KENDRIYA VIDYALAYA, NAD, VISAKHAPATNAM–9
MONTHLY TEST FOR AUGUST: 2021–2022: MARKING SCHEME

CLASS: XII MAX. MARKS: 40

SUBJECT: BIOLOGY TIME: 01½ Hours

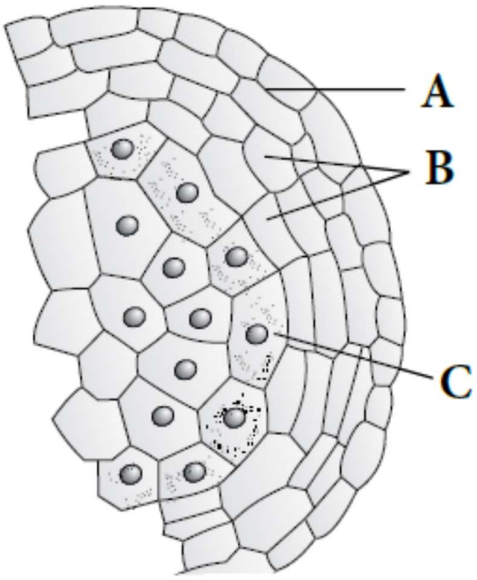
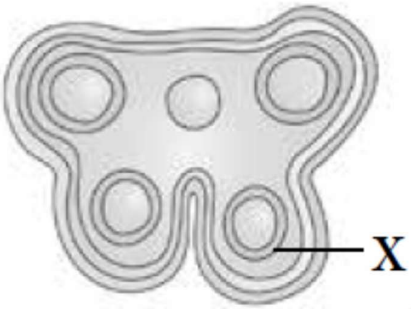
General Instructions:

(i) All questions are compulsory.

(ii) The question paper has two sections: Section A, and Section B. There are 16 questions in the question paper.

(iii) Section–A has 04 questions of 1 mark each and 04 case-based questions. Section–B has 8 questions of 2 marks each.

	SECTION–A	
1)	**Assertion:** The egg apparatus, consists of two synergids and one egg cell. **Reason:** Filiform apparatus play an important role in guiding the pollen tubes into the synergids. (a) Both assertion and reason are true, and reason is the correct explanation of assertion. (b) Both assertion and reason are true, but reason is not the correct explanation of assertion. (c) Assertion is true but reason is false. (d) Both assertion and reason are false. **Ans.** (b)	1
2)	**Assertion:** Double fertilization is unique to angiosperms. **Reason:** Triple fusion occurs in both fertilization, i.e., first and second. (a) Both assertion and reason are true, and reason is the correct explanation of assertion. (b) Both assertion and reason are true, but reason is not the correct explanation of assertion. (c) Assertion is true but reason is false. (d) Both assertion and reason are false. **Ans.** (b)	1
3)	**Assertion:** Head of sperm consists of acrosome and mitochondria. **Reason:** Acrosome contains spiral row of mitochondria. (a) Both assertion and reason are true, and reason is the correct explanation of assertion. (b) Both assertion and reason are true, but reason is not the correct explanation of assertion. (c) Assertion is true but reason is false. (d) Both assertion and reason are false. **Ans.** (c)	1
4)	**Assertion:** Corpus luteum degenerates in the absence of fertilization. **Reason:** Progesterone level decreases. (a) Both assertion and reason are true, and reason is the correct explanation of assertion. (b) Both assertion and reason are true, but reason is not the correct explanation of assertion. (c) Assertion is true but reason is false. (d) Both assertion and reason are false. **Ans.** (b)	1

5)	*Read the following and answer questions from 5(i) to 5(v) given below:* The anther is a four-sided structure consisting of four microsporangia located at the corners two in each lobe. The microsporangia develop further and become pollen sacs. In a transverse section, a typical microsporangium appears near circular in outline. It is generally surrounded by four wall layers-the epidermis, endothecium, middle layers and the tapetum.	5
(i)	A dithecous anther consists of (A) microsporangia, (B) in each lobe. Select the option that correctly fills the blanks. A B (a) four two (b) two one (c) two two (d) four one **Ans.** (a)	
(ii)	The given diagram shows microsporangium of a mature anther. Identify A, B and C.  (a) A-Middle layer B-Endothecium C-Tapetum (b) A-Endothecium B-Tapetum C- Middle layer (c) A-Endothecium B-Middle layer C-Tapetum (d) A-Tapetum B-Middle layer C-Endothecium **Ans.** (c)	
(iii)	The function of labelled part X is:  (a) dehiscence (b) mechanical (c) nutrition (d) protection. **Ans.** (c)	

(iv)	Select the incorrect statement. (a) Microsporangium is generally surrounded by four wall layers-epidermis, endothecium, middle layers and tapetum. (b) Outer three layers perform functions of protection and dehiscence of anthers. (c) Cells of tapetum possess dense cytoplasm and generally have more than one nucleus. (d) Cells of tapetum undergo meiosis and produce microspore tetrads. **Ans.** (d)	
(v)	Which function of tapetum is correct? (a) Helps in pollen wall formation. (b) Transportation of nutrients to inner side of anther. (c) Synthesis of callase enzyme for separation of microspore tetrads. (d) All of these **Ans.** (d)	
6)	*Read the following and answer questions from 6(i) to 6(v) given below:* The endosperm makes the main source of food for the embryo. Generally, the endosperm nucleus divides after the division of the oospore, but in several cases the endosperm is formed to a great extent even before the first division of the oospore. There are three general types of endosperm formation: (a) nuclear type, (b) cellular type and (c) helobial type. The endosperm is usually triploid but haploid endosperm is also found. Endosperm may either be completely consumed by the developing embryo before seed maturation or it may persist in the mature seed.	5
(i)	Haploid endosperm is found in (a) *Pinus* (b) cauliflower (c) sunflower (d) pea. **Ans.** (a)	
(ii)	Persistent endosperm is found in: P. Pea Q. Castor R. Bean S. Coconut T. Groundnut (a) Q and S (b) P and T (c) R, S and T (d) P, S and T **Ans.** (a).	
(iii)	Milk of tender coconut represents (i) and the surrounding white coconut meal represents (ii). **(i)** **(ii)** (a) cellular endosperm free-nuclear endosperm (b) free-nuclear endosperm cellular endosperm (c) helobial endosperm cellular endosperm (d) free-nuclear endosperm helobial endosperm **Ans.** (b)	
(iv)	If an endosperm cell of a gymnosperm contains 12 chromosomes, the number of chromosomes in each cell of the root will be (a) 4 (b) 24 (c) 16 (d) 6. **Ans.** (b)	
(v)	In angiosperms, normally after fertilisation (a) the zygote divides earlier than the primary endosperm nucleus (b) the primary endosperm nucleus divides earlier than the zygote (c) both the zygote and primary endosperm nucleus divide simultaneously (d) both the zygote and primary endosperm nucleus undergo a resting period. **Ans.** (b)	
7)	*Read the following and answer questions from 7(i) to 7(v) given below:* The average duration of human pregnancy is about 9 months which is called the gestation period. Vigorous contraction of the uterus at the end of pregnancy causes expulsion / delivery of the foetus. This process of delivery of the foetus (childbirth) is called parturition. Parturition is induced by a complex neuroendocrine mechanism. The signals for parturition originate from the fully developed foetus	5

	and the placenta which induce mild uterine contractions called foetal ejection reflex. This triggers the release of oxytocin hormone from the maternal pituitary gland. Oxytocin acts on the uterine muscle and causes stronger uterine contractions, which in turn stimulates further secretion of oxytocin. The stimulatory reflex between the uterine contraction and oxytocin secretion continues resulting in stronger and stronger contractions. This leads to expulsion of the baby out of the uterus through the birth canal – parturition. Soon after the infant is delivered, the placenta is also expelled out of the uterus.	
(i)	The birth of a baby is known as a. Micturition b. Parturition c. Child d. Oxytocin **Ans.** (b)	
(ii)	When a fully developed baby is not naturally delivered by the mother, it could be due to the – a. Non-secretion of Oxytocin b. Excess secretion of Oxytocin c. Wide birth canal d. None of the above. **Ans.** (a)	
(iii)	Soon after the infant is delivered, the placenta is also expelled out of the uterus, because: a. The infant requires the placenta to be alive b. After the birth, there is no role for the placenta c. Placenta is a part of the infant d. None of the above **Ans.** (b)	
(iv)	Oxytocin is known as the child birth hormone as well as the: a. Urine regulating hormone b. Milk ejection hormone c. Milk producing hormone d. None of the above **Ans.** (b)	
(v)	**Assertion:** Release of oxytocin is essential for the child birth after he complete development of the foetus. **Reason:** Premature release of Oxytocin leads to the birth of a pre-mature baby. (a) Both assertion and reason are true, and reason is the correct explanation of assertion. (b) Both assertion and reason are true, but reason is not the correct explanation of assertion. (c) Assertion is true but reason is false. (d) Both assertion and reason are false. **Ans.** (b)	
8)	*Read the following and answer questions from 8(i) to 8(v) given below:* Oogenesis is the process of formation of ovum in ovaries. It consists of three phases: multiplication, growth and maturation. Oogenesis is controlled by hormones GnRH, LH, FSH, GnRH secreted by the hypothalamus stimulates the anterior lobe of pituitary gland to secrete LH and FSH.	5
(i)	What is the function of hormone FSH? (a) It inhibits the formation of estrogen. (b) In induces the release of secondary oocyte. (c) It stimulates the growth of Graafian follicles. (d) It causes ovulation. **Ans.** (c)	

(ii)	Which hormone induces the rupture of the mature Graafian follicle? (a) Follicle stimulating hormone. (b) Gonadotropin releasing hormone. (c) Progesterone. (d) Luteinising hormone **Ans.** (d)	
(iii)	Which cell division is involved in the formation of secondary oocyte? (a) Mitosis (b) Meiosis I (c) Amitosis (d) Meiosis II **Ans.** (b)	
(iv)	Identify the function (s) of LH. (i) Release of secondary oocyte from Graafian follicle. (ii) Stimulates corpus luteum to secrete progesterone. (iii) Stimulates estrogen formation. (iv) Promotes development of egg to form secondary oocyte. (a) i and ii only. (b) ii and iii only. (c) i, iii and iv only. (d) ii only. **Ans.** (a)	
(v)	**Assertion:** The increase in progesterone level exerts positive feedback on GnRH. **Reason:** The rising level of progesterone stimulate production of FSH and LH. (a) Both assertion and reason are true, and reason is the correct explanation of assertion. (b) Both assertion and reason are true, but reason is not the correct explanation of assertion. (c) Assertion is true but reason is false. (d) Both assertion and reason are false. **Ans.** (d)	
	SECTION–B	
9)	**State two advantages of an apomictic seed to a farmer.** **Ans.** ➢ There is no segregation of characters in apomictic seeds, ➢ the farmers can keep on using the hybrid seeds to raise new crops year after year / desired varieties can be cultivated year after year, ➢ hybrid characters can be preserved, ➢ the farmers do not have to buy hybrid seeds every year. *Any two* = 1 × 2 **[2 Marks]**	2
10)	**Describe the process of Pollination in *Vallisneria*.** **Ans.** ❖ Female flower reaches water surface by long stalk, ❖ and male flowers / pollen grains are released on the surface of water, ❖ carried passively by water currents, ❖ some eventually reach female flowers and stigma. = ½ × 4 [2 Marks]	2
11)	**(a) Name the structure seen on the surface of black pepper and beet seeds, not seen on a bean seed. Mention the part of the ovule it is a remnant of.** **(b) Name the outer layer of a maize grain, and state where generally does this layer gets developed in a flowering plant.** **Ans.** (a) Perisperm, nucellus = ½ × 2 (b) Pericarp, ovary wall (after fertilization) = ½ × 2 [1 + 1 =2 Marks]	2
12)	**Why, in *Michelia,* is the gynoecium said to be multicarpellary and apocarpous?**	2

	Ans. ✓ Multicarpellary - more than one pistil (carpels) = 1 ✓ Apocarpous - pistils (carpels) are free / not fused = 1	
13)	(a) Where do the signals for parturition originate from in humans? (b) Why is it important to feed the newborn babies on colostrum? **Ans.** (a) From the fully developed foetus / placenta / foetal ejection reflex (anyone) (b) Contains (IgA) antibodies, to (passively) immunise the baby = ½+½ [1+1=2 marks]	2 1 ½+½
14)	Mention the relationships between pituitary and ovarian hormones during a menstrual cycle. **Ans.** FSH stimulate follicular development and secretion of estrogen = 1 LH induces ovulation and development of corpus luteum which secretes progesterone = 1 [1+1=2 Marks]	2
15)	(a) Name the new oral contraceptive for female humans. Where was it developed? (b) Why it has become a popular contraceptive pill in India? **Ans.** (a) Saheli, Central Drug Research Institute in Lucknow = ½+½ (b) Sahlei is once a week pill, non–steroidal = ½+½	2 1 1
16)	How do copper and hormone releasing IUDs act as contraceptives? Explain. **Ans.** ➢ copper releasing IUDs (CuT, Cu7, Multiload 375) ➢ IUDs increase phagocytosis of sperms within the uterus and ➢ the Cu ions released suppress sperm motility and ➢ the fertilising capacity of sperms.	2

Do Well and Excel

End of exam