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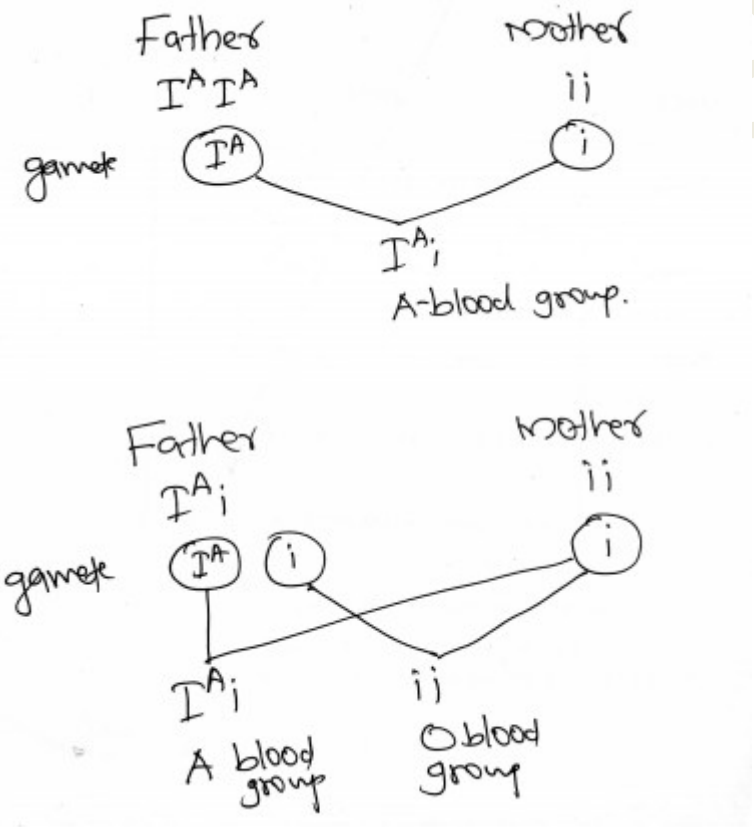
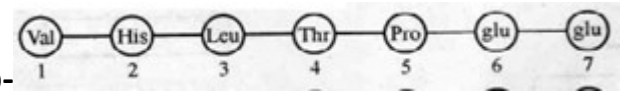
MODEL EXAMINATION,MARCH 2021

ZOOLOGY ANSWER KEY

<table>
<tr><th>QN</th><th>Scoring key</th><th>Score</th></tr>
<tr><td colspan="3">Questions 1 to 7 carries 1 score each</td></tr>
<tr><td>1</td><td>Sertoli cells/Nursing cells/Supporting cells</td><td>1</td></tr>
<tr><td>2</td><td>Medical Termination of Pregnancy /MTP/Induced abortion</td><td>1</td></tr>
<tr><td>3</td><td><u>Normal Male</u>
 
<u>Affected Female</u>
  </td><td>0.5

0.5</td></tr>
<tr><td>4</td><td>A-DNA Replication
B-Translation</td><td>0.5
0.5</td></tr>
<tr><td>5</td><td>a)CH_4,NH_2,H_2O,H_2</td><td>1</td></tr>
<tr><td>6</td><td>b)Propionibacterium sharmanii</td><td>1</td></tr>
<tr><td>7</td><td>a)IARI-Indian Agriculture Research institute
b)KVIC-Khadi and Village Industries Comission</td><td>0.5
0.5</td></tr>
<tr><td colspan="3">Questions 8 to 26 carries 2 score each</td></tr>
<tr><td>8</td><td>a-Mammary tubule
b-Lactiferous duct</td><td>1
1</td></tr>
<tr><td>9</td><td><table><tr><th>ZZ –ZW mechanism of sex determination</th><th>XX-XO Mechanism of sex determination</th></tr><tr><td>• Here both male and female have same number of chromosomes</td><td>• Here males are one chromosome less than (Sex chromosome)that of females</td></tr><tr><td>• Males are homozygous</td><td>• Males are heterozygous</td></tr><tr><td>• Females are heterozygous</td><td>• Females are Homozygous</td></tr><tr><td>• Type of egg receiving sperm will determine sex of baby</td><td>• Type of sperm entering into egg will determine sex of baby</td></tr><tr><td>• Female will determine sex of baby</td><td>• Male will determine sex of baby</td></tr><tr><td>• Eg.Birds</td><td>• Eg.Insects</td></tr></table></td><td>2</td></tr>
<tr><td>10</td><td>a)Translation/Formation of polypeptide chain
b) They are required for efficient translation process.</td><td>1
1</td></tr>
<tr><td>11</td><td>Any four warning signs</td><td>0.5×4=2</td></tr>
<tr><td>12</td><td>a)Lactobacillus/Lactic acid bacteria/LAB
b) Small amount of curd act as starter or inoculums ,contains millions of LAB which at suitable temperature multiply and convert milk into curd</td><td>1
0.5
0.5</td></tr>
</table>

13	a) A-Acrosome b) The acrosome is filled with enzymes that help fertilisation of the ovum.	1 1
14	a)Habitat loss and fragmentation b)Alien Species invasion c)Over exploitation d)Co extinction	0.5 0.5 0.5 0.5
15	Yes Which contains several antibodies absolutely essential to develop resistance for the new-born babies.	1 1
16	a) Transforming principle/ Griffith effect b) The mice died due to pneumonia. Griffith recovered living S bacteria from died mice. He concluded that the R strain bacteria had somehow been transformed by the heat-killed S strain bacteria. Some 'transforming principle', transferred from the heat-killed S strain, had enabled the R strain to synthesise a smooth polysaccharide coat and become virulent. Ie. R strain were converted into S strain	1 1
17	Two possibilities Blood group may be A or O 	2
18	a)Tubectomy/Sterilisation method in female b) It is a terminal method to prevent any more pregnancies.	1 1
19	**Narrow Utilitarian**: The **narrowly utilitarian** arguments for conserving biodiversity are obvious; humans derive countless direct economic benefits from nature food **Broadly Utilitarian**: The **broadly utilitarian** argument says that biodiversity plays a major role in many ecosystem services that nature provides	1

	(cereals, pulses, fruits), firewood, fibre, construction material, industrial products (tannins, lubricants, dyes, resins, perfumes) and products of medicinal importance. Eg. More than **25 %** of the drugs currently sold in the market worldwide are derived from plants	Eg: 01- **Amazon forest (Lungs of Planet**) is estimated to produce, through photosynthesis, **20 per cent of** the total oxygen in the earth's atmosphere. 02-Pollination (without which plants cannot giveus fruits or seeds) is another service, ecosystems provide through pollinators layer – bees, bumblebees, birds and bats. 03-There are other intangible benefits – that we derive from nature–the aesthetic pleasures of walking through thick woods, watching spring flowers in full bloom or waking up to a bulbul's song in the morning etc give pleasure (Any one example)	**1**
20	**a-Sickle cell anaemia** **b-** 		**1** **1**
21	**a-User friendly** **b-Easily available** **c-Effective** **d-Reversible**		**0.5** **0.5** **0.5** **0.5**
22	**a-Blastocyst** **b-Inner cell mass-It became embryo /Germ layer**		**1** **1**
23	**Completely Curable**: **Chlamydiasis**, **Trichomoniasis** **Non curable**: **Hepatitis-B,** **HIV infections**		**0.5×4=2**
24	**a- Acquired Immuno Deficiency Syndrome** **b-HIV/ Human immunodeficiency virus** **c-ELISA/ enzyme-linked immunosorbent assay** **d)Any two preventive methods**		**0.5** **0.5** **0.5** **0.5**
25	**a-Opioids** **b-Papaver somniferum** **c-Hashish** **d-Cannabis sativa**		**0.5** **0.5** **0.5** **0.5**
26	**a-Figure A-Stabilising selection** **figure C-Disruptive selection** **b- A group of individuals separates from a larger population to form a new group. This is known as the founder's effect. The newly formed group may distinctly vary from its original population.**		**0.5** **0.5**
Questions 27 to 31 carries 3 score each			
27	**a-Transcription**		**1**

b- A-Promoter **1**

B-Terminator

c-

Template strand	Coding strand
The strand of DNA with polarity 3'—5' act as a template	**the other strand of DNA with polarity 5'—3' is called coding strand**
The mRNA is copied from a segment of Template strand	**Coding strand donot code for anything.**

1

28 **a)Steps in test tube baby programmes**

- **01-** Ova/Egg from the wife/donor (female) and sperms from the husband/donor (male) are collected **1**

  02-Sperm and egg are induced to form zygote under simulated conditions in the laboratory

  03-The zygote or early embryos thus formed (**with upto 8 blastomeres**) could then be transferred into the fallopian tube (ZIFT**–zygote intra fallopian transfer**) and embryos with **more than 8 blastomeres**, into the uterus (IUT **– intra uterine transfer**), to complete its further development. (This step is called Embryo transfer)

  Or

  IVF and ET (ZIFT/IUT)

b)

AI	IUI
• Artificial Insemination • The semen collected either from the husband or a healthy donor is artificially introduced either into the vagina	• Intra uterine insemination • The semen collected either from the husband or a healthy donor is artificially introduced either into the the uterus

1

0.5+0.5

C) Reason for Infertility (Any two)

- Physical
- Congenital,
- Diseases,
- Drugs,
- Immunological
- Psychological

29 **a)Perimetrium,Myometrium,Endometrium** **1.5**

b)Myometrium **0.5**

c)Endometrium **1**

30 **a)Klinfelter's syndrome** **1**

b)44A+XXY **1**

Symptom (2-Characters)

01-Such an individual has overall masculine development , however, the feminine development (development of breast, i.e., **Gynaecomastia**) is also expressed . **0.5+0.5**

	02-Such individuals are sterile	
31	**a)Homologous organs/Fore limbs of mammals** **b)** **Homologous Organs**: 1-Homologus organs are organs having **same structure** and origin **but different functions**. This phenomenon is called **homology**. 2-such organs are developed due to **divergent evolution** **Analogous Organs**: 1-Organs having **same function** but different structure and origin. This phenomenon is called Analogy. 2-Such organs are developed due to **Convergent evolution** **c)** In homologous organs same structure developed along different directions **due to adaptations** to **different needs**. This is **divergent evolution** In analogous organs different structures evolving for the same function and hence having similarity.Such organs are developed due to convergent evolution	