

# **Subject: Bt605 (Notes)**

**CR: Iqra Shaheen,**

**Tasha Khan, Hafiza**

**Mubeen**

**VU Medical Zone**

**(biotechnologists) echnologist)**

**Admins: HAfiza Mubeen,**

**Muhammad Nouman, Tasha**

**kHan, Iqra Shaheen**

# **Bt605 objective and subjective notes for mid term**

---

## **Bt605 topics 1 to 20**

1) Word Science is used from a Latin term

a) Seci

**b) Scio**

c) Sioc

d) None of these

2) \_\_\_\_\_ is the investigation of the universe by a set of methodologies

a) Technology

**b) Science**

c) Scio

d) Ethics

3) \_\_\_\_\_ associated with science.

a) Technology

b) Language

c) Scio

**d) Ethics**

4) \_\_\_\_\_ **Reflects what society at the time deems to be valuable**

**a) Values**

b) Technology

c) Ethics

d) Robots

5) **Science is not done by \_\_\_\_\_?**

a) Human

b) Animals

**c) Robots**

d) **Machines**

6) \_\_\_\_\_ **set high ethical standards intense motivation for ethical behavior has to do with religious beliefs but not confined to religion**

**a) Religion**

b) **Science**

c) Ethics

d) All of these

7) What are the Types of Ethics?

## **Bt605 objective and subjective notes for mid term**

**Meta ethics theoretical meaning**

**Normative ethics practical meaning**

**Applied ethics—domain of action**

8) In Ancient Greece Plato means\_\_\_?

- a) Everything has its own form
- b) Religion is every thing
- c) Change things for development
- d) All of these options are correct

9) Jewish/Christian thinking\_\_\_?

- a) God had spoken through his ten commandments
- b) codes of conduct
- c) follow the life of Jesus Christ
- d) all of these options

10) Natural Law given by \_\_\_\_\_ which means Aristotle idea

- a) Jewish broke
- b) Thomas broke
- c) Both of them
- d) None of these

11) Consequentialism is the \_\_\_\_\_ science. Example Saddam Hussein

- a) Old
- b) Modern
- c) Quantitative
- d) Qualitative

12) In Origin of notion of bioethics Potter means

- a) Everything has its own form
- b) Religion is every thing
- c) Bioethics, the survival of science
- d) All of these

13) Technology/research/ education/administration/communication couples can make their own decisions organizational and global bioethics is called?

- a) Health care
- b) Principles
- c) Beneficence
- d) Justice

14) What is Principles of Bioethics in 21<sup>st</sup> Century

Autonomy non malfeasance and beneficence for example Justice

7 to 12

15) element of nature is ----- human control???

- a) in
- b) Not in



## Bt605 objective and subjective notes for mid term

- c) **both a and b in some cases** d) none
- 16) The moral relationship between humans and natural environment is common in \_\_\_\_\_?  
a) **developed societies** b) human beings  
c) natural order d) both a and c
- 17) \_\_\_\_\_ centered of ecosystem, includes soil, air, water, forest and mountains..  
a) theocentrism b) **ecocentrism**  
c) biocentrism D) both a and c
- 18) biotic components depends on \_\_\_\_??  
a) living components B) **non- living components**
- 19) we make decision for \_\_\_\_\_?  
A) environment challenges B) value environment  
C) **both a and b** D) None of these
- 20) brain power is aspect of \_\_\_\_\_??  
A) environment B) **nature**  
C) human D) all
- 21) \_\_\_\_\_/value that environment and living forms have their own right and mainly involves religion???  
A) environment value B) **intrinsic value**  
C) religion value D) All of these
- 22) \_\_\_\_\_ supply of humans material needs actual and potential use in supplying resources for human living????  
A) debate value B) human value  
C) **Instrumental value** D) all of these
- 23) Pressure on the natural resources and activities of human can damage the environment????  
A) **Population load** B) population low  
C) Environment load D) a and c
- 24) Deontological and consequentiality ethical thinking is the \_\_\_\_\_?  
a) Rio declaration principle b) sustainability principle  
c) **precautionary principle** d) b & c
- 25) What are the current issues in the environment?  
**Solution:** increase population if humans, ozone depletion, acid rain, bioaccumulation and green house effect
- 26) Write about sustainability?  
**Ans)** activity should be conducted repeatedly without accumulating environment damage. Agriculture has no lasting effect on the environment, Local or large level
- 27) Use of the chemicals unregulated disposal on land and poisoning metals are reasons of \_\_\_\_\_??  
a) territorial pollution b) aquatic pollution  
C) **both a & b** D) environmental pollution



## Bt605 objective and subjective notes for mid term

28) **Agri** chemical have accumulated in our food chain???

29) **Aresol** sprays are used in refrigerator as a coolant???

30) What about ozone depletion??

**Ans)** chemical reaction in the atmosphere/aresol destroy ozone layer and aresol sprays are used in refrigerator as a coolant.

31) Global climate changes are due to-----?

A) Increasing atmospheric co2 gas

B) Global warming

**C) All of these**

D) None of these

32) write factor that are increasing the atmospheric co2 gas?

**Ans:** **biotechnologists**

**industrial revolution**

**Burning of wood**

**Burning of fossils fuels**

**Trapped infrared rays from sun**

**Co2 is the green house gas**

33) earth climate zone is shift-----?

A) Greenhouse effect

**B) Global warming**

C) Increase of atmospheric co2 gas

D) All of these

34) Which of the following option referred to the global warming?

A) Ice is melting

B) Sea level decrease

C) Species may extinct

**D) Both a and c**

35) in global warming the metabolic rate of ----- producing bacteria increase?

**A) Methane**

B) Ethane

C) Ethene

D) Both b and c

36) how many million we are losing the hectares per year?

a) 5 million

b) 6 million

**c) 7 million**

## **Bt605 objective and subjective notes for mid term**

---

d) 17 million

37) human activity is the -----?

- A) Transformation of land in to forest
- B) Population affect ecosystem
- C) Increase of biodiversity
- D) All of these

38) We can held Clearance of the tropical forest by the -----?

- a) Use of water
- b) Use of wood
- c) Need of land
- d) c and b

39) How many animals we used for research?

- a) 1.6 million
- b) 26 million
- c) 2.6 million
- d) 0.6 million

40) \_\_\_\_\_ are used in the ethical framework?

- a) Plants and animals
- b) Animals
- c) Plants
- d) All options

41) Write UK-cost benefit analysis?

Ans:

- ♥ analysis of procedure and experiment
- ♥ Number and type of animals used
- ♥ Must be weighed against the potential benefits of the project

42) Write about the animal's welfare?

Ans:

- ♥ application for project licenses
- ♥ Standards of animals care and welfare
- ♥ Accept the use of animals in medical research

43) benefits of animal research are enormous and good experiments are -----the number of animals?

- A) Increase
- B) Reduced
- C) Maintain



## **Bt605 objective and subjective notes for mid term**

---

D) None of these

44) According to ethics animals are used in \_\_\_\_\_?

Ans:

- ♥ Animals are used in fashion sports companionship.
- ♥ Race horses-peak fitness
- ♥ Injuries in sports save the horses from breeding

45) Animal's fur used for \_\_\_\_\_?

Ans: luxury item for clothing

46) leopard and jaguar are protected by \_\_\_\_\_?

Ans: animal fur

47) Muslims and Jewish cut the neck without stunning \_\_\_\_\_?

- a) Protection
- b) Annihilation
- c) Slaughter
- d) Both b and c

48) codes of ethics for biologist are \_\_\_\_\_?

- a) Best interpretation
- b) Disclose financial resources
- c) Inaccurate information
- d) A and b

49) in the fundamental elements patients has a right to \_\_\_\_\_?

- a) Receive information
- b) Make decisions
- c) Confidentially
- d) All of these

50) write the codes of nurses?

Ans:

- Nurses and peoples
- Nurses and practice
- Nurses and profession
- Nurses and co-workers

51) Which of the following is patient's responsibility?

- a) Give complete information
- b) Accept the health consequences
- c) Don't ask questions
- d) A, b and c

## **Bt605 objective and subjective notes for mid term**

---

52) what are the patients' rights?

Ans:

- respect and privacy
- Quality care
- Information and communication
- Make decision

53) In ethics truth telling is \_\_\_\_\_ news?

- a) Bad
- b) Good
- c) Both in some cases
- d) None of these

54) Which of the following referred to Bad news?

- a) Common hot
- b) Unpleasant information
- c) Objective and subjective bad news
- d) B and c

55) attending to cultural and ethical issues, managing psychological distress is the\_?

- a) Bad news
- b) Breaking of bad news
- c) Good news
- d) Breaking news

56) what is the consent?

Ans: consent is the legal and ethical right of the patient and it is the permission before getting the healthcare.

57) reasonable physician standard decide that which is the information???????

- a) Consent information
- b) Decision information
- c) Adequate information
- d) All of these

58) legal document-tell physician about your \_\_\_\_\_?

- a) requests
- b) Wishes
- c) Needs
- d) All of these

59) write some types of the patient advance directives?

Ans:

- Oral



## Bt605 objective and subjective notes for mid term

- Living will- applies to treatment such as dialysis
- Durable power of attorney
- Agent makes decision
- Proxy/ agent

60) There is terminal illness if the patient die \_\_\_\_\_?

- a) Quickly
- b) Instantly
- c) Slowly
- d) All of these

61) Which of the following act is about Patient self determination?

- a) Hospital and extended medical care
- b) Discourage everyone to decide
- c) All of these
- d) None of these

62) what are the patients' rights?

Ans:

- respect and privacy
- Quality care
- Information and communication
- Make decision

### Bt605 topics 21 to 40

63) write the patient rights and responsibilities?

Ans; Patient rights/responsibilities: give correct/complete information, ask questions, cooperate with your caregivers, accept health consequences  
Rights: respect and privacy, quality care, information and communication, make decisions.

64) personal health management identifying information about an individual in an \_\_\_\_\_?

- a) Oral form
- b) Recorded form
- c) All of these
- d) None of these

65) physical health information relates \_\_\_\_\_?

- a) Physical health status
- b) Mental health status
- c) Imaginary health status
- d) Both a and b

## **Bt605 objective and subjective notes for mid term**

---

66)\_\_\_\_\_ patient restricted physician from disclosing.

- a) Vocal box
- b) **Lock box**
- c) Voice box
- d) All of these

67)\_\_\_\_\_ of management required by law and infectious diseases?

- a) Personal
- b) **Disclosure**
- c) Legal
- d) none

68)what are moral disputes?

Ans:

- ◆ **conflicting attitudes**
- ◆ **Incompatible actions**
- ◆ **Resolve attitudinal differences**
- ◆ **Bring about more unified behavior**

69)physicians take pregnant women as two individuals who are \_\_\_\_\_ linked?

- a. Chemically
- b. **Biologically**
- c. Physically
- d. Both a and b

70)define US law?

Ans:

- ◆ **Fetus has the right—being his life with sound body and mind.**
- ◆ **Charges of fetal abuse**
- ◆ **Refusal of hospitalization, intrauterine transfusion or surgical delivery**

71)write refusal of treatment?

Ans:

- ◆ **Patient has right to decline treatment.**
- ◆ **Unethical to force the patient**
- ◆ **Patient must understand the consequences of refusal**

72)what are the types of treatment?

Ans:

- ◆ **antibiotics even with little side-effects**
- ◆ **Blood transfusion with minimal risk involved**
- ◆ **Vulnerable disease**



## **Bt605 objective and subjective notes for mid term**

73)\_\_\_\_\_ Increasing protective attitudes genes need to be patented to enjoy its commercial value?

- a) Poor communities
- b) Rich communities
- c) Animal welfare
- d) **A and c**

74)\_\_\_\_\_dietary DNA is degraded by enzyme?

- a) 98%
- b) 96%
- c) **98%**
- d) 93%

75)major risk lie in the use of\_\_\_\_\_protein?

**Ans: novel protein**

76)Transgenic DNA changes into the genomes of resident in\_\_\_\_\_?

**Ans: gut micro flora**

77)Which of the following is an assessment of risk\_\_\_\_\_?

- a) Pleiotropic effect
- b) Tissue specificity
- c) None of these
- d) **A and b**

78)write the areas of risk?

**Ans:**

- ◆ human health
- ◆ Biodiversity
- ◆ Animal welfare
- ◆ Poor communities

79)Which of the following is an ethical issue\_\_\_\_\_?

- a) Socio-economic effects
- b) Fundamental issues
- c) Personal consequences
- d) **All of these**

80)DNA of human tumor fragment is inserted into the \_\_\_\_\_?

- a) **Tobacco plant**
- b) Coconut plant
- c) Cocaine plant
- d) None of these

81) which of the following option reffered to favr savr tomato (1994)\_\_\_\_\_?

## **Bt605 objective and subjective notes for mid term**

- a) Alien gene
- b) Short shelf life
- c) **Block gene involving in ripening**
- d) All of these

82) the ethics and animal biotechnology produce milk with \_\_\_\_\_?

**Ans: therapeutic protein**

83) what is the meaning of HGP?

**Ans: human genome project**

84) define human genome project?

The idea of the HGP was initiated in 1977, when simple and efficient methods for sequencing DNA were described. Before that time the possibility of sequencing the entire human genome was no more than extreme wishful thinking. Over the last two decades, automated DNA sequencers have made the process of obtaining the base-by-base sequence of DNA easier.

85) What are goals discussed in HGP?

The major goals defined in the HGP are: (1) construction of a high resolution genetic map of the human genome; (2) production of a variety of physical maps of all human chromosomes and the chromosomes of selected organisms; (3) determination of the complete sequence of human DNA and of the DNA of selected model organisms; (4) development of the capabilities for collecting, storing, distributing, and analyzing the data produced, and (5) creation of appropriate technologies necessary to achieve these objectives.

86) which of the following region not sequenced?

- a) Achromatic
- b) **Heterochromatic**
- c) Euchromatic
- d) All of these

87) Write two applications of the HGP ?

Forensic science  
Drug designing

88) Which one of the following is the bad news \_\_\_\_\_?

- a) Common cold
- b) unpleasant information ,
- c) Objective bad news
- d) **all of these**

89) In which of the following there is legal and ethical right of the patient, permission before getting the healthcare?

- a) **Consent**
- b) Elements
- c) none of these
- d) all of these

90) In which of the following the Nature of decision-patient is participating in decision making, Relative risk/benefits, Assessment of patient understanding, Acceptance of intervention by the patient?



## Bt605 objective and subjective notes for mid term

- a) Consent                      b) Elements                      c) Adequate information  
d) none of these

91) Which of the following is the adequate information \_\_\_\_\_?

- a) Reasonable physician standard-                      b) complete information—  
c) decision, Subjective standard                      d) all of these

92) Write the types of Patients advance directives?

Ans; Types: living will-applies to treatment such as dialysis –limited, oral, terminal illness— if patient die shortly, health care power of attorney, durable power of attorney, agent/proxy, agent make decisions.

93) In which of the following we appoint someone to make decisions, legal document-tell physician about your wishes, general (donation) or detailed (treatment plan)?

- a) Advance directives                      b) Adequate information  
c) none of these                      d) all of these

94) What is the Personal health information? \

Ans; Personal health information: identifying information about an individual in an oral or recorded form, relates-physical and mental health status, provided health care.

95) In which of the following any alteration of genetic material, capable of producing new substances, performing new functions \_\_\_\_\_?

- a) genetic diversity                      b) Gene editing  
c) Genetic modification                      d) Transgenic

96) In which of the following process DNA is inserted, replaced or removed •genetically modified human embryo •modify the gene responsible for beta-thalassaemia ?

- a) genetic diversity                      b) Gene editing c) Genetic modification d) Transgenic

97) Define Genetic modification and Gene editing and Transgenic?

Ans: Gene editing: any alteration of genetic material, capable of producing new substances, performing new functions.

**Gene editing:** DNA is inserted, replaced or removed •genetically modified human embryo •modify the gene responsible for beta-thalassaemia.

**Transgenic:** potatoes with high protein/Rice with high vitamin A level •Mule •DNA of human tumor fragment is inserted into the tobacco plant •Flu vaccine.

98) Write down the Ethical issues:?

Ans; Ethical issues: potential risk to the environment, potential risk to human health, socio-economic effects, entities have the rights and protections and personal, social and cultural consequences& fundamental issues in creating new individuals.

99) In which of the following process we provide an account of truth and falsity of moral judgments, provide an account of justification for moral views.

## Bt605 objective and subjective notes for mid term

solution to a problem is to be convincing ?

a)Moral disputes

b) Moral theory

c) moral justification

c)a&b

100) In which conflicting attitudes, incompatible actions, resolve attitudinal differences, bring about more unified behavior\_\_\_\_\_?

a)Moral disputes

b) Moral theory

c) none of these

d) both of these

101) Write the Biologically linked people in Maternal-fetal relationship?

Ans;Biologically linked people: physicians take pregnant women as two individuals who are biologically linked, most mothers accept the risk to their own health, refuses-----medical therapy for saving fetal life---ethical issues.

•GMOs-----from the set of environmental circumstances

102) In which Obstetricians should refrain from performing procedures that are unwanted\_\_\_\_\_?

a) by pregnant woman

b) by young woman

c) both of these

d) none of these

103) Define Refusal of treatment and write its types?

Refusal of treatment Lecture No. 28 Refusal: patient has a right to decline treatment unethical to force the patient patient must understand the consequences of refusal

Types of treatment: Antibiotics even with little sideeffects •Blood transfusion with minimal risk involved •Vulnerable disease.

104) \_\_\_\_\_is the purposes in which changes in coloration, cranial deformities, acromegaly, infertility reduced viability nutritional levels can be improved?without option?

Ans ; Animal welfare

105) Write the names of Biotechnology and risk factors?

Ans;. 30 Areas of risk: •human health •biodiversity •animal welfare •poor communities.

106) Dietary DNA is degraded by enzymes\_\_\_\_\_and use of viruses as vectors increases the risk cancer induction and major risk lie in the use of novel proteins?

a)92%

b)99%

c) 98%

90%

107) In which process the eugenics Greek “well-born” belief and practice – improve the quality of human population, began early in \_\_\_\_\_?

a)18 century

b) 20 century

c)21century

d)17 century

108) In which of the following eugenics reduction of unplanned pregnancies, incentives and compulsion?

a)Positive eugenics

b) Negative eugenics

c) both

d) none of these

109) In which eugenics financial/selective incentives to have children, taxation of the childless, ethical obligations of the elite, eugenic



## Bt605 objective and subjective notes for mid term

immigration?

a) Positive eugenics

b) Negative eugenics

c) both of these

d) none of these

110) Define Biodiversity?

Ans; Biodiversity extent of aquatic diversity is extremely large •no difference between biodiversity risk from the escape of GMO and the fish improved genetically. •ability to cross cell membranes and translocate in the body

111) Define Cybernetics and write its application?

Cybernetics •ability to cross cell membranes and translocate in the body •economic effects/privacy issues Definition: exploring regulatory system, their structures, functions •Greek word "governance" •study of interactions between man, machine and animals . Applications: replacing limbs instead of wooden limbs •heart pacemakers

112) Write the Ethical issues of Cybernetics ?

Ans; Ethical issues :machines are in charge of key human functions •wealthy ones can communicate through cybernetics •implants are safe to use •artificial retinas •silicon chip function like nerves-replace lost neuronal function •university ID card-chip.senses and impulses –transmitted in a harmful way •can the senses be patented.

113) Write the Applications of biotechnology?

Applications: health and medicine, environmental use & food and agriculture Health and medicine: vaccinology, diagnosis/gene therapy, genetically modified embryos, xenotransplants •designer babies Environmental use: oil spills-bioremediation, pollution free environment, remove algae, use of fertilizers Food and agriculture: improved rice/potatoes/ tomatoes, pharmacrops improved sheep and cow milk.

114) write note on Nanotechnology?

Applications: nanotechnology bridges areas in physics, biology and chemistry •use-nanoparticles/ nanochips •nanomedicine/nanobiotechnology/bionanotechnology Nanomedicine: •nanorobots •injected in to the cancer patients-seek for cancerous cells •no side effects as of chemotherapy Nanobiotechnology: •cultured bladders •uterus grown outside the body •stem cell treatments •neurons can live together on a chip device Bionanotechnology: •DNA nanotechnology •chemical properties of lipids/proteins •build nanodevices with applications in engineering and medicine Ethical issues: high reactivity and toxicity •distribution in the environment.

115) Write the Risk factors of GM food?

Risk factors: create superbugs and superweeds, kill bees and butterflies, cross-pollination contaminate regular crops, illegal to grow GM plant accidentally harm biodiversity, distract from healthy environmentally friendly technologies, door between the government and biotechnology

116) Write the Ethical issues of GM food?

Ethical issues: extrinsic concerns-how people view life, nature, loss of

## Bt605 objective and subjective notes for mid term

biodiversity, unfair to small farmers, chances of transferring antibiotic resistant genes to bacteria, gene flow and health issues, intrinsic concerns-religion their personal emotions and values, disrupts the beauty, integrity, balance of nature and might harm life

117) write the names of Classical eugenics?

Classical eugenics: negative eugenics, license of parenthood, positive eugenics

118) write the reason of Ethics and animal biotechnology?

Ans; Reasons: to identify, isolate and characterize genes---understand more about their function and regulation •research models of human diseases •to provide organs and tissues •to produce milk with therapeutic proteins or with improve nutritional values: to identify, isolate and characterize genes---understand more about their function and regulation •research models of human diseases •to provide organs and tissues •to produce milk with therapeutic proteins or with improve nutritional values.

119) Define Human genome project and HGP?

Ans:determine--sequence of chemical base pairs— make up human DNA, identifying and mapping genes, difficult –converting the idea into public policy.

120) In April 2003 euchromatic human genome \_\_\_\_\_accuracy heterochromatic regions are not sequenced?

a) , 99%  
d)92%

b)98%

c)90%

121) Write note Human genome project?

Ans: HGP: determine--sequence of chemical base pairs— make up human DNA, identifying and mapping genes, difficult –converting the idea into public policy State of Completion: April 2003, 99% euchromatic human genome, 99.99% accuracy, heterochromatic regions are not sequenced Techniques and analysis: genome annotation, domain of bioinformatics, 20,500 genes, more segmental duplication Applications: genotyping of specific viruses, identification of oncogenes, drug designing, forensic sciences, agriculture, anthropology, evolution “Shortgun” project: genome broken into larger chunks, mapped to chromosomes, sequencing, 1,50,000bp go together to create chromosome Genome donors: WBCs from two males and two females donor, DNA library, 22 pairs-chromosomes are same, male sample contain over half as much DNA from sex chromosome Ethical issues: used to discriminate against people, refuse to provide insurance, ethical, legal and social implications program (1990). preimplantation genetic diagnosis, prenatal diagnosis (Trisomy 21, trisomy 18), predictive and presymptomatic testing (cancer), pharmacogenomics Risks: risk of losing the pregnancy, emotional consequences, social issues & financial issues.

122) Define genetics and write its uses?

Ans; Human genetic information Lecture No. 40 Genetics: study of heredity



## Bt605 objective and subjective notes for mid term

and the variations inherited characteristics, able to predict what disorder a person likely to develop, respond to drugs, how quickly people metabolize? uses: •diagnose certain disorders •diagnosis of genetic disorders before birth •genetic screening •research purposes Genetic diagnosis.

### Bt605 topics 41 to 50

123) Which of the following is Genetic diagnosis?

- a) diagnosis of genetic diseases
- b) determine a child parentage
- c) biological relationship between people
- d) all of these

124) which of the following referred to the identification of Genetic diagnosis?

- a) identification of oncogenes
- b) drug designing
- c) genetic mutation
- d) forensic sciences

125) Write down the types of Genetic diagnosis?

Ans; Types: newborn screening (PKU, congenital hypothyroidism), diagnostic testing (polycystic kidney disease), carrier testing (cystic fibrosis) preimplantation genetic diagnosis, prenatal diagnosis (Trisomy21, trisomy18), predictive and presymptomatic testing (cancer), pharmacogenomics...

126) In which of the following is a risk of losing the pregnancy, emotional consequences, social issues & financial issues created?

- A) Burden of genetic information
- b) Genes-the wider issues
- c) Genetic diagnosis
- d) Genetic screening

127) Define Genetic screening?

Genetic testing is "the analysis of chromosomes (DNA), proteins, and certain metabolites in order to detect heritable disease-related genotypes, mutations, phenotypes, or karyotypes for clinical purposes." It can provide information about a person's genes and chromosomes throughout life.

128) Write identification of genetic diagnosis?

Genetic testing is a type of medical test that identifies changes in chromosomes, genes, or proteins. This test helps in the diagnosis of various genetic diseases. The results of a genetic test can confirm or rule out a suspected genetic condition or help determine a person's chance of developing or passing on a genetic disorder. More than 1,000 genetic tests are currently in use, and more are being developed. Several methods can be used for genetic testing

129) In which of the following the systemic search for person with specific genotype, individual or group show a risk of disease, genetic testing—specific or multiple gene interaction?

- a) Burden of genetic information
- b) Genes-the wider issues
- c) Genetic diagnosis
- d) Genetic screening

130) Write the Ethics Genetic screening?

## Bt605 objective and subjective notes for mid term

Newborn screening is used just after birth to identify genetic disorders that can be treated early in life. A blood sample is collected with a heel prick from the newborn 24-48 hours after birth and sent to the lab for analysis.

Newborn screening varies state by state, but all states by law test for at least 21 disorders. If abnormal results are obtained, it does not necessarily mean the child has the disorder

- 131) In which of the following people are treated differently based on the individual genotype rather than their individual merits?

- A) Genetic discrimination  
b) Genes-the wider issues  
c) Genetic diagnosis  
d) Genetic screening

- 132) In which of the following genetic testing in the work place, health insurance discrimination, popular culture—genoism— unethical and illegal genetic discrimination condition se created?

- A) Genetic diagnosis  
b) Genetic discrimination  
c) Burden of genetic information  
d) Genetic screening

- 133) In which of the following species with ecological amplitudes are with genetic diversities, species with intermediate ecological amplitudes---risk, demand high genetic diversity & inbreeding depressions?

- a) Genetic diversity  
b) Coping mechanism  
c) None of these  
d) all of these

- 134) What is Coping mechanism?

Mother has to focus on the child's overall well-being. Parents must provide realistic expectations for the future and models for coping. There is need to explain condition to a child in an understandable way. These are only parents who can cope with the stress of caring.

- 135) Crop genes have been patented in \_\_\_\_\_?

- a) India      b) Pakistan      c) china      d) USA

- 136) Write the steps of Gene patents in agriculture?

Steps: isolate gene from rest of the DNA • make a copy of it from mRNA population • turn gene sequence into an invention • not the gene itself but a copy made in the test tube.

- 137) Write the advantages of Gene patents in agriculture?

Advantages: gene sequence is legitimate intellectual property, companies ensure an appropriate return on research/development investment, Vitamin A enhanced Golden rice.

- 138) How many purchases are there in DNA sequencing machines, for sequence most of the human genes?

- A) 500      b) 300      c) 200      d) 800

- 139) Write the Human genetic information?

Human genetic information: key question is same •HGP oppose gene patenting •“The genome is the common heritage of humanity” •public database

Or



## Bt605 objective and subjective notes for mid term

Human genetic information constitutes a shared resource that exists for a common benefit and should not be monopolised for the advantage of one single entity. This is arguably a practice that may be permitted under current gene patent law.

140) What are the Advantages of Human genetic information?

Ans; Advantages: commercial interest •synthesis of generic drugs--AIDs  
•genetic based treatments •Africa– increased cost –gene patenting.

141) In which Century Robbery at sea-sailors wearing long boots and striped jerseys?

a) 16-17 Century      b) 17-18 Century      c) 18-19 Century      d) 15-16 Century

142) How many of attempts, one embryo was produced in Cloning of sheep and frog?

A) 255      b) 260      c) 280      d) 277

143) Which of the following process used to create copies of DNA fragments, cells or organisms?

a) Cloning      b) nuclear transfer  
c) Genetic engineering      d) genetic diversity

144) In which viable technique of Nuclear transfer the nucleus directs cell growth, produce Factor IX in her milk?

a) Cloning      b) nuclear transfer      c) gene      d) genetic diversity

145) \_\_\_\_\_ is the study of heredity and the variations inherited characteristics, able to predict what disorder a person likely to develop, respond to drugs, how quickly people metabolize?

a) gene      b) genetic diversity      c) Genetics  
d) genome

146) Define Genetics and write its uses?

ANS; Genetics: study of heredity and the variations inherited characteristics, able to predict what disorder a person likely to develop, respond to drugs, how quickly people metabolize?

uses: •diagnose certain disorders •diagnosis of genetic disorders before birth •genetic screening •research purposes Genetic diagnosis Lecture

147) Write the Ethical issues of Cloning of sheep and frog?

From the production of vaccines to organ regrowth for transplantation, cloning from stem cells can improve people's health. In regards to the cloning of whole organisms, however, the benefits are largely found in increasing nutrition derived from food. In the United States, you frequently see whole organism cloning in the genetically modified foods you eat, which are FDA approved and not limited to plants but also to animals such as cloned pigs modified to be a source of omega-3 fatty acids that usually come from fish and certain seeds. Additionally, the replacement of dead or dying household pets and children with genetic disorders, termed "reproductive cloning," has become a social argument in favor of cloning. In

## Bt605 objective and subjective notes for mid term

fact, in 2004 a company devoted solely to the cloning of household pets opened, and though it closed after only a short, two-year stint, some people continue to see this as a valuable route for cloning research.

148) Define Cloning and nuclear transfer?

Ans; Cloning: processes used to create copies of DNA fragments, cells or organisms •Briggs and Kings----- normal tadpole clones using nuclei from early embryos •nuclear transfer—viable technique Nuclear transfer: nucleus directs cell growth, produce Factor IX in her milk.

149) What is the Genetic modification of humans\_\_\_\_\_?

- A) Alteration of genetic material                      b) producing new substances  
c)improving functions of the existing organisms                      d) all of these

150) How many cell human bodies contain?

- A) 100 trillion cells                      b) 200 trillion cells  
c)300 trillion cells                      d)400 trillion cells

151) Each cell has a DNA code consisting \_\_\_\_\_billion base pairs?

- A)of 1.6                      b) of 1.5                      c) of 1.7                      d)of 1.8

152) What is the size of smaller than the head of a pin our DNA similar to chimpanzee?

- a) is 98%                      b)is 96 %                      c)is 90%                      d) is 92%

153) Write the Principle of Genetic modification of humans?

Ans: Principle: rDNA is the genetically altered DNA--Genes--the wider issues Lecture No. 46 process is known as gene splicing—sale of insulin •gene therapy-genetically altered genes to cells •use of restriction enzymes.

154) What is the Genetic modification of humans\_\_\_\_\_?

- A) Alteration of genetic material                      b) producing new substances  
c)improving functions of the existing organisms                      d) all of these

### Bt605 topics 51 to 60

155) Write the benefit of Fact or fiction ? without option

Ans : cure for diseases • countless material improvements to daily life • Human genome project

156) \_\_\_\_\_Is a Misuse of Fact or fiction?

- a) Nazi-style schemes for population control                      b) man-made virus  
c) cloning                      d) all of thses

157) There is a Facts about HGP human body contain \_\_\_\_\_cells?

- a) 100 trillion                      b)300 trillion                      c) 500 trillion                      d) 1000 trillion

158) There is a Facts about HGP each cell has a DNA code consisting of \_\_\_\_\_base pairs?

- a)2.5 billion                      b) 1.5 billion                      c)4.5 billion



## Bt605 objective and subjective notes for mid term

- d) 7.5 billion
- 159) what is the length of the common DNA?  
a) —3ft b) —5ft c) —6ft d) —7ft
- 160) our DNA is \_\_\_\_\_% similar to chimpanzee?  
a) 98% b) 90% c) 70% d) 96%
- 161) Genes direct the synthesis of \_\_\_\_\_?  
a) DNA and proteins B) RNA and proteins  
C) RNA and DNA D) DNA and RNA
- 162) Which of the following is an issue about Genes-the wider in Future aspects?  
a) Affect all future generations  
b) Encourage scientists  
c) Technologists-look at what they are creating  
d) all of these
- 163) write the Socio-economic arguments in Genes-the wider issues?  
Without option  
Ans) inequalities in ownership of the technology • exploitation of the poor by rich • act as lightning conductor for attracting opposition
- 164) what is the issue of the Socio-economic arguments in Genes-the wider issues?  
a) GM crop b) gene patenting c) genetic piracy  
d) all of these
- 165) What is the issue of the Socio-economic arguments in Genes-the wider issues?  
ANS) • GM crop  
• Gene patenting  
• Genetic piracy
- 166) What is GM crop?  
GM technology is used widely in the production of foods and medicines. GM crops have drastically cut the use of pesticides for example, GM cotton, containing a built in insecticide, uses 50% less chemical insecticides. No doubt, antibiotic resistance genes can be transferred
- 167) IN Green revolution ineffective in Africa – incompatibility with \_\_\_\_\_?  
a) local agriculture b) local medicine c) none of these  
d) both of these
- 168) due to the Green revolution of the world population \_\_\_\_\_ is hungry?  
a) one-fourth b) one-fifth c) one-sixth  
d) one-nine
- 169) Gene patents in agriculture-GM crops \_\_\_\_\_ in developed countries?

## Bt605 objective and subjective notes for mid term

- a) less                      b) high                      c) both                      d) none
- 170) Genes are clearly parts of \_\_\_\_\_ ??  
a) Humans                      b) nature                      c) plants  
d) none of these
- 171) Crop genes have been patented in \_\_\_\_\_?  
a) USA                      b) America                      c) Pakistan  
d) India
- 172) Mostly we isolate gene from rest of the \_\_\_\_\_?  
a) RNA                      b) DNA                      c) cDNA  
d) rRNA
- 173) Which of the following Vitamin enhanced Golden rice?  
A) Vitamin A                      B) Vitamin B                      C) Vitamin C  
D) Vitamin D
- 174) Celera Genomics purchase \_\_\_\_\_ DNA sequencing machines?  
A) 700                      B) 400                      C) 500  
D) 300
- 175) Write the advantage of Gene patents-medical genetics?
- 176) Processes used to create copies of DNA fragments, cells or organisms is called \_\_\_\_\_?  
a) Gene                      b) genomic                      c) cloning                      d) population
- 177) Briggs and Kings are normal tadpole clones using \_\_\_\_\_ from early embryos?  
a) DNA                      c) RNA                      c) Nuclei                      d) all of these
- 178) \_\_\_\_\_ said "transplantation of nucleus of a tadpole intestinal cell into an enucleated frog egg"  
a) Prof. Bartha                      b) John Gurdon                      c) Steen Willadsen  
d) K. Knoppers
- 179) What is meant by dolly?  
Ans) adult somatic cells
- 180) Embryonic cells activate any \_\_\_\_\_ of the interest?  
a) complement                      B) strand                      c) gene  
d) all of these
- 181) Ethical issues of Dolly conversed/discussed in \_\_\_\_\_?  
a) 1996                      b) 1998                      c) 1990  
d) 1994
- 182) Lord Robert gives idea about test-tube baby first in \_\_\_\_\_?  
a) 1970                      b) 1978                      c) 1976  
d) 1975
- 183) Why scientists are anxious to generate larger population for our planet when earth is already over-crowded?



## Bt605 objective and subjective notes for mid term

Ans) because human creation is not a matter of scientific inquiry, its matter of morality and spirituality as well

### 184) What are issues of Ethics of human cloning?

Ans) issues: • why scientists are anxious to generate larger population for our planet when earth is already over-crowded?

• human creation is not a matter of scientific inquiry, its matter of morality and spirituality as well Ethicsno guarantee that first cloned humans will be normal

• cells seem to have a defined life span built into them

• fetus develops without souls fertilized ovum-----full human being-nucleus is removed-murder

• issues regarding storing embryos in deep-freezer

• deplete genetic diversity

• difficulties-emotions/ relationship

### 185) How many Moral principles are there for duty-prevent suffering, duty-respect the value of human life?

a) two

b) four

c) six

d) eight

### 186) In Jewish religion, human fetus \_\_\_\_old-doesn't have the full human status ?

a) 60 days

b) 20 days

c) 40 days

d) 80 days

### 187) Islam said the soul is "breathed in" to the human embryo on the after\_\_\_\_ fertilization—?

a) ) 60 days

b) 20 days

c) 40 days

d) 80 days

### 188) Human embryonic stem cells (hESCs) derived from embryo-\_\_\_\_old-before implantation?

a) 5 to 7 days

b) 4 to 7 days

c) 5 to 9 days

d) 5 to 6 days

## Bt605 topics 61 to 64

### 189) What is answer/reason of case study 8?

Answer: In terms of medical ethics, removal of the spleen was an act of doing good beneficence. Patient's personal autonomy had been respected. It was for the sake of his health that spleen has been removed. In UK, there is great sensitivity concerning the fate of organ removed. Under new legislation, if there is no pre-death consent then kin permission must be taken to retain any organs from dead bodies. In USA, once the organ is removed during surgery, it is no longer belonging to the patient. What is the purpose of keeping their appendix or diseased kidney in a jar in their office? In such situations, donor cannot claim on the income gained as a result of research. Anyone who donates a kidney makes a gift not an investment in the recipient.

## Bt605 objective and subjective notes for mid term

- 190) In\_\_\_\_\_, once the organ is removed during surgery; it is no longer belong to the patient?  
a) USA  
b) UK  
c) China  
d) Japan
- 191) What is the abbreviation of ANT?  
Altered nuclear transfer
- 192) What is the abbreviation of SCNT?  
Somatic cell nuclear transfer
- 193) In \_\_\_\_\_ an embryo is not created.  
a) Somatic cell nuclear transfer  
b) Altered nuclear transfer  
c) Stem cell nuclear transfer  
d) All of these
- 194) A derivative of the \_\_\_\_\_ nucleus of the somatic cell is altered, or genetically reprogrammed, prior to being transferred into the egg.  
a) Somatic cell nuclear transfer  
b) Altered nuclear transfer  
c) Stem cell nuclear transfer  
d) All of these
- 195) Which of the following is regulation of stem cell research to  
**Legislation/passing of laws?**  
a) Prohibit the creation of embryos-research  
b) Bush reduces the funds  
c) Obama expand the funds  
d) All of these
- 196) What are rules of **Legislation/passing of laws?**  
1. To regulate stem cell research 2. Prohibit the creation of embryos-research 3. Should taxpayer money used-believe it to be unethical 4. Bush reduces the funds 5. Obama expand the funds 6. Policy makers with new questions
- 197) **What are Ethical concerns in Cloning disagreement?**  
Effect of cloning on animal and human welfare and also that the objection to the principle of cloning
- 198) **Which of the following is an Effect of Cloning controversies on animals?**  
a) Increase animal suffering  
b) Standard breeding methods  
c) Surgeries performed to obtain oocytes  
d) All of these
- 199) **Which of the following is an Argument for cloning controversy?**  
a) Embryo transfer  
b) Oocyte transfer



## Bt605 objective and subjective notes for mid term

- c) In vitro fertilization  
d) All of these
- 200) Understanding life processes and animal diseases and human health & food production is referred to which of the following option?  
a) Potential benefits  
b) Cloned animal species  
c) Prospective benefits  
d) Both a and b
- 201) What were the objections for cloning controversy?  
Cloned animals pose no public health risk, transgenic animals-unnatural means, Potential hazards to animals, humans and on the environment  
Genetic counseling
- 202) Define genetic counseling?  
Genetic counseling is the process by which the patients or relatives at risk of an inherited disorder are advised of the consequences and nature of the disorder, the probability of developing or transmitting it, and the options open to them in management and family planning.
- 203) NSGC means?  
National Society of Genetic Counselors
- 204) For genetic counseling\_\_\_\_\_, in\_\_\_\_\_, first categorized sessions in five phases?  
a) Seymour Robert, 1997  
b) H Kessler, 1779  
c) Seymour Kessler, 1979  
d) Elaxander koch, 1977
- 205) Tell the five phase's catogarized by Seymour Kessler?  
An intake phase, an initial contact phase, the encounter phase, the summary phase, and a follow-up phase.
- 206) Define a genetic counselor?  
A genetic counsellor is an expert with a Master of Science degree in genetic counselling. Genetic counsellors work as members of a health care team and act as a patient advocate as well as a genetic resource to physicians

## Bt605 topics 65 to 68

- 207) Which of the following Element is responding to trafficking?  
a) Act  
b) Means  
c) Purpose  
d) All of these
- 208) The average age of girls trafficked from \_\_\_\_\_dropped from 14-16 years in the 80's to 10-14 years in 1994  
a) Nepal to Pakistan

## Bt605 objective and subjective notes for mid term

- b) India to Nepal  
c) Nepal to India  
d) Pakistan to India
- 209) Define biosafety?  
Biosafety is the prevention of large-scale loss of biological integrity, focusing both on ecology and human health
- 210) What fields are related to the biosafety?  
Biosafety is related to several fields like with ecology, agriculture, medicine, chemistry, exobiology, synthetic biology
- 211) CDC means?  
Centres for Disease Control
- 212) PTSD means?  
Post-traumatic stress disorder
- 213) FEMA means?  
Federal Emergency Management Agency
- 214) Define biosecurity?  
Biosecurity has multiple meanings and is defined differently according to various disciplines. The original definition of biosecurity started out as a set of preventive measures designed to reduce the risk of transmission of infectious diseases in crops and livestock, quarantined pests, invasive alien species, and living modified organisms.
- 215) The term of biosecurity was first used by the agricultural and environmental communities starting from the \_\_\_\_?  
a) Late 1990s  
a) Start 1990s  
b) Late 1890s  
c) Start 1890 s
- 216) Which of the following is a Security issues in the biosecurity term?  
a) non-traditional security  
b) international security  
c) cooperation  
d) all of these
- 217) What actions/measures should be kept for the Defensive of biosafety?  
actions: combination of systems and practices put into its place at laboratories and to prevent the use of dangerous pathogens and toxins
- 218) What are the types of biosecurity?  
Types: laboratory biosecurity programs, animal biosecurity, bioweapons.

### Bt605 topics 69 to 72

- 219) Define bioweapons?



## Bt605 objective and subjective notes for mid term

Biological warfare is the deliberate spreading of disease amongst humans, animals, and plants. Biological weapons (BW) introduce a bacteria or virus into an environment for hostile purposes that are not prepared to defend it from the intruder. As a result, this agent can become very effective at killing plants, livestock, pets, and humans

220) Describe the types of bioweapons?

Chemical weapons, radiological weapons, nuclear weapons

221) It is estimated that 1 gram of toxin could kill \_\_\_\_\_people.

a) 10 million

b) 10 billion

c) 100 million

d) 100 billion

222) A purified form of botulinum toxin is approximately \_\_\_\_\_times more potent than Sarin, a chemical nerve agent.

a) 3 million

b) 4 billion

c) 5 million

d) 6 billion

223) As a comparison, a SCUD missile filled with botulinum toxin could affect an area of \_\_\_\_\_, an area 16 times greater than could be affected with Sarin.

a) 3400 sq.km

b) 3500 sq.km

c) 3600 sq.km

d) 3700 sq.km

224) A seed culture of anthrax bacteria could be grown to mass quantities in around \_\_\_\_\_hours.

a) 92

b) 94

c) 96

d) 98

225) In 1985-1991 - Iraq develops an offensive biological weapons capability including \_\_\_\_\_?

a) Anthrax

b) Botulium toxin

c) Aflatoxin

d) All of these

226) Anthrax can remain active and potentially lethal for at least\_\_\_\_\_.

a) 30 minutes

b) 50 hours

c) 36 months

d) 40 years

227) SMART means?

Sensitive Membrane Antigen Rapid Test

## Bt605 objective and subjective notes for mid term

- 228) JBPDS means?  
Joint Biological Point Detection System
- 229) BIDS means?  
Biological Integrated Detection System
- 230) IBAD means?  
Interim Biological Agent Detector
- 231) What do you know about biohazard?  
Biohazard outbreaks from pathogens and infectious diseases occur every day in the U.S. and throughout the world from *Avian Influenza virus*, *HIV/AIDS*, *Hepatitis viruses*, *Norovirus (Norwalk virus)*, *Salmonella* bacteria, *Mycobacterium tuberculosis* bacteria, *Vibrio cholera* bacteria (cholera), MRSA superbugs, Plasmodium parasites (malaria) and hundreds of other microorganisms
- 232) Bacteria, viruses and parasites are responsible for the bulk of the \_\_\_\_\_ deaths worldwide from communicable diseases.  
a) 10 million  
b) 18.4 million  
c) 26.8 million  
d) 40 million
- 233) The world record holder for human deaths is \_\_\_\_\_?  
a) *Yersinia pestis*  
b) Cancers  
c) Plasmodium parasites  
d) *Vibrio cholera* bacteria
- 234) *Yersinia pestis* disease-causing bacterium killed as many as \_\_\_\_\_ people during the Black Plague, or roughly 20% of world's 450 million populations in the 14th century.  
a) 18 to 180 million  
b) 70 to 90 million  
c) 89 to 190 million  
d) 75 to 100 million
- 235) What are agents of bioweapons?  
Agent: anthrax, brucellosis, small pox, viral hemorrhagic fever, Staphylococcal enterotoxin B, botulinum toxins
- 236) Which of the following can be included in Precautions measures for bioweapons?  
a) Mass equipped with filters  
b) boots/ gloves, biological weapon sensors  
c) prevent the contacts with wounds  
d) all of these options
- 237) In 1966 \_\_\_\_\_ developed a symbol system for disease for ease to sketch.  
a) Charles Baldwin  
b) Seymour Robert



## Bt605 objective and subjective notes for mid term

c) Seymour Kessler

d) Elaxander koch

238) How can we Classified biohazards?

Category A, UN 2814-infectious substances affecting humans

Category A, UN 2900-infectious substances affecting animals

Category B, UN 3373- biological substances transported labeling of biological materials, recognize quickly, acceptable to groups --ethnic backgrounds, regulated medical waste, UN 3291- waste or reusable, Material, derived from medical treatment/research

239) What are the forms Application to use Biohazardous waste?

applicants information, topic covered, using recombinant DNA, infectious agents, toxins, radioactive use of animals, date of approval, description of experiments, sources of DNA, nature of DNA, sequences/attempt gene expression, biosafety levels, enlist biohazardous materials, biosafety equipments, emergency procedures, biohazardous material storage, waste disposal, committee decision material

240) What are the safety terms and conditions to used in the labs for the safety?

Lab safety: safety glasses, closed-toed shoes, no food/drink, long hair must be tied, lab coat, open flames-unattended, flammable liquids, skin contactrinse off, proper waste disposal, liquid waste-labeled containers, equipment must be cleaned and placed back, inform-chemical spill/thermometer breakage, be careful-handling hot glassware and apparatus, avoid taking excess amount of chemicals

- cell phones/ head phones are not allowed
- lab door must be kept close
- chairs not permitted -lab work is in session
- lab must be fully equipped with fire extinguisher
- fire blanket/safety shower
- eye wash/ first aid kit
- fume hoods/ sodium hydrogen carbonate

### Bt605 topics 72 to 80

241) How many risk groups are there in classification of pathogens?

There are four groups

Risk Group 1 (low individual *and* community risk)

Risk Group 2 (moderate individual risk, low community risk)

Risk Group 3 (high individual risk, low community risk)

Risk Group 4 (high individual risk, high community risk)

242) Describe Risk Group 1 in classification of pathogens?

Risk Group 1 (low individual *and* community risk): Any biological agent that is unlikely to cause disease in healthy workers or animals.

243) Describe Risk Group 2 in classification of pathogens?

## Bt605 objective and subjective notes for mid term

*Risk Group 2 (moderate individual risk, low community risk):* Any pathogen that can cause human disease but, under normal circumstances, is unlikely to be a serious hazard to laboratory workers, the community, livestock or the environment. Laboratory exposures rarely cause infection leading to serious disease; effective treatment and preventive measures are available, and the risk of spread is limited.

244) Describe Risk Group 3 in classification of pathogens?

*Risk Group 3 (high individual risk, low community risk):* Any pathogen that usually causes serious human disease or can result in serious economic consequences but does not ordinarily spread by casual contact from one individual to another, or that causes diseases treatable by antimicrobial or antiparasitic agents.

245) Describe Risk Group 4 in classification of pathogens?

*Risk Group 4 (high individual risk, high community risk):* Any pathogen that usually produces very serious human disease, often untreatable, and may be readily transmitted from one individual to another, or from animal to human or vice-versa, directly or indirectly, or by casual contact.

246) What is contaminant?

Classification of organisms according to risk group is not meant to establish the actual handling of biological hazards in the laboratory setting. For example, the risk group system does not take into account the procedures that are to be employed during the manipulation of a particular organism

247) What **Strategies are involved in containment?**

isolationism, minimizing America involvement, friendly relationship, rollback policy----an aggressive effort to undercut Soviet Union

248) How many containininent levels are there?

Four containment levels are described as follows:

*Containment Level 1 (CL1)*

*Containment Level 2 (CL2)*

*Containment Level 3 (CL3)*

*Containment Level 4 (CL4)*

249) Describe Containment Level 1 (CL1)?

This applies to the basic laboratory that handles agents requiring containment level 1. CL1 requires no special design features beyond those suitable for a well-designed and functional laboratory. Biological safety cabinets (BSCs) are not required. Work may be done on an open bench top, and containment is achieved through the use of practices normally employed in a basic microbiology laboratory.

250) Describe Containment Level 2 (CL2)?

*Containment Level 2 (CL2):* This applies to the laboratory that handles agents requiring containment level 2. The primary exposure hazards associated with organisms requiring CL2 are through the ingestion, inoculation and mucous membrane route. Agents requiring CL2 facilities are not generally transmitted by airborne routes, but care must be taken to



## **Bt605 objective and subjective notes for mid term**

---

avoid the generation of aerosols (aerosols can settle on bench tops and become an ingestion hazard through contamination of the hands or splashes. Primary containment devices such as BSCs and centrifuges with sealed rotors or safety cups are to be used as well as appropriate personal protective equipment (i.e., gloves, laboratory coats, protective eyewear). As well, environmental contamination must be minimized by the use of handwashing sinks and decontamination facilities.

251) *Describe Containment Level 3 (CL3)?*

*Containment Level 3 (CL3):* This applies to the laboratory that handles agents requiring containment level 3. These agents may be transmitted by the airborne route, often have a low infectious dose to produce effects and can cause serious or life-threatening disease. CL3 emphasizes additional primary and secondary barriers to minimize the release of infectious organisms into the immediate laboratory and the environment. Additional features to prevent transmission of CL3 organisms are appropriate respiratory protection, HEPA filtration of exhausted laboratory air and strictly controlled laboratory access.

252) *Describe Containment Level 4 (CL4)?*

*Containment Level 4 (CL4):* This is the maximum containment available and is suitable for facilities manipulating agents requiring containment level 4. These agents have the potential for aerosol transmission, often have a low infectious dose and produce very serious and often fatal disease; there is generally no treatment or vaccine available. This level of containment represents an isolated unit, functionally and, when necessary, structurally independent of other areas. CL4 emphasizes maximum containment of the infectious agent by complete sealing of the facility perimeter with confirmation by pressure decay testing; isolation of the researcher from the pathogen by his or her containment in a positive pressure suit or containment of the pathogen in a Class III BSC line; and decontamination of air and other effluents produced in the facility.

253) *What are basics of biological spills?*

A biological spill shall be followed by prompt action to contain and clean up the spill. When a spill occurs, warn everyone in the area and call for assistance as needed. The degree of risk involved in the spill depends on the volume of material spilled, the potential concentration of organisms in the material spilled, the hazard of the organisms involved, the route of infection of the organisms, and the diseases caused by the organisms. Spills of biological agents can contaminate areas and lead to infection of laboratory workers.

254) *What is Biological spill kit?*

household bleach, 70% alcohol, spray bottle, sterilization bags, absorbent paper towels, yellow trash bags, disposable gloves, metallic tongs, surgical masks, safety goggles, shoe covers and face mask, spill control and cleanup procedures

## Bt605 objective and subjective notes for mid term

---

255) **What are Types of spills?**

small spills & larger spills

256) **What is Sterilizer?**

It is an agent intended to destroy all microorganisms and their spores on inanimate surfaces.

257) **What is Disinfectant and Hospital Disinfectant?**

It is an agent intended to destroy or irreversibly inactivate specific viruses, bacteria, or pathogenic fungi, but not necessarily their spores, on inanimate surfaces. Most disinfectants are not effective sterilizers.

**Hospital Disinfectant:** An agent shown to be effective against specific organisms such as *Staphylococcus aureus*, *Salmonella choleraesuis*, and *Pseudomonas aeruginosa*. It may also be effective against other organisms and some viruses. The labels of all commercially available hospital disinfectants contain a claim (which must be documented) of effectiveness for specific agents.

258) **What is Antiseptic?**

A chemical germicide formulated for use on skin or tissue. Antiseptics should not be used as disinfectants. Decontamination: A procedure that eliminates or reduces microbial contamination to a safe level with respect to the transmission of infection. Sterilization and disinfection procedures are often used for decontamination

259) **What are UV advantages?**

readily available  
no known toxic residuals  
short contact time  
equipment is easy to operate and maintain

260) **What are Categories of Biohazards-animal handling**

Physical injuries, Zoonosis Asthma and allergies