DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 4

Topic :-

1 **(c)**

In oocytes, a special, extremely prolonged form of diplotene occurs, called dictyotene. The primary oocyte undergoes the first three substages of prophase-I (laptotene, zygotene and pachytene) during late foetal life.

The process is then, suspended during diplotene until puberty or thereafter. Therefore, dictyotene, lasts for months or even years. Diplotene is also known as diplonema

2 **(a)**

During mitosis, all the chromosomes behave independently while during meiosis, homologous chromosomes pair up through synapsis and form bivalents in zygotene substage of prophase-I, then in pachytene substage, crossing over occurs between homologous chromosomes and during diplotene substage of prophase-I of meiosis chiasma formation takes place.

During anaphase of both mitosis and meiosis, chromatids are separated and pulled towards opposite poles.

3 **(d)**

Microtubules are hollow, cylindrical structure built from tubulin protein. The mitotic spindle involved in separation of replicated chromosomes during mitosis is assembly of microtubules.

5 **(a)**

A. **Metaphase** Spindle fibres attaches to kinetochores of chromosomes

Chromosomes are moved to spindle equator and get aligned along metaphase plate through spindle fibres of both poles

B. **Telophase** Chromosomes cluster at opposite spindle poles and their identify is lost as discrete elements

Nuclear envelope assembles around the chromosome clusters

Nucleolus, Golgi complex and ER reform

C. **Interphase** It is the duration which is a variable depending on the function of cell.

Just before nuclear division, the DNA of chromosome replicates thus, it becomes doubled.

During this phase, chromosome material is in the form of very loosely coiled threads called chromatin

6 **(c)**
During **metaphase-I** of meiosis, tetrads line up at the equator.

7 **(a)**
M cdk cyclin activates anaphase promoting complex.

8 **(a)**
During **cytokinesis** in plant cells spindle fibres do not degenerate and forms phragmoplast and cell plate.

9 **(d)**
During **anaphase-I** of meiosis, the sister chromatids begin to move towards the poles.

10 **(d)**
Small disc-shaped structure at the surface of the centromeres are called kinetochores. These structures serve as the sites of attachment of spindle fibres (formed by the spindle fibres) to the chromosomes that are moved into position at the centre of the cell
Hence, the metaphase is characterized by all the chromosomes coming to lie at the equator with one chromatid of each chromosome connected by its connected by its kinetochore to spindle fibres from one pole and its sister chromatid connected by its kinetochore to spindle fibres from the opposite pole

11 **(c)**
Meiosis-I
(i) The bivalents become arranged around the equator of the spindle, attached by their centromeres
(ii) Each pair of the homologous chromosomes is called bivalent which pair up in the process of synapsis

12 **(d)**
Colchicine serves as mitotic spindle poison.

13 **(c)**
Chromosomes are visible with chromatids at **metaphase** stage of mitosis. It is the best stage to observe the shape, size and number of chromosomes.

14 **(b)**
The main events which take place in **G_1-phase** are:

1. Intensive cellular synthesis,
2. Pooling of nucleotides for synthesis of rRNA.
3. Synthesis of enzymes and ATP storage,

4. Synthesis of NHC protein, carbohydrates, liquids, etc.

15 **(c)**

Anaphase-I, anaphase-II.

In anaphase-I chromosome become half in number. Chromosomes split and move to opposite ends of the cell, both in anaphase-I and anaphase-II. The difference is that in anaphase-I, homologous pairs of chromosomes are split and in anaphase-II, sister chromatids are split

16 **(a)**

Initially, homeotypic cell division takes place in the functional megaspore without cytokinesis.

17 **(d)**

In multicellular organisms, cell division brings about embryonic development and growth and also plays an important role in repair and maintenance of the body and also in reproduction, both asexual and sexual

18 **(a)**

Meiosis involves two sequential cycles of nuclear and cell division called meiosis-I and meiosis-II but only a single cycle of DNA replication

19 **(d)**

During **pachytene** of meiosis-I, the chromosomes become bivalent (tetrad) in the beginning, *i.e*, each chromosome with two chromatids.

20 **(b)**

DNA replicates only once in each cell cycle (S-phase)

ANSWER-KEY										
Q.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A.	**c**	**a**	**d**	**a**	**c**	**c**	**a**	**a**	**d**	**d**
Q.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A.	**c**	**d**	**c**	**b**	**c**	**a**	**d**	**a**	**d**	**b**