

KVS RO LUCKNOW
MARKING SCHEME
Biology (XII)
PRE BOARD 2(2022-23)

| Q.NO | KEY POINTS | MARKS |
|-----------|---|--------|
| Section A | | |
| 1 | c | 1 |
| 2 | c | 1 |
| 3 | d | 1 |
| 4 | b | 1 |
| 5 | a | 1 |
| 6 | b | 1 |
| 7 | c | 1 |
| 8 | b | 1 |
| 9 | a | 1 |
| 10 | b | 1 |
| 11 | a | 1 |
| 12 | c | 1 |
| 13 | c | 1 |
| 14 | d | 1 |
| 15 | d | 1 |
| 16 | b | 1 |
| Section B | | |
| 17 | (i) He would have loaded the samples near end A; in the wells. (ii) The DNA fragments separate (resolve) according to their size through the sieving effect provided by the agarose gel. Hence, the smaller the fragment size, the farther it moves. | 1+1 |
| 18 | Taq Polymerase Heat stable enzyme used for elongation of DNA chain | 1 1 |
| 19 | Anti-snake venom is an example of Passive Immunisation. It is preformed/readymade Abs which act quickly. | 1 1 |
| 20 | Small amount of curd act as a starter/inoculum which contain lactobacillus. It multiplies in milk and coagulate milk protein in the form of curd. Any one: It is easily digestible, check the growth of harmful microorganism, enriched in Vitamin B12 etc. | 1 1 |
| 21 | Human chorionic gonadotropin (hCG)—Placenta. Human placental lactogen (hPL)—Placenta. Relaxin (towards the end of pregnancy)—Ovary (Any 2) Or In apple only the thalamus (along with ovary) portion contributes to fruit formation. Therefore, it is a false fruit. Mango develops only from the ovary, therefore it is a true fruit | 1+1 |
| 22 | (i) An individual organism passes on the variations, mutations and adaptations from one generation to another. (ii) Darwin explained it as the process of evolution of different species in a given geographical area starting from a point and literally radiating to other areas of geography (habitats), called adaptive radiation. (iii) According to Darwin, “fitness of an individual” is the ability of an organism to survive and pass on its genes to future generations | 1+1+1 |

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| 23 | <p>i. CuT, Cu7 , Multiload 375</p> <p>ii. (b) Advantages of Saheli: (i) It is non-steroidal (ii) It is taken only once a week (iii) It has high contraceptive value (iv) It has less side effects</p> | <p>2*1/2=1</p> <p>4*1/2=2</p> |
| 24 | Correct diagram as per ncert | 1+1+1 |
| 25 | Selection of recombinants on the basis of antibiotic resistant genes is a cumbersome process. On the basis of colour production in the presence of chromogenic substrate, the recombinants and non-recombinants can also be differentiated. Here, a recombinant DNA is inserted within the coding sequence of an enzyme β -galactosidase, which results into the inactivation of the enzyme and hence there is no conversion of substrate to products. Hence, the bacterial colonies having transformed plasmid, shows no colouration while those without inserted plasmid form blue colour colonies | 3 |
| 26 | <p>i. This principle states that allelic frequencies in a population are stable and remain constant from generation to generation, i.e., gene pool (total number of genes and their alleles in a population) is constant. This is called genetic equilibrium or Hardy–Weinberg equilibrium.</p> <p>ii. Heterozygotes are represented by 2pq, therefore the number of heterozygous individuals (Aa) is equal to 2pq which equals to $2 \times 0.19 \times 0.81 = 0.31$ or 31% (properly solved)</p> | 1+2 |
| 27 | <p>(a) Cleistogamous flowers do not open. Therefore, the pollens have to land on the stigma of the same flower. This ensures autogamy.</p> <p>(b) Advantage: Self-pollination is assured, thus ensuring seed formation.</p> <p>Disadvantage: Least variations observed and it leads to inbreeding depression.</p> | 1+2 |
| 28 | <p>. Exotic species are defined as species that have been introduced from another geographic region to an area outside its natural range. For example, (i) Parthenium, Lantana and Eichhornia are the exotic species of plants that have invaded the native species of India and caused environmental damage. (ii) Introduction of African catfish <i>Clarias gariepinus</i> for aquaculture purpose is posing threat to many indigenous catfish. (iii) Nile perch introduced into lake Victoria in East Africa led to the extinction of cichlid fish.</p> <p>or</p> <p>(i) They predators act as conduits for energy transfer across trophic levels. (ii) They keep prey populations under control. (iii) They help in maintaining species diversity in a community by reducing the intensity of competition among prey species</p> | 1+1+1 |
| 29 | <p>a. I- alpha diversity (genetic)</p> <p>ii- beta diversity (species)</p> <p>Iii. Gamma diversity (landscape)</p> <p>b. a</p> <p>c. c</p> <p>d. c</p> <p>e. b</p> | 4 |
| 30 | <p>a. b</p> <p>b. c</p> <p>c. b</p> <p>d. b</p> <p>e. a</p> | 4 |
| 31 | <p>Correct diagram or flow chart as per ncert</p> <p>Or</p> <p>(a) Female partner is often blamed due to following reasons: (i) Social mind set (ii) Inequality of sexes (iii) Lack of awareness/male dominated society. (iv) Awareness is to be created that abnormality can occur in both male and females and infertility issues with suitable examples (v) Mutual respect towards both the partners in case of the problem and to find the remedy from medical experts (vi) Educate them to find the reason and not believe in superstitions. (Any two)</p> <p>(b) Infertility is caused due to physical abnormality in reproductive system, congenital, immunological or psychological problems. (Any two)</p> <p>(c) (c) Intra cytoplasmic sperm injection (ICSI), artificial insemination (AI), Intra uterine insemination (IUI) can help couples where the problem is with male partner.</p> | 2+2+1 |
| 32 | <p>Correct explanation as per diagram in ncert.</p> <p>Or</p> | 5 |

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| | <p>Cancer is an uncontrolled cell division due to failure of checkpoint or proper cell signalling in host.</p> <p>Biopsy</p> <p>Three stages:</p> <p>Surgery + description in one or two sentences</p> <p>Radiotherapy+ description</p> <p>Chemotherapy+ description</p> | |
| 33 | <p>Three steps of transcription- initiation, elongation and termination and its description with direction of transcription and enzymes.</p> <p>Any two differences.</p> <p>Or</p> <p>(a) The three different allelic forms are: I A, I B , I O/i. Refer to Basic Concepts Point 6.</p> <p>(b) (i) Yes; when both the parent are homozygous.</p> <p>(b) i. yes when both the parents are homozygous. (explanation with cross)</p> <p>ii. Yes when woman is heterozygous(explanation with cross)</p> | |