quaternary structure of a protein?

- Ans**
- ☐ 1. The folding of a polypeptide into a globular shape
 - ☒ 2. The association of four polypeptide chains in hemoglobin
 - ☐ 3. The sequence of amino acids in a polypeptide
 - ☐ 4. The alpha-helix formation in a single polypeptide chain

Q.19 Inheritance of B chromosomes is generally described as

- Ans**
- ☐ 1. Strictly maternal inheritance
 - ☐ 2. Paternal inheritance only
 - ☐ 3. Mendelian inheritance with strict segregation
 - ☒ 4. Non-Mendelian inheritance with irregular segregation and accumulation mechanisms

Q.20 Which of the following scientists has got the Nobel prize for studies on the mechanism of action of hormone and role of cyclic AMP?

- Ans**
-  1. GD Robertson
 -  2. M. Calvin
 -  3. P Mitchell
 -  4. EW Sutherland

Section : **Discipline6**

Q.1 Which subunit of cholera toxin is used to develop a safe edible cholera vaccine?

- Ans**
-  1. All subunits together
 -  2. Subunit B
 -  3. Subunit A1
 -  4. Subunit A2

Q.2 Which of the following statements is true about HLA polymorphism?

- Ans**
-  1. It does not affect immune responses
 -  2. It is very low and stable across humans
 -  3. It is extremely high, making every individual's HLA profile unique
 -  4. It occurs only in class III HLA genes

Q.3 Which of the following is a famous example of biopiracy for India by European Patent Office?

- Ans**
-  1. Sheep of India
 -  2. Neem tree of India
 -  3. Tulsi plant of India
 -  4. Cow of India

Q.4 Which of the following statements is NOT true for continued inbreeding in animals for several generations?

- Ans**
-  1. The breeding of stocks or individuals that are not closely related is called continued inbreeding.
 -  2. Inbreeding leads to increase in homozygosity and decrease in variation within the group.
 -  3. Continued inbreeding usually reduces fertility of animals and even their productivity.
 -  4. Inbreeding exposes recessive genes for undesirable characters that are eliminated by selection.

Q.5 Identify the exotic breed of cattle known for its exceptional milk production, which is often cross bred with local breeds in India to improve yield.

- Ans**
-  1. Deoni
 -  2. Red Sindhi
 -  3. Sahiwal
 -  4. Jersey

Q.6 Identify an example of a biofortified crop in the given options.

- Ans**
-  1. Wheat variety with high grain yield
 -  2. Rice variety tolerant to saline soil
 -  3. Maize hybrid with high lysine and tryptophan content
 -  4. Bt cotton resistant to bollworms

Q.7 Which Indian herbal resources have faced attempts of biopiracy in addition to Basmati rice?

- Ans**
-  1. Pepper and cardamom
 -  2. Turmeric and neem
 -  3. Ginger and garlic
 -  4. Tulsi and aloe vera

Q.8 Which of the following is commonly used for the production of single-cell proteins?

- Ans**
- ☐ 1. Chlamydomonas
 - ☐ 2. Volvox
 - ☐ 3. Gelidium
 - ☒ 4. Spirulina

Q.9 In pest-resistant crops such as Bt cotton, the production of insecticidal proteins is due to the expression of a gene obtained from which bacterium?

- Ans**
- ☐ 1. Escherichia coli
 - ☐ 2. Rhizobium leguminosarum
 - ☐ 3. Agrobacterium tumefaciens
 - ☒ 4. Bacillus thuringiensis

Q.10 In genetic engineering, what is the primary role of a restriction endonuclease?

- Ans**
- ☐ 1. To synthesize new DNA strands from RNA templates
 - ☐ 2. To join DNA fragments together
 - ☐ 3. To transport DNA into host cells
 - ☒ 4. To cut DNA at specific recognition sequences

Q.11 Which of the following is an example of a genetically engineered pharmaceutical product that utilizes recombinant *Escherichia coli* for large-scale production?

- Ans**
- ☐ 1. Flavr Savr tomato
 - ☐ 2. Bt cotton
 - ☒ 3. Human insulin (Humulin)
 - ☐ 4. Golden Rice

Q.12 Which of the following immunoglobulins increases in response to allergens such as mould spores in a susceptible person?

- Ans**
- ☒ 1. IgE
 - ☐ 2. IgG
 - ☐ 3. IgM
 - ☐ 4. IgA

Q.13 Which of the following statements CORRECTLY distinguishes sandwich ELISA from competitive ELISA?

- Ans**
- ☒ 1. Sandwich ELISA signal rises with antigen; competitive ELISA signal falls with antigen
 - ☐ 2. Competitive ELISA uses single antibody; sandwich uses only enzyme-linked antibodies
 - ☐ 3. Sandwich ELISA coats antigen first; competitive ELISA coats antibody first
 - ☐ 4. Sandwich ELISA requires purified antigen, while competitive ELISA does not

Q.14 The climax pattern hypothesis of succession was proposed by which ecologist?

- Ans**
- ☐ 1. E.P. Odum
 - ☐ 2. H.A. Gleason
 - ☒ 3. R.H. Whittaker
 - ☐ 4. Frederic Clements

Q.15 Monoclonal antibodies are widely used for _____ in diagnostic laboratories.

- Ans**
- ☐ 1. protein synthesis
 - ☐ 2. DNA replication
 - ☒ 3. detection of specific molecules
 - ☐ 4. energy production

Q.16 Which of the following options best represents temperature and techniques used for preservation of cells in liquid nitrogen?

- Ans**
- ☐ 1. -10 °C & Preservation
 - ☐ 2. -110 °C & Cryopreservation
 - ☒ 3. -196 °C & Cryopreservation
 - ☐ 4. -1 °C & Preservation

Q.17 Which of the following products is NOT obtained through animal husbandry?

- Ans**
- ☐ 1. Wool
 - ☐ 2. Milk
 - ☒ 3. Rubber
 - ☐ 4. Eggs

Q.18 In which of the following contexts is the traditional technique of hybridisation different from modern-day biotechnology?

- Ans**
- ☒ 1. Biotechnology allows recombination of only desired genes.
 - ☐ 2. Hybridization allows recombination of only desired genes.
 - ☐ 3. Hybridization allows recombination of only favorable genes for the organisms.
 - ☐ 4. Biotechnology allows recombination of all genes at once.

Q.19 Which plasmid-based cloning vector is most widely used in *E. coli*?

- Ans**
- ☐ 1. Ti plasmid
 - ☐ 2. pACYC177
 - ☒ 3. pBR322
 - ☐ 4. pET28a

Q.20 Which of the following statements correctly describes a physiological adaptation in desert animals?

- Ans**
- ☐ 1. Formation of thick fur to resist cold temperatures
 - ☐ 2. Development of long limbs to escape predators
 - ☒ 3. Ability to store water and produce concentrated urine
 - ☐ 4. Camouflaging body coloration to blend with surroundings

Section : **Discipline7**

Q.1 Excessive groundwater withdrawal in agriculture leads to which type of degradation?

- Ans**
- ☒ 1. Subsidence and declining water tables
 - ☐ 2. Soil acidification
 - ☐ 3. Desertification
 - ☐ 4. Salinity build-up

Q.2 Algal bloom is caused by the availability of _____.

- Ans**
- ☐ 1. excessive nutrients in air
 - ☐ 2. minimal nutrients in water
 - ☒ 3. excessive nutrients in water
 - ☐ 4. minimal nutrients in air

Q.3 Read the given statements labelled as Assertion and Reasoning carefully:

Assertion : Air pollution by nitrogen oxides can lead to the formation of ground-level ozone, which is harmful to plants and humans.

Reason : Nitrogen oxides react with volatile organic compounds in the presence of sunlight to produce ozone near the Earth's surface.

Which of the following options correctly evaluates the assertion and reasoning?

- Ans**
- ☐ 1. Assertion is false, but Reason is true.
 - ☐ 2. Assertion is true, but Reason is false.
 - ☒ 3. Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.
 - ☐ 4. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

Q.4 Which of the following statement is CORRECT related to eutropic Lake:

- Ans**
- ☒ 1. These lakes are rich in nutrients and biologically highly productive.
 - ☐ 2. These lakes are nutrient rich and biologically unproductive.
 - ☐ 3. These lakes are nutrient poor and biologically unproductive
 - ☐ 4. These lakes contain moderate amount of nutrients and biologically productive.

Q.5 Which of the following statements are CORRECT for the productivity of any ecosystem?
Statement A: Gross primary productivity (GPP) is the rate of organic matter made by photosynthesis.
Statement B: Net primary productivity (NPP) is always greater than Gross primary productivity (GPP).

- Ans**
- ☒ 1. Statement A is correct & Statement B is incorrect
 - ☐ 2. Both Statement A & Statement B are correct
 - ☐ 3. Both Statement A & Statement B are incorrect
 - ☐ 4. Statement B is correct & Statement A is incorrect

Q.6 Which one of the following pollutants is produced by natural pollution?

- Ans**
- ☐ 1. Peroxyacetyl nitrate
 - ☐ 2. Chloro-fluoro- carbons
 - ☐ 3. Polyethylene
 - ☒ 4. Methane

Q.7 Which is the most important feature that differentiates innate immunity from adaptive immunity?

- Ans**
- ☒ 1. Lack of immunological memory
 - ☐ 2. Dependence on cytokines
 - ☐ 3. Involvement of neutrophils and macrophages
 - ☐ 4. Requirement of antigen-presenting cells

Q.8 Consider the following statement followed by conclusions.
For Disposal, radioactive wastes are first concentrated to reduce their bulk and then kept in leak-proof containers and dumped for 50-100 years in small ponds.

Conclusion 1- The long term storage of radioactive waste dissipates major part of heat and radioactivity.

Conclusion 2- Long term storage of radioactive waste ensures retention of its radioactivity to be used in future.

Select the CORRECT option from the given alternatives.

- Ans**
- ☐ 1. Both Conclusion 1 & Conclusion 2 are correct.
 - ☒ 2. Conclusion 1 is correct and Conclusion 2 is wrong.
 - ☐ 3. Both Conclusion 1 & Conclusion 2 are wrong.
 - ☐ 4. Conclusion 2 is correct and Conclusion 1 is wrong.

Q.9 In Type I hypersensitivity, which of the following molecules is primarily responsible for the immediate phase of the reaction?

- Ans**
- ☐ 1. IFN- γ
 - ☐ 2. IL-4
 - ☒ 3. Histamine
 - ☐ 4. Complement C5a

Q.10 Which of the following is called Delayed Type Hypersensitivity?

- Ans**
- ☐ 1. Type II
 - ☐ 2. Type III
 - ☒ 3. Type IV
 - ☐ 4. Type I

Q.11 Which of the following is NOT a feature of eutrophic lakes?

- Ans**
- ☐ 1. Oxygen availability is a limiting factor
 - ☐ 2. Rich in nutrients
 - ☒ 3. Poor nutrient content and clear waters
 - ☐ 4. High microbial growth

Q.12 Which of the following population characteristics cannot be studied at the individual level?

- Ans**
- ☐ 1. Growth
 - ☐ 2. Birth rate
 - ☒ 3. Population density
 - ☐ 4. Mortality

Q.13 Which of the following additional content is present in Freund's complete adjuvant in comparison to Freund's incomplete adjuvant?

- Ans**
- ☐ 1. Live Corynebacteria
 - ☒ 2. Heat-killed Mycobacteria
 - ☐ 3. heat-killed Corynebacteria
 - ☐ 4. Live Mycobacteria

Q.14 The first organisms to colonize a newly formed or disturbed area during ecological succession are called _____ species.

- Ans**
- ☒ 1. Pioneer
 - ☐ 2. Secondary
 - ☐ 3. Exotic
 - ☐ 4. Climax

Q.15 Which of the following ecosystems has the highest net primary productivity per unit area?

- Ans**
- ☐ 1. Open Ocean
 - ☐ 2. Temperate Grassland
 - ☐ 3. Desert Shrubland
 - ☒ 4. Tropical Rainforest

Q.16 Which of the following statements about the utility of vermiculture is INCORRECT?

- Ans**
- ☐ 1. Vermiculture can help in the management of organic waste.
 - ☐ 2. Vermiculture enhances the nutrient content of soil through the production of vermicompost.
 - ☒ 3. Vermiculture reduces the biological activity and fertility of soil.
 - ☐ 4. Vermiculture promotes beneficial soil microorganisms.

Q.17 Which of the following is a direct ecological effect of oil spills on water bodies?

- Ans**
- ☐ 1. Promotion of algal bloom
 - ☐ 2. Neutralization of acids
 - ☒ 3. Blocking oxygen diffusion at the surface
 - ☐ 4. Increase in nutrient cycling

Q.18 In bivoltine silkworm rearing, temperature and humidity are generally maintained as:

- Ans**
- ☐ 1. 30–32°C, 95–100% RH
 - ☐ 2. 35–40°C, 60–70% RH
 - ☒ 3. 23–25°C, 70–80% RH
 - ☐ 4. 20–22°C, 60–65% RH

Q.19 Which of the following is NOT a factor contributing in the development of an autoimmune disease ?

- Ans**
- ☐ 1. Some infections
 - ☒ 2. Social status of the individual
 - ☐ 3. Genetics of the Individual
 - ☐ 4. Gender of the individual

Q.20 Which of the following pattern recognition receptors (PRRs) is most directly involved in recognizing viral double-stranded RNA?

- Ans**
- ☐ 1. TLR-4
 - ☐ 2. NOD-2
 - ☐ 3. MHC-I
 - ☒ 4. TLR-3

Section : **Discipline8**

Q.1 In insects, the process of combining body segments into functional regions is called

- Ans**
- ☐ 1. Segmentation
 - ☒ 2. Tagmosis
 - ☐ 3. Sclerotization
 - ☐ 4. Metamorphosis

Q.2 Match the following diseases with their correct causative agents.

Diseases	Causative agents
----------	------------------

- | | |
|----------------------------------|--------------------------------------|
| a. Citrus canker | <i>i. Xanthomonas axonopodis</i> |
| b. Bacterial leaf streak | <i>ii. Xanthomonas oryzae</i> |
| c. Wilt and brown root of potato | <i>iii. Pseudomonas solanacearum</i> |
| d. Black rot of crucifers | <i>iv. Xanthomonas campestris</i> |

- Ans**
- ☒ 1. a-i, b-ii, c-iii, d-iv
 - ☐ 2. a-ii, b-i, c-iii, d-iv
 - ☐ 3. a-i, b-ii, c-iv, d-iii
 - ☐ 4. a-iv, b-iii, c-ii, d-i

Q.3 Which of the following is NOT a fungal disease?

- Ans**
- ☐ 1. Tikka disease of groundnut
 - ☒ 2. Citrus canker
 - ☐ 3. Red rot of sugarcane
 - ☐ 4. Panama disease of banana

Q.4 Insects can be classified based on the structure and type of their wings. Which of the following pairs is correctly matched?

- Ans**
- ☐ 1. Coleoptera – Membranous forewings and hard shield-like hindwings
 - ☐ 2. Thysanoptera – Forewings and hindwings covered with scales
 - ☒ 3. Diptera – Membranous forewings and hind wings modified into halteres
 - ☐ 4. Lepidoptera – Hard forewings and membranous hindwings

Q.5 Which of the following is TRUE for *in vitro* fertilization?

- Ans**
- ☒ 1. Fertilization of egg and sperm outside the body
 - ☐ 2. Fertilization of egg and sperm inside the body
 - ☐ 3. Removal and freezing of egg
 - ☐ 4. Prevention of fertilization of egg and sperm

Q.6 Which gene is crucial for establishing the anterior-posterior axis in *Drosophila* via morphogen gradients?

- Ans**
- ☐ 1. HoxA1
 - ☐ 2. Sonic Hedgehog (Shh)
 - ☐ 3. Wnt
 - ☒ 4. Bicoid

Q.7 The main visible symptom of citrus canker is:

- Ans**
- ☐ 1. Powdery growth on leaf surface
 - ☐ 2. Yellow streaks on veins
 - ☒ 3. Brown necrotic rings on leaves, stems, and fruits
 - ☐ 4. Mosaic formation on leaves

Q.8 Which group of pathogens secretes lytic enzymes and toxins to kill host tissue before feeding?

- Ans**
- ☐ 1. Hemibiotrophs
 - ☐ 2. Symbionts
 - ☐ 3. Biotrophs
 - ☒ 4. Necrotrophs

Q.9 What is the primary role of a vector in a pathogen's life cycle?

- Ans**
- ☒ 1. To transmit the pathogen from one host to another
 - ☐ 2. To destroy the pathogen after infection
 - ☐ 3. To act as a nutrient source for the pathogen
 - ☐ 4. To assist in the pathogen's reproduction inside the host plant

Q.10 Which of the following statements describes the production of lac by the lac insect (*Kerria lacca*)?

- Ans**
- ☐ 1. Male lac insects secrete a large amount of lac throughout their adult life.
 - ☒ 2. Females secrete a large amount of lac throughout their adult life.
 - ☐ 3. Males secrete lac only during the pupal stage.
 - ☐ 4. Females secrete lac only after mating and laying eggs.

Q.11 Which of the following statements is NOT correct about predicting the rust epidemic for *Puccinia graminis tritici* in India?

- Ans**
- ☒ 1. Checking aeciospore content of rain
 - ☐ 2. Checking the uredospore content of rain
 - ☐ 3. Nagarajan and Singh formulated 'Indian Stem Rust Rules' for *Puccinia graminis tritici*
 - ☐ 4. Checking any rainfall during November in Central India

Q.12 Which interaction primarily regulates the development decisions of optic neurons as well as glial cells in vertebrate eyes?

- Ans**
- ☐ 1. LIN-3 & its ligands interaction
 - ☐ 2. Bcl-2 & its ligands interaction
 - ☒ 3. Notch & its ligands interaction
 - ☐ 4. LET-23 & its ligands interaction

Q.13 Which of the following statements about insect vectors is incorrect?

- Ans**
- ☐ 1. Vectors can influence the epidemiology of infectious diseases by affecting transmission dynamics.
 - ☐ 2. Biological vectors allow the pathogen to multiply or develop inside their bodies.
 - ☒ 3. All insects that bite humans act as biological vectors of diseases.
 - ☐ 4. Mechanical vectors transmit pathogens passively without internal development.

Q.14 According to Haeckel's Biogenetic law, what does ontogeny refer to?

- Ans**
- ☐ 1. Evolutionary history of a species
 - ☐ 2. Genetic variation in a population
 - ☐ 3. Geological development of the Earth
 - ☒ 4. Embryonic development of an individual

Q.15 In terms of primary product, vermiculture is directed towards _____, whereas vermicomposting is directed towards _____.

- Ans**
- ☐ 1. Organic fertilizer; Soil microbes
 - ☐ 2. Humus; Worm biomass
 - ☐ 3. Vermicompost; Humic acid
 - ☒ 4. Worm biomass; Vermicompost

Q.16 The process of dynamic and regulated change in tissue form that leads to creation of the body plan and development of mature organs is called as _____

- Ans**
- ☐ 1. Gastrulation
 - ☐ 2. Embryogenesis
 - ☒ 3. Morphogenesis
 - ☐ 4. Gametogenesis

Q.17 Which of the following is NOT an ecological service provided by insects?

- Ans**
- ☒ 1. Act as producer
 - ☐ 2. Environmental quality indicators
 - ☐ 3. Excellent pollinators
 - ☐ 4. Act as scavengers

Q.18 Which of the following option is CORRECT about feeding habit of deep-burrowing anecic earthworms ?

- Ans**
- ☐ 1. They feed on small insects and worms.
 - ☐ 2. They feed upon dead wood.
 - ☐ 3. They feed upon soil.
 - ☒ 4. They feed on leaves on the soil surface.

Q.19 The morphogenetic movements that bring about the migration of presumptive mesodermal and endodermal cells from the external surface of the embryo into its interior are called _____.

- Ans**
- ☒ 1. Emboly
 - ☐ 2. Epiboly
 - ☐ 3. Neotany
 - ☐ 4. Neurulation

Q.20 Fibroblast growth factor 8 is responsible for the prevention of the _____ gene.

- Ans**
- ☐ 1. lefty-2
 - ☒ 2. caronte
 - ☐ 3. sonic hedgehog
 - ☐ 4. activin

Section : **Discipline9**

Q.1 What is the composition of Turk's Fluid that is used to dilute blood samples for WBC counts?

- Ans**
- ☐ 1. Sodium chloride, sodium sulfate, mercuric chloride, and distilled water.
 - ☐ 2. Glacial acetic acid, gentian violet, mercuric chloride and distilled water.
 - ☒ 3. Glacial acetic acid, gentian violet, and distilled water.
 - ☐ 4. 0.9% sodium chloride in water.

Q.2 Which of the following techniques is used for imaging the surface topography and composition of the specimen?

- Ans**
- ☐ 1. Fluorescence microscopy
 - ☐ 2. Transmission Electron microscopy
 - ☐ 3. Phase-Contrast microscopy
 - ☒ 4. Scanning Electron microscopy

Q.3 Which of the following statements is CORRECT about F-test?

- Ans**
- ☐ 1. If the F ratio value is greater than the table value, the null hypothesis is accepted.
 - ☐ 2. If the F ratio value is equal the table value, the null hypothesis is accepted.
 - ☒ 3. The F-test was developed by Ronald A. Fisher and is a measure of the ratio of variances.
 - ☐ 4. If the F ratio value is smaller than the table value, the null hypothesis is rejected.

Q.4 In Radioimmunoassay (RIA), the amount of radioactivity bound to the antibody is:

- Ans**
- ☒ 1. Inversely proportional to the concentration of unlabeled antigen in the sample
 - ☐ 2. Independent of the antigen concentration in the sample
 - ☐ 3. Directly proportional to the concentration of unlabeled antigen in the sample
 - ☐ 4. Proportional only to the decay rate of the isotope used

Q.5 Which of the following spectroscopic techniques is used for the determination of elemental composition as well as chemical bonding within the molecules?

- Ans**
- ☐ 1. Infrared spectroscopy
 - ☒ 2. X-ray absorption spectroscopy
 - ☐ 3. Atomic absorption spectroscopy
 - ☐ 4. Raman spectroscopy

Q.6 The specificity of PCR amplification primarily depends on:

- Ans**
- ☐ 1. Fidelity of DNA polymerase
 - ☐ 2. Extension time of polymerase
 - ☐ 3. Number of cycles performed
 - ☒ 4. Length and sequence of primers

Q.7 Which of the following options is the CORRECT representation of a cladogram?

- Ans**
- ☐ 1. Evolutionary relationship of an organism with others with scaled branch lengths
 - ☐ 2. Evolutionary relationship of population with others
 - ☒ 3. Evolutionary relationship of an organism with others with unscaled branch lengths
 - ☐ 4. Evolutionary relationship of niche with others

Q.8 Which of the following methods of phylogenetic analysis is based on the principle of maximum parsimony?

- Ans**
- ☒ 1. Wagner Method
 - ☐ 2. Neighbor-Joining (NJ)
 - ☐ 3. UPGMA
 - ☐ 4. Fitch-Margoliash Method

Q.9 Which component of Hayem's fluid primarily acts as an antimicrobial agent?

- Ans**
- ☐ 1. NaCl
 - ☐ 2. Na₂SO₄
 - ☐ 3. dH₂O
 - ☒ 4. HgCl₂

**Q.10 Read the given statements labelled as Assertion and Reasoning carefully.
Assertion (A): Maximum likelihood methods in phylogenetic analysis estimate the probability of the observed molecular sequence data given a particular tree topology and model of evolution.**

Reason (R): Maximum likelihood approaches do not use models of nucleotide or protein evolution and cannot statistically test tree reliability.

Which of the following options correctly evaluates the assertion and reasoning?

- Ans**
- ☐ 1. Both Assertion and Reason are true, and Reason is the correct explanation of Assertion
 - ☒ 2. Assertion is true, but Reason is false
 - ☐ 3. Both Assertion and Reason are false
 - ☐ 4. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion

Q.11 Which of the following tools is CORRECTLY matched with its function in protein structure analysis?

- Ans**
- ☐ 1. SWISS-MODEL — de novo protein structure prediction
 - ☒ 2. QUARK — protein tertiary structure prediction from amino acid sequence only
 - ☐ 3. Threader — domain identification in proteins
 - ☐ 4. InterPro Scan — fitting an unknown sequence onto a known protein backbone

Q.12 The erythrocyte sedimentation rate (ESR) is the rate at which red blood cells sediment in a period of _____ and the typical range for an adult man's ESR is _____.

- Ans**
- ☒ 1. One minute, less than 10 mm/h
 - ☒ 2. One hour, less than 15 mm/h
 - ☒ 3. One hour, less than 10 mm/h
 - ☒ 4. One minute, less than 15 mm/h

Q.13 Which one of the following statistical tools is useful in predicting the quantitative relationship between two variables?

- Ans**
- ☒ 1. Correlation
 - ☒ 2. Regression
 - ☒ 3. F-Test
 - ☒ 4. Z-Test

Q.14 During a massive transfusion, hypocalcemia occurs primarily due to _____.

- Ans**
- ☒ 1. Citrate toxicity
 - ☒ 2. Hemolysis of stored RBCs
 - ☒ 3. Hyperkalemia
 - ☒ 4. Asthma

Q.15 Grocott's Methenamine Silver Staining method of tissue sections is primarily useful for the detection of _____.

- Ans**
- ☒ 1. Algae
 - ☒ 2. Bacteria
 - ☒ 3. Virus
 - ☒ 4. Fungus

Q.16 Which of the following statements regarding the preparation and use of laboratory reagents is incorrect?

- Ans**
- ☒ 1. Hayem's fluid contains sodium chloride, mercuric chloride, and sodium sulphate for erythrocyte counting.
 - ☒ 2. Turkey's fluid uses gentian violet and acetic acid to assist in leukocyte counting.
 - ☒ 3. Hayem's fluid is suitable for both erythrocyte and leukocyte counting procedures.
 - ☒ 4. Normal saline is prepared using 0.9 grams of sodium chloride dissolved in 100 milliliters of distilled water.

Q.17 The rate of sedimentation of a biological particle in a centrifugal field increases when _____.

- Ans**
- ☒ 1. the density of the medium increases
 - ☒ 2. the frictional coefficient increases
 - ☒ 3. the centrifugal force increases
 - ☒ 4. the mass of the particle decreases

Q.18 Which enzyme is responsible for synthesizing DNA strands during the polymerase chain reaction?

- Ans**
- ☒ 1. Ligase
 - ☒ 2. Reverse transcriptase
 - ☒ 3. Primase
 - ☒ 4. Taq polymerase

Q.19 If a distribution is positively skewed, which of the following relationships among Mean (M), Median (Md), and Mode (Mo) is most likely true?

- Ans**
- ☒ 1. $M > Md > Mo$
 - ☒ 2. $Mo > Md > M$
 - ☒ 3. $M < Md < Mo$
 - ☒ 4. $M = Md = Mo$

Q.20 Which of the following tools is NOT primarily used for 16S rRNA-based metagenomic analysis?

- Ans**
- ☒ 1. UPARSE
 - ☐ 2. MetaPhlAn2
 - ☐ 3. MOTHUR
 - ☐ 4. MED

Section : **Teaching Methodology**

Q.1 Which perspectives focus on emotions and affect learning?

- Ans**
- ☐ 1. Behaviourist
 - ☐ 2. Cognitivist
 - ☐ 3. Socialist
 - ☒ 4. Humanist

Q.2 Which of the following options best describes the term 'growth' in child development?

- Ans**
- ☐ 1. Increase in the child's emotional maturity
 - ☐ 2. Improvement in the ability to make decisions
 - ☐ 3. Development of positive social behavior
 - ☒ 4. Increase in the child's physical size and structure

Q.3 Which psychologist believed that students construct their own knowledge rather than simply receiving it from the teacher?

- Ans**
- ☐ 1. David Ausubel
 - ☒ 2. Jean Piaget
 - ☐ 3. Vygotsky
 - ☐ 4. Edward Thorndike

Q.4 _____ (IEDSS) is a Centrally Sponsored Scheme of GOI, the aim of which is to enable all students with disabilities, to pursue four years of secondary schooling, i.e., classes IX to XII.

- Ans**
- ☒ 1. Inclusive Education for Disabled at Secondary Stage
 - ☐ 2. Inclusive Education for Disabled at School Stage
 - ☐ 3. Integrated Education for Disabled at School Stage
 - ☐ 4. Integrated Education for Disabled at Secondary Stage

Q.5 According to which approach, knowledge is an active meaning making process, in which learners construct their own meaning?

- Ans**
- ☒ 1. Constructivist approach
 - ☐ 2. Humanistic approach
 - ☐ 3. Behaviourist Approach
 - ☐ 4. Connectivism approach

Q.6 What is the main purpose of including aesthetics in education?

- Ans**
- ☒ 1. To develop emotional and creative expression
 - ☐ 2. To improve handwriting through daily practice
 - ☐ 3. To memorize facts from textbooks quickly
 - ☐ 4. To complete lessons with strict discipline

Q.7 The theory of psychosocial development was proposed by the German-American developmental psychologist and psychoanalyst _____.

- Ans**
- ☐ 1. Lawrence Kohlberg
 - ☐ 2. Sigmund Freud
 - ☒ 3. Erik H. Erikson
 - ☐ 4. Jean Piaget

Q.8 The term _____ also stands for systematic production of new knowledge and for organization of learning.

- Ans**
- ☒ 1. discipline
 - ☐ 2. lesson
 - ☐ 3. unit
 - ☐ 4. syllabus

Q.9 What is the main purpose of the “Comparison” step in the Herbartian teaching model?

- Ans**
- ☐ 1. To deliver announcements in class
 - ☐ 2. To test students through written exercises
 - ☐ 3. To assign homework for reinforcement
 - ☒ 4. To relate new knowledge with previous learning

Q.10 Which of the following statements correctly defines the term 'gender' in the context of education?

- Ans**
- ☐ 1. Gender relates only to physical strength differences
 - ☐ 2. Gender means identical behavior in all children
 - ☒ 3. Gender refers to roles shaped by society and culture
 - ☐ 4. Gender means biological characteristics only

Q.11 Which is not a feature of the Quantitative test?

- Ans**
- ☒ 1. Divide students on the basis of marks
 - ☐ 2. They allow statistical analysis
 - ☐ 3. Use of statistical methods for analysis
 - ☐ 4. Data collection through surveys and questionnaires

Q.12 In the context of drama in education, how does simulation enhance learning outcomes?

- Ans**
- ☒ 1. It immerses learners in realistic problem tasks
 - ☐ 2. It encourages passive listening in lectures
 - ☐ 3. It reduces the need for peer collaboration
 - ☐ 4. It creates artificial stress to test students

Q.13 In which test, the same tool or instrument is administered to the same sample on two different occasions?

- Ans**
- ☒ 1. Test-Retest Method
 - ☐ 2. Equivalent-Forms Method
 - ☐ 3. Split-Half Method
 - ☐ 4. Kuder-Richardson Method

Q.14 Which of the following is a defining feature of authentic assessment?

- Ans**
- ☐ 1. Focuses on timed, recall-based question papers
 - ☐ 2. Involves tasks designed only for practice tests
 - ☐ 3. Uses feedback only after the final exam ends
 - ☒ 4. Encourages learners to apply skills in real-life contexts

Q.15 What is the primary aim of analyzing subject content in pedagogy?

- Ans**
- ☐ 1. To prepare lengthy lecture notes for students
 - ☐ 2. To increase the number of textbook pages
 - ☐ 3. To reduce the number of class activities
 - ☒ 4. To identify key concepts and learning goals

Q.16 A generic term for _____ persons is polyglot.

- Ans**
- ☐ 1. Bilingual
 - ☒ 2. Multilingual
 - ☐ 3. Trilingual
 - ☐ 4. Monolingual

Q.17 Which of the following best reflects the concept of hidden curriculum in relation to gender socialization in schools?

- Ans**
- ☒ 1. Teachers assigning leadership tasks more often to boys than to girls
 - ☐ 2. Textbooks showing male and female characters in diverse roles
 - ☐ 3. Structured timetable ensuring equal class hours for boys and girls
 - ☐ 4. Government policies promoting gender-neutral school uniforms

Q.18 The RTE Act, 2009 mandates private schools to reserve what percentage of seats for disadvantaged children?

- Ans**
- ☐ 1. 15%
 - ☐ 2. 30%
 - ☒ 3. 25%
 - ☐ 4. 10%

Q.19 Which approach to curriculum development seeks to present through school experience the methods which an effective citizen uses in solving problems, pursuing his interest or meeting his needs?

- Ans**
- ☒ 1. Learner centred approach
 - ☐ 2. Examination-Oriented approach
 - ☐ 3. Subject centered approach
 - ☐ 4. Teacher-Centered approach

Q.20 The integration of specific sets of skills and abilities across cognitive, affective and psychomotor domains at every stage of learning is called ____

- Ans**
- ☒ 1. Principle of integration, breadth and balance
 - ☐ 2. Principle of inclusivity
 - ☐ 3. Principle of coherence
 - ☐ 4. Principle of flexibility