

CLASS XI SAMPLE PAPER

BIOLOGY (044)

Marking Scheme

(Marking scheme and Hints to solution)

Note: (Any other relevant answer not given here in but given by the candidate be also suitably awarded)

| Q.No. | Value Points / Key points | Marks allotted to each value point/key point | Total marks |
|-------|---|--|-------------|
| 1 | B- identification-classification-nomenclature | 1 | 1 |
| 2 | C- They show both autotrophic and heterotrophic modes of nutrition. | 1 | 1 |
| 3 | C- Glucose is transported actively using energy from ATP. | 1 | 1 |
| 4 | B- Palisade parenchyma | 1 | 1 |
| 5 | B- Inspiratory Reserve Volume (IRV) + Tidal Volume (TV) | 1 | 1 |
| 6 | C- Rh ⁻ mother and Rh ⁺ fetus | 1 | 1 |
| 7 | A- Open, conjoint with endarch protoxylem | 1 | 1 |
| 8 | B- Cyclic photophosphorylation involves both PSI and PSII | 1 | 1 |
| 9 | A-0.5 | 1 | 1 |
| 10 | D-P – II, Q – III, R – IV, S – V, T – VI, U – I, V – VII | 1 | 1 |
| 11 | C-Rigid cell wall in plant cell | 1 | 1 |
| 12 | B- Renin is released by the juxtaglomerular cells of the kidney, which converts angiotensinogen into angiotensin I, which is later converted into angiotensin II. | 1 | 1 |
| 13 | D- A is false but R is true. | 1 | 1 |

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|----|--|--|---|
| 14 | A- Both A and R are true and R is the correct explanation of A. | 1 | 1 |
| 15 | A- Both A and R are true and R is the correct explanation of A. | 1 | 1 |
| 16 | B- Both A and R are true and R is not the correct explanation of A. | 1 | 1 |
| 17 | A- When vinegar (acetic acid) is added to milk, it lowers the pH of the milk / denature and coagulate B- An egg contains proteins, mainly albumin in the egg white / When an egg is heated, the proteins in the egg denature (i.e., their structure is altered due to the heat). | $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ | 2 |
| 18 | A, as saturation point is attained earlier than C3 | 1+1 | 2 |
| 19 | Touch - sensory papillae Balancing - ear Smell - nasal epithelium Taste - taste buds | $\frac{1}{2} * 4$ | 2 |
| 20 | Actor A is more accurate , Centre present in the pons region of the brain called pneumotaxic centre can moderate the functions of the respiratory rhythm centre. Neural signal from this centre can reduce the duration of inspiration and thereby alter the respiratory rate OR Pacemaker will not work QRS wave will be affected | $\frac{1}{2} * 4$ 1+1 | 2 |
| 21 | - producing two kinds of spores - The development of the zygotes into young embryos take place within the female gametophytes | 1+1 | 2 |
| 22 | Spirogyra - Chlorophyll a,b; Starch Cellulose Pophyra - Chlorophyll a,d, phycoerythrin; Floridean starch; Cellulose, pectin | $\frac{1}{2} * 6$ | 3 |
| 23 | RER SER GOLGI + VESICLE (function of each) | 1 1 $\frac{1}{2} * 2$ | 3 |
| 24 | A- 1 NADH = 3ATP B- 1 NADH, 1 GTP= 4 ATP | $\frac{1}{2} * 6$ | 3 |

| | | | |
|----|--|---|---|
| | C- $1 \text{ FADH}_2 = 2\text{ATP}$ | | |
| 25 | Refer NCERT page 223, fig 17.5 Label H and I band | 1+1 diagram 1 label | 3 |
| 26 | Any one difference One example each Two useful metabolites | 1 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ | 3 |
| 27 | Counter current mechanism, loop of henle + vasa recta This mechanism helps to maintain a concentration gradient in the medullary interstitium. Presence of such interstitial gradient helps in an easy passage of water from the collecting tubule thereby concentrating the filtrate (urine) OR A- Hepatic portal vein B- exist between two capillary network C - carries nutrients from intestine to liver for metabolism | $\frac{1}{2} * 2$ 1 1 1*3 | 3 |
| 28 | Plasmogamy Karyogamy Dikaryon phase Meiosis | 1 $\frac{1}{2}$ $\frac{1}{2}$ 1 | 3 |
| 29 | A. S phase B. Irregular numbers <8> C. 4 chromosomes , 8 chromatids D. 4 chromosomes , 4 chromatids | 1 1 1+1 1+1 | 4 |
| 30 | A. $0.5*6+2 \text{ cm} = 5 \text{ cm}$ B. Sigmoid C. Fig 13.5 pg 170 NCERT D. Fig 13.6 pg 170 NCERT | $\frac{1}{2} + \frac{1}{2}$ 1 2 2 | 4 |
| 31 | A. Steroid B. Intracellular C. Regulate gene expression D. Fig 19.5 B pg 249 NCERT OR A. . a. At rest membrane is | 1 1 1 2 $\frac{1}{2} * 4$ | 5 |

| | | | |
|----|--|--|---|
| | <p>comparatively more permeable to potassium ions (K⁺) and nearly impermeable to sodium ions.</p> <p>b. Similarly, the membrane is impermeable to negatively charged proteins</p> <p>c. the axoplasm inside the axon contains high concentration of K⁺ and negatively charged proteins and low concentration of Na⁺.</p> <p>d. In contrast, the fluid outside the axon contains a low concentration of K⁺, a high concentration of Na⁺ and thus form a concentration gradient.</p> <p>B. When a stimulus is applied at a site on the polarised membrane, the membrane at the site A becomes freely permeable to Na⁺. This leads to a rapid influx of Na⁺ followed by the reversal of the polarity</p> <p>C. Within a fraction of a second, K⁺ diffuses outside the membrane and restores the resting potential of the membrane</p> <p>D. FIG 18.2 Pg 233 NCERT</p> | <p>1</p> <p>1</p> <p>1</p> | |
| 32 | <p>A- Osteichthyes B- Chondrichthyes Any four features</p> <p style="text-align: center;">OR</p> <p>A- Medusae B- Polyp Phylum - Cnidaria Two characteristic features Two differences between polyp and medusae</p> | <p>$\frac{1}{2}$ $\frac{1}{2}$ 1*4</p> <p>$\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2} + \frac{1}{2}$ 1+1</p> | 5 |
| 33 | <p>A- endosperm B- scutellum C- coleoptile D- radicle E - aleurone layer (one function of each)</p> <p style="text-align: center;">OR</p> <p>A - bisexual B- actinomorphic C - superior ovary D- diadelphous E - epipetalous (one line description of each)</p> | <p>$(\frac{1}{2} + \frac{1}{2}) * 5$</p> <p>$(\frac{1}{2} + \frac{1}{2}) * 5$</p> | 5 |