

MT

2018 ____ 1100

MT - SCIENCE & TECHNOLOGY - II (72) - SEMI PRELIM - I : PAPER -1

Time : 2 Hours

(Model Answer Paper)


Max. Marks : 40

A.1.	(A) Fill in the blanks :											
(1)	Harmful bacteria like clostridium in the intestine are destroyed due to probiotics.	1										
(2)	Methods like artificial insemination and embryo transplant are mainly used for animal husbandry .	1										
(3)	Laughter club is a remedy to drive away stress .	1										
A.1.	(B) Match the columns:	2										
	<table border="1"><thead><tr><th>Column A</th><th>Column B</th></tr></thead><tbody><tr><td>(1) Xylitol</td><td>(b) To impart sweetness</td></tr><tr><td>(2) Citric acid</td><td>(e) To impart acidity</td></tr><tr><td>(3) Lycopene</td><td>(a) Pigment</td></tr><tr><td>(4) Nycin</td><td>(c) Microbial restrictor</td></tr></tbody></table>	Column A	Column B	(1) Xylitol	(b) To impart sweetness	(2) Citric acid	(e) To impart acidity	(3) Lycopene	(a) Pigment	(4) Nycin	(c) Microbial restrictor	
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A.1.	(C) Choose the correct alternative and rewrite the statement :											
(1)	Substance prepared by using yeast is bread .	1										
(2)	Cattle feeding on transgenic tomato does not contract a viral disease-rinderpest.	1										
(3)	(d) all of the above	1										
(4)	The chairman of village level committee is Sarpanch .	1										
(5)	Each nuclear fission of uranium nucleus release 200 MeV energy.	1										

A.2.	<p>Answer the following questions : (Any Five)</p> <p>(1) Complete the following chart with reference to pre-disaster management.</p> <div style="text-align: center;"> <pre> graph TD A[Properties of pre-disaster management] --> B[Identifying the pro-disaster areas] A --> C[Collecting the information about the intensity of disaster and probable sites of disaster] A --> D[Get ing special training for disaster management] A --> E[Increasing awareness about disaster management] </pre> </div> <p>(2) (i) Person indulging in selfie is not aware about the world around and the risks. This is called selficide. (ii) I will advise my friend to stop this weird behaviour as practice of taking selfies has led to many deaths. (iii) I will tell him that this habit of taking selfies many times a day itself is enough to disturb your personal, social and professional life. (iv) I will advise him to develop some hobby like reading books or playing sports to help him get rid of this habit.</p> <p>(3) (i) DNA sequence of each person is unique as that of the fingerprints. (ii) Due to this, identity of any person can be established with the help of its available DNA. This is called as DNA fingerprinting. (iii) It is mainly useful in forensic sciences. (iv) Identity of the criminal can be established with the help of any part of its body found at the site of crime. (v) Similarly, identity of father of any child can be established. (vi) This research is performed in Center for DNA fingerprinting and Diagnostics, Hyderabad.</p> <p>(4) (i) Various organs in human body become less efficient or completely functionless, due to various reasons like ageing, accidents, infections etc. (ii) Life of such persons become difficult, miserable, uncomfortable. Sometimes fatality may also occur. (iii) Many organs in human body remain functional for certain period even after death occurs under specific conditions. (iv) These organs can be transplanted on donation. Hence certain organs like heart, kidneys, eyes, liver, heart valves, skin etc. are more valuable.</p>	<p>2</p> <p>2</p> <p>2</p> <p>2</p>
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(5)	<p>(i) Compressed yeast is used in commercial bakery industry.</p> <p>(ii) It is available in dry, granular form for domestic use.</p> <p>(iii) Yeast produced for commercial use contains various useful contents like carbohydrates, fats, proteins, various vitamins and minerals.</p> <p>(iv) Due to this, bread and other products produced with the help of yeast become nutritive.</p>	2
(6)	<p>From the silicon solar cell with dimension 1cm^2, we get electric current of 30 mA and a potential difference of 0.5 V since the cells are in parallel, no change in potential difference.</p> <p>$\therefore V = 0.5\text{ V}$</p> <p>Total current = Sum of individual currents.</p> $I = I_1 + I_2 + I_3$ <p>$\therefore I = 30 + 30 + 30$</p> <p>$\therefore I = 90\text{ mA}$</p> <p>$\therefore$ The potential difference is 0.5 V and current of 90 mA is produced.</p>	2
A.3. Answer the following questions : (Any Five)		
(1)	<p>(i) Probiotics are milk products containing active bacteria.</p> <p>(ii) These microbes maintain the balance of intestinal organisms.</p> <p>(iii) These products form the colonies of useful microbes in alimentary canal and control other microbes and their metabolic activities, improve resistance and lower the effects of harmful substances formed during metabolic activities.</p> <p>(iv) Useful microbes become inactive due to antibiotics, probiotics make them active again.</p> <p>(v) Nowadays probiotics are used for treatment of diarrhoea and treatment of poultry also.</p>	3
(2)	<p>(i) Various organs in the human body become less efficient or completely functionless due to various reasons like ageing, accidents, infections, disorders etc.</p> <p>(ii) Life of such person becomes difficult or fatality may occur and life can be saved when the person gets the necessary organ.</p> <p>(iii) Availability of donor is an important requirement in organ transplantation.</p> <p>(iv) As the process of excretion can occur with the help of single kidney, person can donate the other one. Similarly, skin from certain parts of the body can be donated.</p> <p>(v) Various factors like blood group, diseases, disorders, age etc. of the donor and recipient need to be paid attention during transplantation.</p>	3

	<p>(vi) Organs like liver, heart and eyes can be donated after death only, i.e. posthumous donation of body and organs.</p> <p>(3) (i) The quality of life of family member as well as of chronically ill old person can be hugely reduced in terms of physical, psychological and social problems. (ii) Family members experience emotions such as worry, frustration and stress. (iii) The work life of family members is affected. (iv) The family has to bear with the behavioral disturbances in the patient. (v) There is financial pressure on the family due to medical expenses. (vi) Meeting social workers, rehabilitation therapists, and physicians regularly can help the family members to take care of the ill old person. (vii) Taking care, talking with the old person counselling the family members will not only ease his/her suffering but also help in maintaining good atmosphere at home.</p> <p>(4) (i) Disaster Management is achieving or time to time improving the ability to face the disasters through scientific and careful observations and analysis of data. (ii) It involves collecting the information about intensity of disaster and probable sites of disaster through predictive intensity maps and hazard maps respectively. (iii) It also includes getting special training for disaster management. (iv) Preparedness is a plan chalked out so as to get the quick response from general public and administration. (v) Modern technology is implemented to increase awareness among masses. (vi) In future the people and administration can be updated and made alert about the situation so as to face the disaster in the best possible way.</p> <p>(5)</p> <table border="1"> <thead> <tr> <th>Disaster</th> <th>Symptoms</th> <th>Effects</th> <th>Remedial measures</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Land-slide</td> <td>(i) Soil erosion</td> <td>(i) Roads blocked</td> <td>(i) Fencing and putting nets.</td> </tr> <tr> <td rowspan="2">(ii) Land-slide</td> <td>(ii) Loss and damage to vehicles</td> <td>(ii) Construction to prevent landslide</td> </tr> <tr> <td>(iii) People may die or get injured</td> <td>(iii) Cement coating</td> </tr> </tbody> </table>	Disaster	Symptoms	Effects	Remedial measures	Land-slide	(i) Soil erosion	(i) Roads blocked	(i) Fencing and putting nets.	(ii) Land-slide	(ii) Loss and damage to vehicles	(ii) Construction to prevent landslide	(iii) People may die or get injured	(iii) Cement coating	<p>3</p> <p>3</p> <p>3</p>
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(6)	 <pre> graph LR A[Chemical energy in coal] --> B[Thermal energy] B --> C[Kinetic energy in steam] C --> D[Kinetic energy in turbine] D --> E[Electrical energy] </pre>	3
A.4.	<p>Answer the following questions : (Any One)</p> <p>(1) Usefulness of biotechnology:</p> <ol style="list-style-type: none"> Biotechnology has worked for human welfare. There is considerable progress in the field of agriculture, pharmacy, plant as well as animal life. Scientist have modified plants, animals, human beings using various techniques of biotechnology. Biotechnology has modified shape, size, taste, seed/seedless fruits and vegetables. Reliable, rapid and consistent enzymes have been created which play a major role in food processing. A number of dairy products are made available to us. A number of human and animal diseases have found cure and prevention. Biotechnology has modified plants to have their own pest resistant traits. Diagnostic kits are available for various diseases. <p>Harmful effects of Biotechnology are as follows.</p> <ol style="list-style-type: none"> High cost of genetic engineering apparatus. Crosses between different species gives rise to hazardous organisms. During experimentation when more Transgenic potatoes are grown, it can be life threatening Thus biotechnology should be balanced. 	5
(2)	<ol style="list-style-type: none"> In cities sewage needs to be carried to processing unit and acted upon by microbial process. Microbes can destroy pathogens of Cholera and Typhoid. Methane and Carbon-dioxide are released by the decomposition of carbon compounds. Phenol oxidising bacteria decompose the Xenobiotic chemicals present in sewage. Sewage Management in cities. <p style="text-align: center;">●●●□●●●</p>	5