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## PhD ENTRANCE EXAM RESULT , VMSBUTU

Answer Key for Biotechnology Branch

Question	Options
1 : A statement of the quantitative research question should:	<ul style="list-style-type: none"><li>1) Extend the statement of purpose by specifying exactly the question (the researcher will address</li><li>2) Help the research in selecting appropriate participants, research methods, measures, and materials</li><li>3) Specify the variables of interest</li><li><b>4) All the above</b></li></ul>
2 : In the process of conducting research 'Formulation of Hypothesis" is followed by	<ul style="list-style-type: none"><li>1) Statement of Objectives</li><li>2) Analysis of Data</li><li><b>3) Selection of Research Tools</b></li><li>4) Collection of Data</li></ul>
3 : In order to pursue the research, which of the following is priorly required?	<ul style="list-style-type: none"><li>1) Developing a research design</li><li><b>2) Formulating a research question</b></li><li>3) Deciding about the data analysis procedure</li><li>4) Formulating a research hypothesis</li></ul>
4 : What are the core elements of a Research Process?	<ul style="list-style-type: none"><li>1) Introduction; Data Collection; Data Analysis; Conclusions and Recommendations</li><li>2) Executive Summary; Literature Review; Data Gathered; Conclusions, Bibliography</li><li>3) Research Plan; Research Data; Analysis; References</li><li><b>4) Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions</b></li></ul>

Question	Options
5 : What does the term 'longitudinal design' mean?	1) A study completed far away from where the researcher lives 2) A study which is very long to read. 3) A study with two contrasting cases. <b>4) A study completed over a distinct period of time to map changes in social phenomena</b>
6 : Which institution approved the '6G Vision Framework'	1) NASSCOM 2) NITI Aayog <b>3) ITU</b> 4) IMF
7 : Which company has launched ChatGPT rival Bard in European Union, Brazil and other nations?	<b>1) Google</b> 2) Microsoft 3) Apple 4) Infosys
8 : What is AIRAWAT ?	1) Submarine <b>2) AI supercomputer</b> 3) 5G-enabled drone 4) Recently discovered exoplanet
9 : The Union Government has exempted which institution from the purview of the Right to Information Act, 2005?	1) RBI 2) SEBI <b>3) CERT-In</b> 4) Election Commission of India
10 : What is 'PSiFI system'	1) A primary method of waste disposal <b>2) A system for recognizing human emotions</b> 3) A wearable device for monitoring blood pressure 4) A voice recognition AI tool
11 : In a mixture of 60 litres, the ratio of milk to water is 2 : 1. If this ratio is to be 1 : 2, then the quantity of water (in litres) to be further added is ?	1) 20 2) 30 3) 40 <b>4) 60</b>

Question	Options
12 : The cost of Type 1 rice is Rs. 15 per kg and Type 2 rice is Rs.20 per kg. If both Type 1 and Type 2 are mixed in the ratio of 2 : 3, then the price per kg of the mixed variety of rice is ?	1) 19.5 2) 19 <b>3) 18</b> 4) 18.5
13 : A cistern is normally filled in 8 hours but takes two hours longer to fill because of a leak in its bottom. If the cistern is full, the leak will empty it in ?	<b>1) 20</b> 2) 28 3) 36 4) 40
14 : A starts business with Rs. 3500 and after 5 months, B joins with A as his partner. After a year, the profit is divided in the ratio 2 : 3. What is B's contribution in the capital ?	1) 8000 2) 8500 <b>3) 9000</b> 4) 7500
15 : A tank is 25 m long, 12 m wide and 6 m deep. The cost of plastering its walls and bottom at 75 paise per sq. m, is ?	1) 456 2) 458 <b>3) 558</b> 4) 568
16 : If MADE is coded as 12236 and BAD is coded as 123, then how will DECK be coded as ?	<b>1) 36212</b> 2) 34312 3) 36201 4) 44412
17 : Five balls L1, L2, L3, L4 and L5 are kept one above the other (not necessarily in the same order). L1 is just above L5 and just below L4. L2 is just above L3 and just below L5. How many balls are above L2 ?	1) 2 <b>2) 3</b> 3) 4 4) 4
18 : Mayank is the son of Chhaya. Chhaya and Deepa are sisters. Gayatri is the mother of Deepa. If Naman is the son of Gayatri , How is Mayank related to Naman ?	<b>1) Nephew</b> 2) Brother 3) Father 4) Son
19 : Which number will replace the question mark(?) in the following series? 98, 95, 86, 82, 66, ?, 36 ?	1) 58 2) 60 <b>3) 61</b> 4) 63

Question	Options
20 : If 5 November 2019 was Tuesday, then what was the day of the week on 5 December 2011 ?	1) Tuesday <b>2) Monday</b> 3) Sunday 4) Saturday
21 : Neutralizing antibodies are antibodies which can .....	1) Reduce symptoms of infection 2) increase host tolerance <b>3) dock and inactivate cell binding epitopes of pathogen</b> 4) combination of all of above listed
22 : A leukemia patient will have	1) Enlarged liver 2) less haemoglobin 3) high cholesterol <b>4) very high blood cell count</b>
23 : Following is an example of subunit vaccine	<b>1) Hepatitis B</b> 2) Polio 3) Tetanus 4) BCG
24 : MHC is essential for functioning of which cell type	1) B cells <b>2) T cells</b> 3) NK Cells 4) All of the above
25 : Survival of renal transplant patients can be extended by administration of ..... drugs	1) Blood thinner 2) Anti bacterials & Anti fungals <b>3) Immunosuppressive</b> 4) Anti-virals
26 : Drug resistant tuberculosis can be treated by use of .....	<b>1) Combination of more than one antibiotics</b> 2) vaccine 3) personal hygiene 4) no treatment is available

Question	Options
27 : Maximum number of mitochondria are found in which cell type?	1) A neuron <b>2) a muscle cell</b> 3) a hepatocyte 4) a renal cell
28 : Which of the following dimer formation is most common-	<b>1) thymidine</b> 2) Alanine 3) Cytidine 4) All of the above
29 : Which of the following mRNA molecules would form the most stable stem-loop structure?	1) 5'...GGCUU.....UUCGG...3' <b>2) 5'...GGCUU.....AAGCC...3'</b> 3) 5'...GGCUU.....GGCUU...3' 4) 5'...GGCUU.....CCGAA...3'
30 : Cerebral malaria is caused by	1) Plasmodium vivax 2) Plasmodium ovale <b>3) Plasmodium falciparum</b> 4) Plasmodium malariae
31 : Apoptosis term is related	1) Abnormal cell growth <b>2) Cell death</b> 3) Cell differentiation 4) Cell morphogenesis
32 : Which component of the bile helps in emulsification	<b>1) bile salts</b> 2) bilirubin 3) cholesterol 4) both option 1 and 2
33 : Genetically engineered bacteria are being used in commercial production of	1) Thyroxine 2) Testosterone <b>3) Human insulin</b> 4) Melatonin
34 : Which of the following cells do not have nucleus	1) WBCs 2) Hepatocytes 3) Neuron <b>4) RBC</b>

Question	Options
35 : Within the eukaryotic plant cell, DNA will be present in following organelle/s-	<p><b>1) nucleus, mitochondria and chloroplast</b></p> <p>2) nucleus and mitochondria</p> <p>3) nucleus</p> <p>4) all organelles</p>
36 : Element that is found in all amino acids but not in carbohydrates-	<p>1) Hydrogen</p> <p>2) Sulphur</p> <p>3) Oxygen</p> <p><b>4) Nitrogen</b></p>
37 : Most of the enzymes are chemically	<p><b>1) Proteins</b></p> <p>2) Mix of Proteins &amp; Nucleic acids</p> <p>3) Carbohydrates</p> <p>4) Nucleic Acid</p>
38 : Urine of a person undergoing prolonged fasting will have abnormal quantities of	<p>1) Fats</p> <p>2) Amino acids</p> <p>3) Glucose</p> <p><b>4) Ketones</b></p>
39 : Which of the following is a derived lipid	<p>1) Fats</p> <p>2) Oils</p> <p><b>3) Steroids</b></p> <p>4) Waxes</p>
40 : Genes located on Y chromosome are also known as	<p>1) Mutant genes</p> <p><b>2) holandric genes</b></p> <p>3) autosomal genes</p> <p>4) recessive genes</p>
41 : 1 map unit or centimorgan (cM) is equal to	<p>1) 10% recombination</p> <p><b>2) 1% recombination</b></p> <p>3) 0.1% recombination</p> <p>4) 100% recombination</p>

Question	Options
42 : Bio-ethanol production process is example of	1) Precipitation 2) Crystallization <b>3) Fermentation</b> 4) Distillation
43 : The first formed photosynthetic organism is .....	<b>1) Cynobacteria</b> 2) Mycoplasmas 3) Bryophytes 4) Algae
44 : Which of the following methods could be most readily employed to identify tryptophan?	1) Electrophoresis <b>2) Ultraviolet spectroscopy</b> 3) Gel filtration 4) Ultracentrifugation
45 : Which of the following reagent responsible for amplification of specific region in Polymerase chain reaction:	1) Primers 2) Buffer 3) Ions <b>4) Taq Polymerase</b>
46 : CRISPR, the most talked about molecular biology tool, can be used for-	<b>1) Genome editing</b> 2) DNA ligation 3) DNA amplification 4) All of the above
47 : A heat sensitive cell culture medium can be sterilized by using which method?	1) Pasteruzation 2) Autoclaving <b>3) Fileration</b> 4) Heating under pressure
48 : The values of extreme items do not influence the average for_____.	1) Mean 2) Mode <b>3) Median</b> 4) None
49 : Protoplast term is refered to a cell without .....	1) Nucleus <b>2) Cell Wall</b> 3) Mitochondria 4) Chloroplast

Question	Options
50 : Which of the following techniques is heavily dependent of Bioinformatics for analysis	<b>1) NGS</b> 2) ELISA 3) FACS 4) All of the above

*Best of luck for the future!*