STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI –600 086
(For candidates admitted during the academic year 2015 – 16 & thereafter)

SUBJECT CODE: 15BI/PE/PG24

M.A., /M. Sc. DEGREE EXAMINATION, APRIL 2018
SECOND SEMESTER

COURSE : ELECTIVE
PAPER : PHARMACOGENOMICS
TIME : 3 HOURS **MAX.MARKS: 100**

SECTION – A

ANSWER ALL QUESTIONS **(20X1=20 MARKS)**

1. The site(s) for genetic variations that may affect drug pharmacodynamics include:
   a) Drug-metabolizing enzymes b) Drug target proteins
   c) Drug-transporter proteins d) Drug-antsporter proteins
2. The most commonly occurring variant in the human genome is:
   a) Single nucleotide polymorphism b) Tandem repeat polymorphism
   c) Nucleotide base deletion d) Frameshift mutation
3. CYP2D6 polymorphism can affect:
   a) Drug toxicity b) Drug interaction potential
   c) Drug delivery d) Drug viability
4. DNA microarrays allow detection of Gene mutations using?
   a) Polymerase Chain Reaction b) Cloning
   c) Southern Blotting d) Hybridization
5. Therapy given based on genetic profile is known as _____
   a) Personalized medicine b) Toxicogenomics c) Gene therapy d) CRM
6. The Pharmacogenomics Research Network is _____
   a) PGRN b) HLA c) ADME d) PharmaGKB
7. Very Important Pharmacogene (VIP) means
   a) genes involved in drug response b) human genetic variation
   c) genes involved in health of organism d) genes involved in production of drug
8. Microsatellites are often referred to as
   a) short tandem repeats (STR) b) simple sequence repeats (SSRs)
   c) variable number of tandem repeats (VNTRs) d) All of these
9. The four processes in pharmacokinetics are
   a) Stomach, liver, kidney and lungs
   b) Receptors, ion channels, transport systems and enzymes
   c) Administration, absorption, metabolism and elimination
   d) Absorption, distribution, metabolism and excretion
10. A pro-drug is
   a) A drug given to promote growth
   b) A drug given in its active form
   c) A drug given to prevent metabolism of another drug
   d) A drug given in its inactive form, requiring metabolism

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11. A database for toxicology is _____
    a) Toxgen b) Pharm mapper c) Swiss ADME d) KEGG
12. Toxicogenomics is a field of science that deals with
    a) the collection, interpretation, and storage of information about gene and protein of an organism in response to toxic substances
    b) combines toxicology with genomics
    c) high throughput molecular profiling technologies such as transcriptomics, proteomics and metabolomics
    d) all of these
13. Which of the following is an example of drug metabolism?
    a) P53 b) BRCA1 c) CYP450 d) GPCR
14. Genetic variations in drug targets may contribute to which drug property:
    a) Bioavailability b) Peak dose area under the curve
    c) Racial differences in response d) Entry into the central nervous system
15. GEO stands for _____
    a) Gene expression online b) Gene expression omnibus
    c) Genome editor online d) None of these
16. In which of the following phase large population with target disease id addressed?
    a) Phase I b) Phase III
    c) Phase II d) Phase IV
17. Microarrays are a very useful tool in genomics because they:
    a. Help scientists examine intergenetic DNA by separating it from genes.
    b. Provide a unique promoter region for polymerase chain reactions.
    c. Allow scientists to examine thousands of genes all at once.
    d. Decrease the time it takes for scientists to make copies of DNA.
18. How is a microarray constructed? In each spot, there are:
    a. Copies of all the genes for an organism.
    b. Multiple copies of one gene; each spot has copies for a different gene.
    c. Multiple copies of intergenetic sequences, which bind to genes in the samples.
    d. Copies of intergenetic sequences, which promote the replication of DNA in a sample.
19. When you scan the microarray in the scanner, the data show some dark spots. What do these represent?
    a. The DNA that has been replicated in healthy cells.
    b. The mRNA that was washed away in the washing solution.
    c. The DNA that was not transcribed and expressed in healthy cells.
    d. The mRNA that was not bound by Oligo-d-tails in the beads.
20. When you scan the microarray in the scanner, some spots are yellow and represent places where the gene was expressed in both healthy and cancer cells. These spots tell us:
    a. Where to look for mutations.
    b. Where DNA hybridized in cancer cells.
    c. That DNA expression didn't change in these genes when cancer occurred.
    d. That the microarray didn't work in these genes.

SECTION – B

ANSWER ANY FOUR QUESTIONS. (4X10=40 MARKS)

21. Pharmacogenomics necessity in drug designing – Explain.
22. Explain about the salient features of personalized medicine.
23. Describe about the PharmGKB database.
24. Illustrate the types genetic variants methods.
25. Explain about the detoxification process.
26. Give an account of ADME prediction on Drug discovery.
27. Write short notes on types of microarray and its importance.

SECTION – C

ANSWER ANY TWO QUESTIONS (2X20=40 MARKS)

28. Describe about the designing, data management and data analysis of DNA microarray.
29. Enumerate the drug metabolism pathways and adverse drug reactions.
30. Briefly explain about the Pharmacodynamics and pharmacokinetics.
31. Enumerate the concept, clinical applications and challenges in Pharmacogenomics.

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