Lecturer Biology (BPS-17), Higher Education Department (HED) — 2020 · Solved Past Paper

Body: Punjab Public Service Commission (PPSC) · **Post:** Lecturer Biology (BPS-17), Higher Education Department (HED) · **Year:** 2020 · **Questions:** 100 in the original paper — **87 solved and verified**, 13 unrecoverable (Q88, Q89, Q90, Q91, Q92, Q93, Q94, Q95, Q96, Q97, Q98, Q99, Q100) · **Price:** Free

> **How to use this paper:** each question shows the stem, the four options, and the correct answer. Click “Why each option?” under a question to see all four options explained — one question teaches four topics. General Knowledge answers are as of the 2020 sitting.

Source note: DISCLOSED RECONSTRUCTION — NOT a verbatim reproduction of the printed paper. The printed paper for this sitting does not survive in any source consulted. The 87 questions below are the questions candidates remembered, as hosted by mcq-ai.com, which states: 'Where the printed paper does not survive, these are the questions candidates remembered: the answers are checked, but the options are written by us, and the paper may be shorter than the one set on the day.' The options were written by that site, not copied from the printed paper. The paper set on the day was the PPSC one-paper standard of 100 MCQs, so 13 positions (Q88–Q100) are filed as gaps; nothing was invented to fill them. Every answer was checked independently of the printed key and cross-checked against the testpointpk 21-question fragment and the 8 visible testkaro questions; the one cross-check disagreement (Q63, narrowest strait) is resolved openly in its note. All decisions by the assistant under the owner's 8 Nov 2026 delegation.

1 Everyday Science

Which one of the following toxic metals is extensively present in the newspaper?

- A. Mg
- B. Cd
- C. Pb ✓ **Correct answer**
- D. Hg

A. Wrong: magnesium is an essential plant nutrient, not a toxic metal found in newsprint.

B. Wrong: cadmium occurs in some coloured pigments, but in far smaller amounts than lead.

C. Correct: lead compounds were long used in printing inks and pigments, and old newsprint was a recognised source of lead exposure.

D. Wrong: mercury is toxic, but it is not a characteristic component of newspaper ink.

Question 2 Biology

Among the following, which one is a diploblastic organism?

- A. Hydra ✓ **Correct answer**
- B. Crabs
- C. Squid
- D. Earthworm

A. Correct: Hydra is a cnidarian whose body wall has only ectoderm and endoderm, separated by non-cellular mesoglea.

B. Wrong: crabs are arthropods, and arthropods are triploblastic.

C. Wrong: squids are molluscs, and molluscs are triploblastic.

D. Wrong: earthworms are annelids, and annelids are triploblastic with a true mesoderm.

3 Biology

The number of alveoli in human lungs is estimated to be around _____.

- A. 150 million
- B. 500 million ✓ **Correct answer**
- C. 800 million
- D. 01 billion

A. Wrong: 150 million is far too low; measured counts are far higher.

B. Correct: the two adult lungs hold roughly 300 to 500 million alveoli, widely quoted as about 480 to 500 million.

C. Wrong: 800 million overestimates the measured count.

D. Wrong: one billion is about double the measured estimate.

Note: Note: The source files the fourth option as '01 billion' — reproduced as printed.

Question 4 Biology

NADP+ is a / an:

- A. Enzyme activator
- B. Ion carrier
- C. Hydrogen acceptor ✓ **Correct answer**
- D. All of these

A. Wrong: NADP+ is not a metal cofactor that switches an enzyme on.

B. Wrong: it carries electrons and hydrogen, not ions across a membrane.

C. Correct: NADP+ accepts electrons and a proton to become NADPH, most notably at the end of the light reactions of photosynthesis.

D. Wrong: it is not an ion carrier or an enzyme activator, so all of these fails.

5 Biology

Smooth muscles, cardiac muscles and glands are regulated by _____.

- A. Central nervous system
- B. Parasympathetic nervous system
- C. Sympathetic nervous system
- D. Autonomic nervous system ✓ **Correct answer**

A. Wrong: the central nervous system integrates information, but these effectors are reached through autonomic pathways.

B. Wrong: the parasympathetic division is only one half of autonomic control, not the whole of it.

C. Wrong: the sympathetic division is only one half of autonomic control, not the whole of it.

D. Correct: the autonomic nervous system controls involuntary effectors, smooth muscle, cardiac muscle and glands, through both its divisions.

Question 6 Biology

Kranz anatomy is a characteristic feature of:

- A. C4 plants ✓ **Correct answer**
- B. C3 plants
- C. C2 plants
- D. CAM plants

A. Correct: Kranz anatomy is the wreath of large bundle-sheath cells surrounded by mesophyll found in the leaves of C4 plants such as maize and sugarcane.

B. Wrong: C3 plants lack this specialised bundle sheath.

C. Wrong: there is no C2 photosynthetic group with Kranz anatomy.

AM plants separate the two steps in time, night and day, rather than in space.

Question 7 Everyday Science

At a level above _____, sound turns into harmful noise pollution.

- A. 80 dB ✓ **Correct answer**
- B. 30 dB
- C. 100 dB
- D. 120 dB

A. Correct: prolonged exposure at or above about 80 decibels can damage hearing, so this is the accepted threshold for harmful noise.

B. Wrong: 30 dB is a whisper-quiet sound, far below harmful levels.

C. Wrong: 100 dB is certainly harmful, but the threshold is lower than this.

D. Wrong: 120 dB is far above the threshold at which sound becomes harmful noise.

Question 8 English

Choose the correct article: Wait for me by _____ school gate at 4 o'clock.

- A. An
- B. A
- C. The ✓ **Correct answer**
- D. Article not required

A. Wrong: an goes before vowel sounds, and school starts with a consonant sound.

B. Wrong: a would mean any unspecified gate, not the known meeting point.

C. Correct: the definite article points to the particular school gate both speakers know.

D. Wrong: an article is needed before the singular countable noun school gate.

9 Biology

_____ gland is pea sized.

- A. Adrenal
- B. Pituitary ✓ **Correct answer**
- C. Pancreas
- D. Hypothalamus

A. Wrong: the adrenals are larger caps sitting on the kidneys, not pea-sized.

B. Correct: the pituitary lies in the sella turcica at the base of the brain, about the size of a pea and weighing around half a gram.

C. Wrong: the pancreas is an elongated organ about 15 cm long.

D. Wrong: the hypothalamus is a brain region, not a pea-sized gland.

Question 10 Biology

Terrestrial biodiversity is generally found to be greater near the _____.

- A. North pole
- B. South pole
- C. Equator ✓ **Correct answer**
- D. Tropic of cancer

A. Wrong: cold and short seasons limit life near the North pole.

B. Wrong: species richness falls towards the South pole.

C. Correct: warm temperatures, high rainfall and long stable growing seasons make the tropics near the equator richest in species.

D. Wrong: the Tropic of Cancer lies outside the richest equatorial belt.

11 Mathematics

The total age of A and B is 12 years more than the total age of B and C. How many years is C younger than A?

- A. 12 ✓ **Correct answer**
- B. 13
- C. 14
- D. 15

A. Correct: write the condition as A + B = B + C + 12; subtracting B from both sides gives A = C + 12, so C is 12 years younger than A.

B. Wrong: the algebra gives 12 exactly; 13 would need extra information the question does not give.

C. Wrong: the algebra gives 12 exactly; 14 would need extra information the question does not give.

D. Wrong: the algebra gives 12 exactly; 15 would need extra information the question does not give.

Note: Note: testpointpk's 21-question fragment serves this item with options 11 / 12 / 13 / 14; the answer value is 12 in both sources, only the option set differs.

Question 12 Biology

Savannahs are:

- A. Tropical rain forests
- B. Dense forest with closed canopy
- C. Grasslands with scattered trees ✓ **Correct answer**
- D. Grasslands with closely grown trees

A. Wrong: tropical rain forests have a dense closed canopy and heavy rain throughout the year.

ense forest with a closed canopy describes tropical rain forest, not savannah.

C. Correct: savannahs are tropical grasslands with scattered trees and shrubs, such as acacias, where a long dry season alternates with a wet season.

D. Wrong: grasslands with closely grown trees would be woodland, not savannah.

Question 13 Biology

Polymorphism is a characteristic of phylum:

- A. Cnidaria ✓ **Correct answer**
- B. Nematoda
- C. Annelida
- D. None of these

A. Correct: polymorphism, more than one body form in the same species, such as polyp and medusa, is characteristic of phylum Cnidaria; colonial forms also have separate feeding, reproductive and defensive individuals.

B. Wrong: nematodes keep a single basic body form throughout life.

C. Wrong: annelids keep a single basic body form throughout life.

D. Wrong: Cnidaria does show this feature, so none of these fails.

Question 14 Biology

A species that can inhabit different geographical areas is known as:

- A. Sympatric
- B. Allopatric ✓ **Correct answer**
- C. Sibling
- D. Biospecies

A. Wrong: sympatric species occupy the same geographical area.

llopatric species are populations living in separate geographical areas, often isolated by barriers such as mountains or seas.

C. Wrong: sibling species are nearly identical but reproductively isolated.

D. Wrong: biospecies is a general term from the biological species concept, not a geographical pattern.

Question 15 Biology

The chief atmospheric layer present near the surface of earth is:

- A. Mesosphere
- B. Ionosphere
- C. Troposphere ✓ **Correct answer**
- D. Stratosphere

A. Wrong: the mesosphere is a much higher layer, far from the surface.

B. Wrong: the ionosphere is a much higher layer, far from the surface.

C. Correct: the troposphere is the lowest layer of the atmosphere, extending from the surface to about 8 to 15 km; it holds most of the air's mass and is where weather occurs.

D. Wrong: the stratosphere lies above the troposphere and contains the ozone layer.

Question 16 Biology

How many base pairs are there in every helical turn of Watson-Crick double helix model?

- A. 32.3
- B. 11.6
- C. 20
- D. 10.4 ✓ **Correct answer**

A. Wrong: no common DNA form has 32.3 base pairs per turn.

bout 11 per turn is A-DNA, not B-DNA.

C. Wrong: no common DNA form has 20 base pairs per turn.

D. Correct: in B-DNA, the form described by Watson and Crick, the double helix makes one complete turn about every 3.4 nm, with about 10.4 to 10.5 base pairs per turn; their original model put 10 in each turn.

Question 17 General Knowledge

Basic Democracy System came in Pakistan in _____.

- A. 1956
- B. 1958
- C. 1960
- D. 1959 ✓ **Correct answer**

A. Wrong: 1956 was the year of the first constitution, not of Basic Democracies.

B. Wrong: 1958 was the martial law; the system itself came the next year.

C. Wrong: 1960 was the presidential referendum held under the system, not its start.

D. Correct: General Ayub Khan introduced the Basic Democracies system through the Basic Democracies Order of October 1959, creating 80,000 elected Basic Democrats.

Question 18 Biology

Out of the following, which is not a stop codon?

- A. UAA
- B. UAG
- C. GUG ✓ **Correct answer**
- D. UGA

A. Wrong: UAA, ochre, is one of the three stop codons.

AG, amber, is one of the three stop codons.

C. Correct: GUG normally codes for valine and can occasionally serve as an alternative start codon in bacteria, so it is the one that is not a stop codon.

D. Wrong: UGA, opal, is one of the three stop codons.

Question 19 Biology

Term pleiotropy is explained when:

- A. Single allele affects a single phenotypic trait
- B. Single allele affects multiple phenotypic traits ✓ **Correct answer**
- C. Multiple alleles affect multiple phenotypic traits
- D. Multiple alleles affect a single phenotypic trait

A. Wrong: one allele controlling one trait is the simple Mendelian case, not pleiotropy.

B. Correct: pleiotropy is when a single gene or allele influences several apparently unrelated phenotypic traits, as in sickle-cell anaemia or phenylketonuria.

C. Wrong: multiple alleles affecting multiple traits names no single phenomenon here.

D. Wrong: multiple alleles affecting a single trait describes multiple allelism, as in the ABO blood groups.

Question 20 Biology

Bird vertebrae are:

- A. Acoelous
- B. Heterocoelous ✓ **Correct answer**
- C. Amphicoelous
- D. Procoelous

A. Wrong: acoelous vertebrae, with flat faces, occur in mammals.

irds have heterocoelous vertebrae, especially in the neck, where the saddle-shaped faces allow wide movement while limiting twisting.

C. Wrong: amphicoelous vertebrae, concave on both faces, occur in fishes.

D. Wrong: procoelous vertebrae, concave in front, occur in most frogs and reptiles.

Question 21 Biology

During meiosis, when does synapsis occur?

- A. Prophase I ✓ **Correct answer**
- B. Metaphase I
- C. Anaphase I
- D. Pachytene

A. Correct: synapsis, the pairing of homologous chromosomes through the synaptonemal complex, takes place during prophase I, beginning in the zygotene substage.

B. Wrong: by metaphase I the paired chromosomes are already lined up at the equator.

C. Wrong: anaphase I separates the homologues after pairing is long over.

D. Wrong: pachytene follows zygotene and is when synapsis is complete and crossing over occurs, so it is not the stage at which pairing begins.

Question 22 Biology

Glottis opens on the floor of:

- A. Pharyngeal cavity ✓ **Correct answer**
- B. Diaphragm
- C. Trachea
- D. None of the above

A. Correct: the glottis, the opening of the larynx, lies in the floor of the pharynx, just

root of the tongue, and is guarded by the epiglottis during swallowing.

B. Wrong: the diaphragm is a muscle separating the thorax from the abdomen.

C. Wrong: the trachea begins below the larynx, so the glottis leads into it rather than lying on its floor.

D. Wrong: the pharyngeal cavity is the right answer, so none of the above fails.

Question 23 General Knowledge

In which country does the desert city Timbuktu lie?

- A. Morocco
- B. Mauritania
- C. Mali ✓ **Correct answer**
- D. Sudan

A. Wrong: Morocco is a Saharan country, but Timbuktu is not in it.

B. Wrong: Mauritania is Mali's western neighbour, not the country Timbuktu lies in.

C. Correct: Timbuktu is a historic city in Mali on the southern edge of the Sahara near the Niger River, once a great centre of Islamic scholarship and trans-Saharan trade.

D. Wrong: Sudan is a Saharan country, but Timbuktu is not in it.

Question 24 Biology

Which of the following is a rich source of B vitamins?

- A. Peptone
- B. Tryptone
- C. Yeast extract ✓ **Correct answer**
- D. Agar

A. Wrong: peptone is a protein digest that mainly supplies amino acids and peptides.

/ptone is a protein digest that mainly supplies amino acids and peptides.

C. Correct: yeast extract is one of the richest natural sources of B-complex vitamins, including thiamine, riboflavin, niacin and folate, and is added to culture media for that reason.

D. Wrong: agar is an inert polysaccharide used only to solidify media and provides no vitamins.

Question 25 General Knowledge

World Environment Day is:

- A. 28th February
- B. 5th June ✓ **Correct answer**
- C. 7th August
- D. 10th April

A. Wrong: no such observance falls on 28 February.

B. Correct: World Environment Day is observed on 5 June every year; the United Nations General Assembly established it in 1972, the year of the Stockholm Conference, and it was first celebrated in 1974.

C. Wrong: no such observance falls on 7 August.

D. Wrong: no such observance falls on 10 April.

Question 26 Biology

The activity of succinate dehydrogenase is inhibited by:

- A. Glycolate
- B. Malonate ✓ **Correct answer**
- C. Pyruvate
- D. Phosphoglycerate

ycolate does not mimic succinate at the enzyme's active site.

B. Correct: malonate inhibits succinate dehydrogenase competitively because it closely resembles succinate and binds the active site without being oxidised; raising the succinate concentration overcomes it.

C. Wrong: pyruvate does not mimic succinate in this way.

D. Wrong: phosphoglycerate does not mimic succinate in this way.

Question 27 Everyday Science

Splitting of atoms is also called:

- A. Merging
- B. Moderating
- C. Fusion
- D. Fission ✓ **Correct answer**

A. Wrong: merging describes joining things together, the opposite of splitting.

B. Wrong: moderating refers to slowing down neutrons in a reactor.

C. Wrong: fusion is the opposite process, joining light nuclei such as hydrogen isotopes.

D. Correct: nuclear fission is the splitting of a heavy atomic nucleus, such as uranium-235, into two lighter nuclei with the release of large amounts of energy and free neutrons.

Question 28 Biology

Female sex organ of bryophytes is called _____.

- A. Archegonium ✓ **Correct answer**
- B. Antheridium
- C. Carpogonium
- D. Ascogonium

The archegonium is the flask-shaped female sex organ of bryophytes and pteridophytes; its swollen venter contains the egg.

B. Wrong: the antheridium is the male sex organ that produces sperm.

C. Wrong: the carpogonium is the female organ of red algae.

D. Wrong: the ascogonium is the female gametangium of ascomycete fungi.

Question 29 Biology

Which of the following is the example of Gram-negative bacteria?

- A. Lactobacillus
- B. Escherichia coli ✓ **Correct answer**
- C. Staphylococcus aureus
- D. Bacillus subtilis

A. Wrong: Lactobacillus is Gram-positive.

B. Correct: Escherichia coli is the classic Gram-negative rod.

C. Wrong: Staphylococcus aureus is Gram-positive.

D. Wrong: Bacillus subtilis is Gram-positive.

Question 30 Biology

Rubisco content of chloroplast is:

- A. 12%
- B. 19%
- C. 20%
- D. 16% ✓ **Correct answer**

A. Wrong: 12% does not match the standard textbook figure for this question.

0% does not match the standard textbook figure for this question.

C. Wrong: 20% does not match the standard textbook figure for this question.

D. Correct: Rubisco is commonly stated to make up about 16% of the protein of the chloroplast; the higher 30 to 50% figures in the literature are shares of soluble leaf protein, a different denominator.

Question 31 Biology

_____ leads to the formation of canal system in sponges.

- A. Inner walls folding ✓ **Correct answer**
- B. Gastro-vascular system
- C. Reproduction
- D. Porous walls

A. Correct: folding of the inner walls increases the surface area for cellular activities and builds the complex canal systems, asconoid to syconoid to leuconoid.

B. Wrong: sponges have no gastro-vascular system; that belongs to cnidarians.

C. Wrong: reproduction does not build the canal system.

D. Wrong: pores let water in, but it is the folding of the walls that forms the canal system.

Question 32 Computer Science

BIOS is stored in:

- A. Hard Disk
- B. RAM
- C. Flash Memory Chip ✓ **Correct answer**
- D. None of these

A. Wrong: the hard disk stores files, not the BIOS firmware.

AM is volatile working memory, anything in it is lost when the power is off.

C. Correct: the BIOS firmware lives in non-volatile flash memory on the motherboard.

D. Wrong: the flash memory chip is the right answer, so none of these fails.

Note: Note: testpointpk's 21-question fragment serves this item with five options (DRAM / Flash memory chip / SRAM / EEPROM / Hard Disk); the answer is the flash memory chip in both sources.

Question 33 Biology

Interferon is made by:

- A. Lymphocytes
- B. Lymphoblasts
- C. Fibroblasts
- D. All of these ✓ **Correct answer**

A. Correct on its own: interferon-gamma comes from activated T lymphocytes, but this alone is not the full answer.

B. Correct on its own: interferon has been prepared from lymphoblastoid cultures, but this alone is not the full answer.

C. Correct on its own: interferon-beta comes from fibroblasts, but this alone is not the full answer.

D. Correct: interferons are antiviral cytokines made by all three listed sources, interferon-alpha mainly by leukocytes, interferon-beta by fibroblasts and interferon-gamma by activated T lymphocytes, so all of these is the full answer.

Question 34 Biology

Name the cell line of the human embryonic lung?

- B. WISH
- C. L
- D. MRC-5 ✓ **Correct answer**

A. Wrong: TH1 is a helper-T-cell subset, not a lung cell line.

B. Wrong: WISH is a human amnion cell line, not embryonic lung.

C. Wrong: L cells are a mouse fibroblast line, not human embryonic lung.

D. Correct: MRC-5 is the standard human embryonic lung fibroblast cell line.

Question 35 Islamic Studies

Who met the Khatam-un-Nabiyeen Hazrat Muhammad (PBUH) at the first heaven during Miraj?

- A. Hazrat Haroon (AS)
- B. Hazrat Adam (AS) ✓ **Correct answer**
- C. Hazrat Sulymaan (AS)
- D. Hazrat Eesa (AS)

A. Wrong: Hazrat Haroon (AS) was met in another heaven, not the first.

B. Correct: the Prophet (PBUH) met Hazrat Adam (AS) at the first heaven during the Miraj.

C. Wrong: Hazrat Sulayman (AS) was met in another heaven, not the first.

D. Wrong: Hazrat Eesa (AS) was met in another heaven, not the first.

Question 36 Biology

NADPH2 is produced by:

- A. Glycolysis
- B. Photosystem I ✓ **Correct answer**

tosystem II

- D. Anaerobic respiration

A. Wrong: glycolysis happens in the cytoplasm and makes no NADPH.

B. Correct: NADPH is produced at the end of the light reactions by Photosystem I, through ferredoxin-NADP+ reductase.

C. Wrong: Photosystem II splits water and releases oxygen; it does not make NADPH.

D. Wrong: anaerobic respiration does not produce NADPH.

Question 37 Biology

The enlarged ripened ovary is called:

- A. Ovule
- B. Seed
- C. Fruit ✓ **Correct answer**
- D. Cotyledon

A. Wrong: the ovule becomes the seed, not the fruit.

B. Wrong: the seed develops from the ovule inside the fruit.

C. Correct: the enlarged ripened ovary of the flower is the fruit.

D. Wrong: a cotyledon is a seed leaf inside the seed.

Question 38 Computer Science

Of the following, which one is not a search engine?

- A. Google
- B. MSN
- C. Yahoo
- D. Linux ✓ **Correct answer**

oogle is a search engine.

B. Wrong: MSN is a web portal with search.

C. Wrong: Yahoo is a search engine.

D. Correct: Linux is an operating system, not a search engine.

Question 39 Biology

Deposition of cDNA into the inert structure is known as _____.

- A. DNA probes
- B. DNA polymerase
- C. DNA microarrays ✓ **Correct answer**
- D. DNA

A. Wrong: a DNA probe is a labelled sequence used to detect a target, not a deposition surface.

B. Wrong: DNA polymerase is the enzyme that builds DNA, not a deposition method.

C. Correct: in a DNA microarray, cDNA is deposited in spots on an inert solid support for analysis.

D. Wrong: DNA alone names no deposition technique.

Question 40 Islamic Studies

Name the camel which the Holy Prophet (PBUH) was riding on the migration to Medina:

- A. Duldul
- B. Anza
- C. Qaswa ✓ **Correct answer**
- D. Zulfiqar

A. Wrong: Duldul was the Prophet's mule, not the camel of the Hijrah.

nza was a spear and standard, not the camel.

C. Correct: Qaswa was the she-camel the Prophet (PBUH) rode on the migration to Madina; after reaching Madina she stopped at the place where Al-Masjid an-Nabawi was later built.

D. Wrong: Zulfiqar was the Prophet's sword, not the camel.

Question 41 Biology

Smog is composed of:

- A. O3
- B. NOx
- C. PPN
- D. Both A and B ✓ **Correct answer**

A. Correct on its own: ozone is a key component of photochemical smog, but it is not the whole answer.

B. Correct on its own: nitrogen oxides are a key component of smog, but not the whole answer.

C. Wrong: peroxypropionyl nitrate is a minor smog constituent, not one of the two main ones named here.

D. Correct: smog is composed of ozone (O3) and nitrogen oxides (NOx) together.

Question 42 Biology

_____ is an enzyme that forms covalent bonds between restriction fragments.

- A. DNA primase
- B. DNA helicase
- C. DNA polymerase
- D. DNA ligase ✓ **Correct answer**

NA primase makes RNA primers; it joins nothing.

B. Wrong: DNA helicase unwinds the double helix; it joins nothing.

C. Wrong: DNA polymerase extends a chain; it does not seal nicks between fragments.

D. Correct: DNA ligase forms the covalent phosphodiester bonds that join restriction fragments.

Question 43 Biology

Mendel was an Austrian:

- A. Monk ✓ **Correct answer**
- B. Biology teacher
- C. Scientist
- D. Mathematician

A. Correct: Gregor Mendel was an Augustinian monk at the monastery in Brno, where he did his pea experiments.

B. Wrong: Mendel taught physics and natural history at times, but monk is how he is identified in the textbooks.

C. Wrong: true in a broad sense, but the expected identification here is monk.

D. Wrong: Mendel used mathematics in his work, but he was not a mathematician by calling.

Question 44 Biology

What is the unit of a genetic map?

- A. Centimeter
- B. Nanometer
- C. Angstrom

timorgan ✓ **Correct answer**

A. Wrong: a centimetre is a unit of length, not of a genetic map.

B. Wrong: a nanometre is a unit of length, not of a genetic map.

C. Wrong: an angstrom is a unit of length, not of a genetic map.

D. Correct: the centimorgan is the unit of a genetic map, equal to 1% recombination frequency.

Question 45 Biology

Trisomy of _____ leads to Patau's syndrome.

- A. 13th chromosome ✓ **Correct answer**
- B. 18th chromosome
- C. 21st chromosome
- D. 22nd chromosome

A. Correct: trisomy of the 13th chromosome causes Patau's syndrome.

B. Wrong: trisomy 18 causes Edwards syndrome.

C. Wrong: trisomy 21 causes Down syndrome.

D. Wrong: trisomy 22 is not Patau's syndrome.

Question 46 Biology

Human immunodeficiency virus (HIV) affects _____.

- A. Red blood cells
- B. Fibroblasts
- C. Helper T lymphocytes (CD4) ✓ **Correct answer**
- D. Mast cells

V does not infect red blood cells.

B. Wrong: fibroblasts are not HIV's target cells.

C. Correct: HIV infects and destroys helper T lymphocytes carrying CD4, crippling cell-mediated immunity.

D. Wrong: mast cells are not HIV's target cells.

Question 47 Biology

_____ is the sensitive layer of eye.

- A. Retina ✓ **Correct answer**
- B. Iris
- C. Choroid
- D. Sclera

A. Correct: the retina is the light-sensitive layer of the eye, carrying the photoreceptor cells.

B. Wrong: the iris controls how much light enters; it does not sense light.

C. Wrong: the choroid supplies blood and absorbs stray light; it does not sense images.

D. Wrong: the sclera is the tough white outer coat; it does not sense light.

Question 48 Biology

Dengue virus belongs to _____?

- A. Flaviviridae ✓ **Correct answer**
- B. Togaviridae
- C. Reoviridae
- D. Rhabdoviridae

A. Correct: dengue virus is a flavivirus, in the family Flaviviridae.

gaviruses include chikungunya and rubella, not dengue.

C. Wrong: reoviruses include rotavirus, not dengue.

D. Wrong: rhabdoviruses include rabies virus, not dengue.

Note: Note: testpointpk's 21-question fragment words option A as 'Flavi virus'; the answer is the same flavivirus family in both sources.

Question 49 Biology

Identify the feeding mode of the extinct conodonts:

- A. Herbivory
- B. Absorptive feeding
- C. Predation ✓ **Correct answer**
- D. Filter feeding

A. Wrong: conodont elements show grasping and slicing wear, not plant eating.

B. Wrong: conodonts had a toothed feeding apparatus, not absorptive feeding.

C. Correct: the wear, microstructure and arrangement of conodont elements show they were used to grasp and slice food, so conodonts are regarded as predators or scavengers.

D. Wrong: filter feeding was an earlier idea, abandoned once complete fossil animals with a toothed feeding apparatus were found.

Question 50 Biology

How many pairs of cranial nerves are usually associated with the fish brain?

- A. 15
- B. 13
- C. 10 ✓ **Correct answer**
- D. 8

o fish has 13 pairs of cranial nerves.

B. Wrong: 13 pairs is not the fish number.

C. Correct: fishes usually have 10 pairs of cranial nerves, like other vertebrates.

D. Wrong: 8 pairs is too few.

Question 51 Biology

Activity of one gene is suppressed by the activity of a non-allelic gene, it is known as:

- A. Dominance
- B. Suppression
- C. Epistasis ✓ **Correct answer**
- D. Hypostasis

A. Wrong: dominance is one allele masking another at the same locus.

B. Wrong: suppression alone is not the named phenomenon.

C. Correct: when the activity of one gene is suppressed by the activity of a non-allelic gene, it is epistasis.

D. Wrong: hypostasis is the gene whose effect is suppressed, not the phenomenon itself.

Question 52 Biology

Site for the active synthesis of ribosomal RNA is _____.

- A. Nucleoplasm
- B. Ribosomes
- C. Nucleolus ✓ **Correct answer**
- D. Lysosomes

A. Wrong: the nucleoplasm is the fluid of the nucleus, not the site of rRNA synthesis.

B. Ribosomes are where proteins are made, using rRNA made elsewhere.

C. Correct: ribosomal RNA is actively synthesised in the nucleolus, where the ribosomal subunits are assembled.

D. Wrong: lysosomes digest waste; they make no RNA.

Question 53 Biology

Primary carboxylation in C3 plants is carried out by the enzyme:

- A. Pyruvate carboxylase
- B. Succinic dehydrogenase
- C. Hexokinase
- D. RuBP carboxylase oxygenase ✓ **Correct answer**

A. Wrong: pyruvate carboxylase works in gluconeogenesis, not in C3 carbon fixation.

B. Wrong: succinic dehydrogenase works in the Krebs cycle, not in carbon fixation.

C. Wrong: hexokinase phosphorylates glucose in glycolysis.

D. Correct: RuBP carboxylase oxygenase, Rubisco, carries out the primary carboxylation in C3 plants, fixing carbon dioxide onto RuBP.

Question 54 Biology

_____ secretes glucagon hormone.

- A. Thyroid gland
- B. Pituitary gland
- C. Liver
- D. Pancreas ✓ **Correct answer**

A. Wrong: the thyroid makes thyroxine, not glucagon.

B. Wrong: the pituitary makes tropic hormones, not glucagon.

e liver responds to glucagon by releasing glucose; it does not secrete it.

D. Correct: the alpha cells of the pancreatic islets secrete glucagon, which raises blood glucose.

Question 55 Biology

Cross of F1 offspring with any of the parents is known as:

- A. Test cross
- B. Single cross
- C. Double cross
- D. Back cross ✓ **Correct answer**

A. Wrong: a test cross is a cross with a homozygous recessive individual, not with any parent.

B. Wrong: a single cross is a cross between two parents, not with an offspring.

C. Wrong: a double cross involves four parents in two crosses.

D. Correct: crossing an F1 offspring with either of its parents is a back cross.

Question 56 Biology

The larva of lobster is known as _____.

- A. Phyllosoma ✓ **Correct answer**
- B. Mysis
- C. Zoea
- D. Nauplius

A. Correct: the flat, transparent phyllosoma larva is the larva of spiny lobsters.

B. Wrong: the mysis stage occurs in penaeid prawns, not lobsters.

C. Wrong: the zoea is a crab larva, not a lobster larva.

e nauplius is the first larva of many crustaceans, but it is not the lobster's named larva here.

Question 57 Biology

Phenetic classification of organisms is based on:

- A. Sexual characters
- B. Dendrogram based on DNA characteristics
- C. Ancestral lineage of existing organisms
- D. Observable characters of existing organisms ✓ **Correct answer**

A. Wrong: phenetics does not rest on sexual characters alone.

B. Wrong: a dendrogram based on DNA characteristics describes molecular phylogenetics, not phenetics.

C. Wrong: grouping by ancestral lineage is cladistics, not phenetics.

D. Correct: phenetic classification groups organisms by overall similarity in observable characters of existing organisms.

Question 58 General Knowledge

The headquarter of Shanghai Cooperation Organization (SCO) is in?

- A. Beijing ✓ **Correct answer**
- B. Astana
- C. Almatey
- D. Shanghai

A. Correct: the Secretariat of the Shanghai Cooperation Organisation, its permanent administrative body, is located in Beijing, China; its other permanent body, the Regional Anti-Terrorist Structure, is in Tashkent.

B. Wrong: Astana is the capital of Kazakhstan, not the seat of the SCO.

maty is a city in Kazakhstan, not the seat of the SCO.

D. Wrong: Shanghai is where the organisation was founded in 2001, not where its secretariat sits.

Question 59 Biology

Sister chromatids move towards opposite poles in which phase of mitosis?

- A. Telophase
- B. Anaphase ✓ **Correct answer**
- C. Prophase
- D. Metaphase

A. Wrong: in telophase the nuclei reform; the chromatids have already separated.

B. Correct: sister chromatids are pulled towards opposite poles in anaphase.

C. Wrong: in prophase the chromosomes condense; no separation happens yet.

D. Wrong: in metaphase the chromosomes line up at the equator; they do not yet separate.

Question 60 Biology

Water movement from cell to cell through plasmodesmata is:

- A. Apoplastic
- B. Transmembrane
- C. Facilitated
- D. Symplastic ✓ **Correct answer**

A. Wrong: the apoplastic route is through cell walls and intercellular spaces, not through plasmodesmata.

B. Wrong: the transmembrane route crosses membranes, not plasmodesmata.

cilitated movement is carrier-aided transport across a membrane.

D. Correct: water movement from cell to cell through the cytoplasmic connections called plasmodesmata is the symplastic route.

Question 61 English

Every statement must have a subject and a _____.

- A. Noun
- B. Verb
- C. Predicate ✓ **Correct answer**
- D. Phrase

A. Wrong: a noun can be the subject, but the second half of a statement is not a noun.

B. Wrong: the verb is part of the predicate, but the predicate as a whole is the required part.

C. Correct: every statement, that is every sentence, must have a subject and a predicate.

D. Wrong: a phrase is a group of words, not the required second half of a statement.

Question 62 Biology

In Gram-staining, iodine is used as a _____.

- A. Fixative
- B. Mordant ✓ **Correct answer**
- C. Solubilizer
- D. Stain

A. Wrong: a fixative preserves the smear; iodine does not fix it.

B. Correct: in Gram staining, iodine is the mordant; it binds the crystal violet inside Gram-positive cells so that it is not washed out by the decolouriser.

iodine does not dissolve anything here.

D. Wrong: the primary stain is crystal violet; iodine is not the stain.

Question 63 General Knowledge

Which of the following is the narrowest strait of the world?

- A. Strait of Tartary
- B. Bab-el-mandeb
- C. Strait of Dardanelles ✓ **Correct answer**
- D. Foveaux strait

A. Wrong here: the Strait of Tartary narrows to about 7 km, wider than the Dardanelles.

B. Wrong: Bab-el-Mandeb is tens of kilometres wide.

C. Correct: among the options offered, the Dardanelles is by far the narrowest, only about 1.2 km wide at its narrowest point between Europe and Asia; it links the Aegean Sea to the Sea of Marmara.

D. Wrong: Foveaux Strait is tens of kilometres wide.

Note: Note: testpointpk's 21-question fragment keys this same stem to the Strait of Tartar, but its option set (Tartar, Malacca, Palk, Yucatan) does not include the Dardanelles, so Tartar is the narrowest of ITS options. Measured widths settle the comparison: the Dardanelles is about 1.2 km at its narrowest, the Strait of Tartar about 7.3 km. The mcq-ai key (Dardanelles) therefore stands for the option set as printed here.

Question 64 Biology

Certain genetic defects such as alkaptonuria and albinism are described by:

- A. Dominant genes
- B. Recessive inheritance ✓ **Correct answer**
- C. X chromosomes

A. Wrong: alkaptonuria and albinism are not dominant traits.

B. Correct: both are classic autosomal recessive disorders; they appear only when both copies of the gene carry the defect.

C. Wrong: neither is an X-linked disorder.

D. Wrong: neither is a Y-linked disorder.

Question 65 Biology

Which form of DNA is described by Watson-Crick model?

- A. B-DNA ✓ **Correct answer**
- B. Z-DNA
- C. A-DNA
- D. Quadraplex DNA

A. Correct: the Watson-Crick model describes B-DNA, the right-handed double helix with about 10.4 base pairs per turn.

B. Wrong: Z-DNA is a left-handed form, not the Watson-Crick model.

C. Wrong: A-DNA is a shorter, wider right-handed form, not the Watson-Crick model.

D. Wrong: quadruplex DNA is a four-stranded structure, not the Watson-Crick model.

Question 66 Biology

The non-protein part of an enzyme is known as:

- A. Holoenzyme
- B. Vitamin
- C. Apoenzyme
- D. Prosthetic group ✓ **Correct answer**

e holoenzyme is the whole active enzyme, protein part plus non-protein part.

B. Wrong: a vitamin may act as a coenzyme, but the non-protein part as such is not a vitamin.

C. Wrong: the apoenzyme is the protein part alone.

D. Correct: the non-protein part tightly bound to an enzyme is its prosthetic group, a kind of cofactor.

Question 67 Biology

Western blotting is the technique used for the determination of:

- A. RNA
- B. DNA
- C. Proteins ✓ **Correct answer**
- D. All of these

A. Wrong: RNA is detected by Northern blotting.

B. Wrong: DNA is detected by Southern blotting.

C. Correct: Western blotting is the technique used for the determination of specific proteins, using antibodies.

D. Wrong: each blotting type detects one class of molecule; Western blotting is for proteins only.

Question 68 Biology

Identify the input sequence format in BLAST?

- A. GenBank
- B. EMBL
- C. FASTA ✓ **Correct answer**

A. Wrong: GenBank is a sequence database, not an input format.

B. Wrong: EMBL is a sequence database, not an input format.

C. Correct: BLAST takes query sequences in FASTA format, a header line starting with the greater-than sign followed by the sequence.

D. Wrong: PIR is a protein sequence database, not the BLAST input format.

Question 69 General Knowledge

The flag of which country is also known as the Union Jack?

- A. UK ✓ **Correct answer**
- B. USA
- C. New Zealand
- D. Barbados

A. Correct: the flag of the United Kingdom is also known as the Union Jack.

B. Wrong: the flag of the USA is the Stars and Stripes.

C. Wrong: the flag of New Zealand is a defaced Red Ensign with the Southern Cross.

D. Wrong: the flag of Barbados is the Broken Trident.

Question 70 Biology

Male breast cancer is strongly linked with mutations in _____.

- A. BRCA1
- B. BRCA2 ✓ **Correct answer**
- C. NF1
- D. RET

BRCA1 mutations are linked most strongly with female breast and ovarian cancer.

B. Correct: male breast cancer is strongly linked with mutations in BRCA2.

C. Wrong: NF1 mutations cause neurofibromatosis type 1.

D. Wrong: RET mutations are linked with multiple endocrine neoplasia and thyroid cancer.

Question 71 Everyday Science

When white light is passed through a prism, it splits into _____ colors.

- A. 5
- B. 6
- C. 7 ✓ **Correct answer**
- D. 8

A. Wrong: white light splits into more than five colours.

B. Wrong: six misses one colour of the spectrum.

C. Correct: a prism splits white light into seven colours, violet, indigo, blue, green, yellow, orange and red.

D. Wrong: there are seven colours in the visible spectrum, not eight.

Question 72 Biology

Which group does not contain polyp?

- A. Anthozoa
- B. Hydrozoa
- C. Calcarea ✓ **Correct answer**
- D. Scyphozoa

A. Wrong: anthozoans, corals and sea anemones, have polyps.

C. Correct: Calcarea is a class of sponges, and sponges have no polyp stage at all, so this is the group that does not contain polyp.

D. Wrong: scyphozoans, the true jellyfish, have a polyp stage.

Question 73 Biology

Identify which is not a thermostable polymerase?

- A. Pfu polymerase
- B. Taq polymerase
- C. Vent polymerase
- D. DNA polymerase III ✓ **Correct answer**

A. Wrong: Pfu polymerase, from Pyrococcus furiosus, is thermostable.

B. Wrong: Taq polymerase, from Thermus aquaticus, is thermostable.

C. Wrong: Vent polymerase is thermostable.

D. Correct: E. coli DNA polymerase III is not thermostable; it works at body temperature, not at PCR temperatures.

Question 74 Biology

Apart from hearing, what other major body function is performed by the ear?

- A. Nerve pressure reduction
- B. Hormone secretion
- C. Body balancing ✓ **Correct answer**
- D. All of these

A. Wrong: the ear does not reduce nerve pressure.

B. Wrong: the ear secretes no hormones.

...e semicircular canals and vestibule of the inner ear sense head movement and keep the body balanced, so balance is the ear's other major function besides hearing.

D. Wrong: only balance is the ear's other major function.

Question 75 Biology

An abrupt change from anaerobic to aerobic process gives rise to:

- A. Emerson effect
- B. Hill reaction
- C. Pasteur effect ✓ **Correct answer**
- D. Blackman's law

A. Wrong: the Emerson effect is the enhancement of photosynthesis by two wavelengths of light.

B. Wrong: the Hill reaction is the light-driven splitting of water by isolated chloroplasts.

C. Correct: the Pasteur effect is the abrupt change from anaerobic to aerobic metabolism, in which oxygen suppresses fermentation.

D. Wrong: Blackman's law of limiting factors is about photosynthesis rates.

Question 76 Biology

Tropical rain forests are found in the areas where average annual rainfall is _____.

- A. 200 cm ✓ **Correct answer**
- B. 150 cm
- C. 100 cm
- D. 70 cm

A. Correct: tropical rain forests are found in the areas where average annual rainfall is about 200 cm or more.

50 cm is below the rain-forest range.

C. Wrong: 100 cm is far too low for rain forest.

D. Wrong: 70 cm is far too low for rain forest.

Question 77 Biology

Phylogenetic relationship can be presented by:

- A. Dendrogram ✓ **Correct answer**
- B. GenBank
- C. Data retrieving tool
- D. Data search tool

A. Correct: a dendrogram is a branching tree diagram that presents phylogenetic relationships.

B. Wrong: GenBank is a sequence database, not a diagram.

C. Wrong: a data retrieving tool retrieves data; it does not present relationships.

D. Wrong: a data search tool searches data; it does not present relationships.

Question 78 Biology

During Krebs cycle, direct ATP production per glucose molecule is:

- A. 2 ✓ **Correct answer**
- B. 8
- C. 30
- D. 38

A. Correct: the Krebs cycle produces 2 ATP directly per glucose molecule, as GTP, one per turn and two turns per glucose.

B. Wrong: 8 is not the direct ATP count for the cycle.

about 30 is the total ATP from the whole of aerobic respiration, not the Krebs cycle alone.

D. Wrong: 38 is the old textbook total for complete glucose oxidation, not the Krebs cycle's direct yield.

Question 79 Biology

Basic taxonomic unit is called:

- A. Kingdom
- B. Genus
- C. Order
- D. Species ✓ **Correct answer**

A. Wrong: the kingdom is the broadest rank, not the basic unit.

B. Wrong: a genus groups related species; it is not the basic unit.

C. Wrong: an order groups related families; it is not the basic unit.

D. Correct: the species is the basic taxonomic unit.

Question 80 Biology

In the evolution of modern man (Homo sapiens) from his ancestors, identify the most significant trend?

- A. Increasing cranial capacity ✓ **Correct answer**
- B. Upright posture
- C. Shortening of jaws
- D. Binocular vision

A. Correct: the most significant trend in the evolution of modern man from his ancestors is the steady increase in brain size and cranial capacity.

...right posture came early and is shared with earlier hominins; it is not the trend the question asks for.

C. Wrong: the jaws shortened, but that is not the most significant trend.

D. Wrong: binocular vision is an old primate trait, not the human trend.

Question 81 Biology

When individual somatic cells contain three sex chromosomes XXX, this is called:

- A. Down's syndrome
- B. Klinefelter's syndrome
- C. Turner's syndrome
- D. Super female ✓ **Correct answer**

A. Wrong: Down syndrome is trisomy 21.

B. Wrong: Klinefelter syndrome is XXY in a male.

C. Wrong: Turner syndrome is a single X, XO, in a female.

D. Correct: a female whose somatic cells contain three sex chromosomes, XXX, is called a super female, a triple-X female.

Question 82 Biology

Totipotency is shown by _____.

- A. Xylem
- B. Meristem ✓ **Correct answer**
- C. Cork
- D. All of these

A. Wrong: xylem is mature conducting tissue; it does not show totipotency.

B. Correct: meristematic cells are undifferentiated and totipotent, able to give rise to a

C. Wrong: cork is mature protective tissue; it does not show totipotency.

D. Wrong: only meristem shows totipotency here.

Question 83 General Knowledge

Who received the Nobel Prize for Literature in 2016?

- A. John Lennon
- B. Arundhati Roy
- C. Bob Dylan ✓ **Correct answer**
- D. Nadine Gordimar

A. Wrong: John Lennon never received the Nobel Prize for Literature.

B. Wrong: Arundhati Roy won the Booker Prize, not the Nobel Prize.

C. Correct: Bob Dylan received the Nobel Prize for Literature in 2016, for his songs as poetry.

D. Wrong: Nadine Gordimer won the Nobel Prize for Literature in 1991, not 2016.

Question 84 Biology

Number of cotyledons in Zea mays, Cycas and Pinus individually are _____.

- A. 1, 2, 4
- B. 1, 2, many ✓ **Correct answer**
- C. 2, 2, many
- D. 2, 1, 4

A. Wrong: Pinus has many cotyledons, not 4.

B. Correct: Zea mays, a monocot, has 1 cotyledon, Cycas has 2, and Pinus has many, being polycotyledonous.

D. Wrong: Zea mays has 1, not 2, Cycas has 2, not 1, and Pinus has many, not 4.

Question 85 Biology

Which one of the following is the first reaction in photorespiration?

- A. Decarboxylation
- B. Oxygenation ✓ **Correct answer**
- C. Carboxylation
- D. Phosphorylation

A. Wrong: decarboxylation releases carbon dioxide later in the pathway; it is not the first reaction.

B. Correct: photorespiration begins when Rubisco oxygenates RuBP instead of carboxylating it, so oxygenation is the first reaction.

C. Wrong: carboxylation is the first step of photosynthesis, not of photorespiration.

D. Wrong: phosphorylation is not the first reaction of photorespiration.

Question 86 Urdu

جاناں جاناں، کس کا مجموعۂ کلام ہے؟

A. شہزاد احمد

B. تحسین فراقی

C. ظفر اقبال

Correct answer ✓ D. احمد فراز

A. Wrong: Shahzad Ahmad is a poet, but Janan Janan is not his collection.

B. Wrong: Tehseen Firaqi is a scholar and critic, not the author of Janan Janan.

far Iqbal is a modern ghazal poet, known for Aab-e-Rawan, not the author of Janan Janan.

D. Correct: Janan Janan is a poetry collection of Ahmad Faraz, the celebrated Urdu poet of romantic and resistance verse, whose other books include Tanha Tanha and Dard Ashob.

Question 87 Urdu

"By Hook or By Crook" کے درست مطلب کا انتخاب کیجئے۔

A. زبردستی

B. کسی کا حق مارنا

Correct answer ✓ C. ہر جائز و ناجائز طریقے سے

D. کسی کو تنگ کرنا

A. Wrong: by force covers only one possible means, not the sense of the idiom.

B. Wrong: usurping someone's right is not the sense of the idiom.

C. Correct: the English idiom by hook or by crook means achieving something by any means possible, fair or foul, which matches by every lawful or unlawful method.

D. Wrong: harassing someone is not the sense of the idiom.

Question 88

No answer is given for this question, and none is taught. This question was not served in the reconstruction. The reconstruction serves only 87 of the 100 MCQs of the PPSC one-paper standard and does not identify which thirteen positions are missing. No stem, no options and no answer are recoverable from any source consulted, so no answer is asserted here (GAP — unrecoverable).

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Question 90

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Question 91

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Question 92

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93

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Question 94

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Question 95

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Question 96

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97

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Question 98

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Question 99

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Question 100

No answer is given for this question, and none is taught. This question was not served in the reconstruction. The reconstruction serves only 87 of the 100 MCQs of the PPSC one-paper standard and does not identify which thirteen positions are missing. No stem, no options and no answer are recoverable from any source consulted, so no answer is asserted here (GAP — unrecoverable).

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