

Документ подписан простой электронной подписью  
 Информация о владельце:  
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## Diagnostic Assessment Template

### Test task for diagnostic assessment by discipline:

#### *Human Genetics, 2<sup>nd</sup> term*

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| Code, educational program | 31.05.01<br>General Medicine            |
| Specialty                 | General Medicine                        |
| Form of education         | Full time                               |
| Compiler                  | Department of Morphology and Physiology |
| Graduate Department       | Internal diseases                       |

| Competence  | Tasks   | Answer options   | Question Difficulty Index |
|---|---|--|---------------------------|
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>1. According to Mendel's second law genotypic ratio of                         | 1) 1:1;<br>2) 1:2:1;<br>3) 3:1;<br>4) 9:3:3:1;   | low                       |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>2. After monohybrid cross F2 generation will have genotypic ratio of           | 1) 1:2:1;<br>2) 3:1;<br>3) 9:3:3:1;<br>4) 1:1;   | low                       |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>3. Genotypic ratio of 9: 3: 3: 1 corresponds to                                | 1) monohybrid cross with complete dominance;<br>2) monohybrid cross with incomplete dominance;<br>3) dihybrid cross with complete dominance;<br>4) dihybrid cross with incomplete dominance. | low                       |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1                                | <i>Choose one correct option:</i><br><br>4. The chromosomal theory of inheritance was discovered by American geneticist | 1) T. Morgan;<br>2) G. Mendel;<br>3) A. Weismann;<br>4) C. Correns.  | low                       |

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| PC-9.1<br>PC-9.2<br>PC-10.1   |  |   |     |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>5. Gene is:   | 1) protein region;<br>2) a species unit;<br>3) a unit of hereditary information;<br>4) part of the genome.    | low |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>6. All genes located on the same chromosome stay together and form:   | 1) clutch;<br>2) allele;<br>3) linkage group;<br>4) allelic group.  | mid |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>7. Structure of DNA was discovered by:  | 1) C. Darwin and Wallace<br>2) M. Schleiden and T. Schwann<br>3) J. Watson and F. Crick<br>4) D. I. Mendeleev | mid |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Establish a correspondence:</i><br><br>8. Organism with genotype:<br><br>1. AAB $\overline{B}$ CC<br><br>2. AABbCc.<br><br>3. AAB $\overline{B}$ Cc                         | The number of gamete types:<br><br>a) 4<br>б) 2<br>B) 1<br>r) 3   | mid |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>9. Parents who have normal hearing (dominant trait) have a child with hearing loss. The genotype of the parents corresponds:          | 1) AA x aa;<br>2) Aa x aa;<br>3) Aa x Aa;<br>4) AA x BB.  | mid |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1                      | <i>Choose one correct option:</i><br><br>10. The recessive hemophilia gene is located on the X chromosome. Father is hemophilic, mother is not hemophilic (homozygous for this | 1) 75%<br>2) 50%<br>3) 25%<br>4) 0 %  | mid |

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| PC-9.2<br>PC-10.1   | trait). The probability of having sons with hemophilia is   |   |      |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>11. Find the complementary strand of the DNA molecule for G-C-T-A-A-T-C-C-G  | 1) C-G-A-U-T-A-G-G-C<br>2) C-T-A-U-U- G-G-C-G<br>3) G-C-A-T-T-A-G-G-C<br>4) C-G-A-T-T-A-G-G-C   | mid  |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose one correct option:</i><br><br>12. Nitrogenous bases of DNA are:  | 1) adenine, guanine, ribose, cytosine<br>2) adenine, guanine, thymine, cytosine<br>3) adenine, guanine, ural, cytosine<br>4) adenine, thymine, ribose, cytosine | mid  |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose all correct options:</i><br><br>13. Genetic linkage can be:   | 1) complete;<br>2) incomplete;<br>3) fractional.  | mid  |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose all correct options:</i><br><br>14. With complementary interaction of genes, a new quality of the trait will appear in individuals with the genotype: | 1) aaBB.<br>2) Aabb.<br>3) AaBb.  | mid  |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Choose all correct options:</i><br><br>15. Mutations can cause:  | 1) hereditary diseases;<br>2) spontaneous abortions;<br>3) congenital malformations;<br>4) oncological diseases.  | mid  |
| GPC-4.2<br>GPC-4.3<br>GPC-5.2<br>GPC-7.2<br>PC-1.1<br>PC-9.1<br>PC-9.2<br>PC-10.1 | <i>Establish a correspondence:</i><br><br>16. Types of genetic variability:<br><br>1. Mutation.<br>2. Recombination.  | Examples:<br><br>1) crossing over;<br>2) translocation;<br>3) DNA repair.   | high |
| GPC-4.2<br>GPC-4.3  | <i>Complete the sentence:</i>   | 1) genes that cause unregulated cell division;  | high |

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| <p>GPC-5.2<br/>GPC-7.2<br/>PC-1.1<br/>PC-9.1<br/>PC-9.2<br/>PC-10.1</p>                         | <p>17. Antioncogenes is</p>  | <p>2) genes that control metabolism;<br/>3) inactive genes for cell growth and differentiation;<br/>4) genes that produse suppressor protein;<br/>5) altered proto-oncogenes..</p>   |             |
| <p>GPC-4.2<br/>GPC-4.3<br/>GPC-5.2<br/>GPC-7.2<br/>PC-1.1<br/>PC-9.1<br/>PC-9.2<br/>PC-10.1</p> | <p><i>Complete the sentence:</i><br/>18. The mother has blood type O, the child has blood type B. A father can't have the following blood type genotypes</p> | <p>1) <math>I^A I^A</math> and <math>I^B i^0</math>;<br/>2) <math>I^A I^A</math> and <math>i^0 i^0</math>;<br/>3) <math>i^0 i^0</math> and <math>I^A I^B</math>;<br/>4) <math>I^A I^A</math> and <math>I^B I^B</math>.</p> | <p>high</p> |
| <p>GPC-4.2<br/>GPC-4.3<br/>GPC-5.2<br/>GPC-7.2<br/>PC-1.1<br/>PC-9.1<br/>PC-9.2<br/>PC-10.1</p> | <p><i>Choose one correct option:</i><br/>19. Nucleic acids contain atoms:</p>  | <p>1) C, H, O, N, P<br/>2) C, H, O, N, S<br/>3) C, H, O, P, S<br/>4) C, H, N, P, S</p>   | <p>high</p> |
| <p>GPC-4.2<br/>GPC-4.3<br/>GPC-5.2<br/>GPC-7.2<br/>PC-1.1<br/>PC-9.1<br/>PC-9.2<br/>PC-10.1</p> | <p><i>Choose all correct options:</i><br/>20. From a social point of view, medical genetic counseling performs the following functions:</p>                  | <p>1) explanation in an accessible form of the meaning of medical genetic prognosis;<br/>2) assistance in making the right decision about further childbearing;<br/>3) help in implementing the right solution</p>         | <p>high</p> |