

[IV.6.3 Flow of information in living systems]

1st to 14th April, 2020 class

Dear Students,

Hope, all of you are keeping well and staying safe.

As per our earlier discussion, study materials and weblinks are/ will be shared with all the students on our google group for understanding/ revising all the topics of this paper. Also, the following needs to be done for the class during 1st-14th April, 2020. Rest, we can keep discussing, as we are already doing on our whatsapp group. I am always available for any subject related query/ difficulty faced by any of you during this time.

Engineering Kitchen activity for 1st and 2nd April, 2020 class

All students are required to make a powerpoint presentation on the following topics elaborating specifically upon aim, principle, requirements, procedure (working method), Use of various chemicals/ biochemicals, Applications of technique (henceforth will be called as EK activity) etc. Presentation should specifically have the following:

1. Basic description of the EK activity
2. Detailed Procedure/ protocol of EK activity by showing proper snapshots
3. Description of all chemicals/ biochemicals required, their structures and specific uses
4. Applications, which are targeted through EK activity by giving various examples
5. Weblinks of research papers/ youtube, which have utilized/showed this EK activity
6. References should be mentioned with hyperlinks at the last ppt slide
7. Also, at least 5 recent most research papers mentioning about the EK activity have to be enclosed with ppt mail.

Engineering Kitchen Activity [Laboratory]:

1. Agarose Gel Electrophoresis, SDS-PAGE Electrophoresis: Manish
2. Polymerase Chain Reaction (PCR), Primer design: Aryan
3. Spectrometry, Analysis of growth curve, molar extinction coefficient, absorption maxima: Akshansh
4. Biochemical assays: Anveshan
5. Restriction digestion: Piyush
6. Introductory Gene Cloning (Transformation to Ligation): Yash

8th and 9th April, 2020 class

All students are required to make a single ppt presentations as well as a word file documenting on all the following topics. Most of them have already been covered in class. You can reuse the ppts made by you on earlier classes, if done already. Also, add at least 8-10 questions based on these topics in your word file:

1. Nature of genetic material (DNA/ RNA/ Genetic code)
2. Process of information transfer (Replication, Transcription and translation machinery)
3. Energetics and accuracy of information transfer – Problems of information transfer (DNA damage and repair)
4. Regulation of informational transfer (transcription factors, operon)
5. DNA packaging and chromatin structure.

Note: All these ppts/ assignments will be used for internal assessments/ Project marks.

Best wishes to all of you.

Stay safe, happy and healthy.

Mahima Kaushik