COVER PAGE

Basic Agriculture (408)

Marking Scheme

Class X - 2018-19

Time: 2 Hours **Total Marks: 50**

General Instructions:

1. *Marking Scheme is divided into two sections: Section-A and Section- B.*
2. ***Section–A:***
   - ***i.*** *Multiple choice question/Fill in the blanks/Direct Questions of 1 mark each. Answer any 10 questions out of the given 12 questions.*
   - ***ii.*** *Very Short Answer of 2 marks each. Answer any 5 questions from the given 7 questions.*
   - ***iii.*** *Short Answer of 3 marks each. Answer any 5 questions from the given 7 questions.*
3. ***Section–B:****Long/Essay type questions of 5 marks each. Answer any 3 questions from the given 5 questions.*
4. *All questions of a particular section must be attempted in the correct order.*
5. *Please check that this question paper contains 31 questions out of which 23 questions are to be attempted.*
6. *The maximum time allowed is* 2 *hrs.*
7. *The marking scheme carries only suggested value points for the answers. These are only guidelines and do not constitute the complete answers. The students can have their own expression and if the expression is correct, the marks be awarded accordingly.*

Basic Agriculture (408)

Marking Scheme
Class -X, 2018-19

Time Duration: 2 Hours **Marks: 50**

Section A

Multiple choice questions (1-12, one marls each), Attempt any 10 questions 10 x 1 = 10

Q. No.1	Which one among the following is the variety of wheat? **Kalyan Sona (a)**
Q. No.2	Rose is commercially propagated by **T budding (c)**
Q. No. 3	Cabbage belongs to family **Brassicaceae (a)**
Q. No. 4.	Which is the best breed of buffalo for milk production? **Murrah (a)**
Q.No. 5.	The best breed of poultry for egg production is….**White Leg Horn (d)**
Q. No. 6.	Fat content is maximum in**Buffalo (d)** milk
Q.No. 7.	Cleistogamy is found in crops like**pea (a)**
Q. No. 8.	Breeder seed is a progeny of **Nucleus seed (d)**
Q. No. 9.	*Anardana*is a dried product prepared from **wild pomegranate (a)**
Q. No. 10.	*Apis mellifera*was first introduced in India at **Kangra (b)**
Q.No. 11	National Dairy Research Institute is located at **Karnal (d)**
Q. No. 12	Indian Agricultural Research Institute is located at **New Delhi (a)**

Very short answer type questions (13-19, 2 marks each). Attempt any five questions 5 x 2 = 10

Q. No. 13	Kalyan Sona, Sonalika, HD group of varieties such as HD 2687… etc.
Q. No. 14	Leaf spot and Yellow vein mosiac
Q. No. 15	Pod borer, cut worm and hairy caterpillar
Q. No. 16	Jersey and Holstein Friesian
Q. No. 17	Coagulated milk products: Paneer, Dahi, *Shrikhand, butter, Khoa, ghee*
Q. No. 18	Milk can be classified as follows:

Type of milk	**Milk fat (% not less than)**	**Milk SNF (% not less than)**
Double toned milk	1.5	9.0
Toned milk	3.0	8.5
Standardized milk	4.5	8.5
Full cream milk	6.0	9.0
Skim milk	Not more than 0.5	8.7

Q. No. 19	**Male sterility:**Male sterility is defined as an absence or non-function of pollen grain in plant or incapability of plants to produce or release functional pollen grains and this mechanism promote the cross pollination. Eg. Cotton, Bajra etc. **Self-Incompatibility**: It refers to the failure of pollen to fertilize the same flower or other flower of the same plant, or it is the failure of pollen tube to penetrate the full length of style

	and effect fertilization. Eg. Mustard, cauliflower and cabbage etc.
Short answer type questions (20-26, 3 marks each). Attempt any five questions 5 x 3 = 15	
Q. No. 20	**Major pulse crops of India** are gram, peas, moong and pigeonpea/arhar. The seed rates are 75-100 kg/ha, 70-80 Kg/ha, 18-20 Kg/ha and 15-20 kg/ha, respectively
Q. No. 21	**Major problems of mango are:** **Insect-pests:** Mealy bug and fruit fly **Diseases:** Mango malformation, and powdery mildew **Disorders:** spongy tissue and jelly seed
Q. No. 22	**Most suitable breeds of animals for different purposes** **Milk Production**: Gir, Red Sindhi, Sahiwal, Tharparkar and Deoni **Dual Purpose**: Hariana, Ongole, Rathi, Krishna Valley, Tharparkar and Kankraj. **Draft breeds** : Nagauri, Malvi, Hallikar, Khillari, Ponwar and Siri
Q. No. 23	**Make a flowchart of ice cream preparation** The **basic steps involved in ice cream manufacture** include mixing of ingredients …pasteurization…..homogenization…… ageing…..freezing…..hardening…..storage.
Q. No. 24	**Different value added products of fruits and vegetables are:** Jam, jelly, marmalade, RTS, Fruit bar, fruit leather, Fruit cheese, fruit juices, nectar, squashes, pickles, candy, powder etc.
Q. No. 25	**Major species honeybees found in India are**: Indian honey bee (*Apies ceranaindica*), Italian honey bee (*Apismellifera*), Giant honey bee (*Apies dorsata*) Small honey bee (*Apies florea*)
Q. No. 26	**Distribution of work among different categories of honeybees** **Queen**: Major work is to lay eggs for new colonies. It is all time protected by workers. **Drone:** Major work is to mate the queen. Only one drone is required for mating. Otherwise drones have no other work. **Worker**s: All work in a colony is done by the workers. They collect nectar, protect queen and hive.
Section B. Long answer type questions (27-31, 5 marks each). Attempt any three questions 3 x 5 = 15	
Q. No. 27	**Bitter pit :** Major disorder of apple….due to Ca deficiency….development of shunken pits during storage…..preharvest sprays of Ca salts…..for reducing its incidence….. **Fruit cracking**: problem in many fruits….citrus, pomegranate….moisture stress……sudden irrigation…..maintain uniform supply of water….Ca and B sprays…GA_3 sprays….for management

	Major diseases of cole crops: Alternaria Spot (Fungal), Black Leg (Fungal), Black Rot (Bacterial), Club Root (Fungal), Downy Mildew (Fungal), and Rhizoctonia Disease (Fungal)
Q. No. 28	**Pollination**: Process by which pollen is transferred from the anther (male part) to the stigma (female part) of the plant. ***Mechanism which favour self-pollination*** 1. **Perfect flower**: It is the presence of both male and female part of the flower which favours the self-pollination eg. Rice, Wheat, Green gram etc. 2. **Homogamy**: Maturation of male and female parts of flower on same time is called homogamy. eg Rice Wheat, Barley and pulse crops. 3. **Cleistogamy**: It is the types of flower in which pollination always occurs inside the closed flowers which promote the self-pollination. Eg. Rice, Wheat 4. **Flower structure**: Some flowers have special structure around the male part which promotes the self-pollination eg. Tomato and Pulse crops ***Mechanism which favour cross-pollination*** **1. Bisexual flowers:** When both male and female parts are present on the different flowers than it promote the cross pollination. Eg. Castor, papaya **2. Dichogamy:** Sometimes male or female **mature** slightly at **different times** this nature is called **dichogamy** which favour the **cross pollination and in this process i**f **male** part (Anther) of flower matures first then it is called **protandry** (eg. Maize) while, if **female partmature (ovary) first then flower is to be called protogyny in nature**. Eg. Bajra **3. Herkogamy:** In this types of mechanism some structures prevent the self-pollination and promote cross pollination in bisexual flowers.eg. Alfa alfa **4. Male sterility:** Male sterility is defined as an absence or non-function of pollen grain in plant or incapability of plants to produce or release functional pollen grains and this mechanism promote the cross pollination. Eg. Cotton, Bajra etc. 5. **Self-Incompatibility**: It refers to the failure of pollen to fertilize the same flower or other flower of the same plant, or it is the failure of pollen tube to penetrate the full length of style and effect fertilization. Eg. Mustard, cauliflower and cabbage etc.
Q. No. 29	**Cultivation of apple** **Soil and climate** Apple can grow…..range of soils. Well-drained, …..deep, fertile, ….clay loam soils with pH 6.0-6.8 …. Sites with gentle slope…… requires about 1,000 to 1,500 hours ……. bud dormancy. **Major varieties:**

Early	Red June, Tydeman's Early Worcester, Kings Pippin, Summer Queen
Mid season	Starking Delicious, Red Delicious, Richared, Black Ben Davis, Red Gold, Mclntosh, Golden Delicious, Lord Lambourne
Late	Granny Smith, Ruspippin (yellow, winter banana)

Propagation and rootstock

Traditionally seedling rootstocks are used. Standard clonal rootstocks such as Malling (M) series (M9, M27) and Malling Merton (MM) series rootstocks (MM106, MM109, MM111) are used.

Major diseases and their management:

Apple scab	…… caused by a fungus, *Venturia inaequalis*. ….. most serious disease ….mostly affects leaves…….olive coloured spots…..A spray schedule of different …….chemicals control.
Powdery mildew	….. white powdery mass grows …….pruning and …..spraying of wettablesulphur (0.2-0.3%), …… or karathane (0.05%) during late dormancy, …… two weeks later. In nursery, spraying of ……fungicides at …….recommended.

Q. No. 30

Cultivation of rice

Soil and climate: Rice cultivation extends from sea level to as high as 3000 m above mean sea level (amsl) in India. High temperature, ……. high rainfall have considerable effect …..of rice plant. Rice crop is grown during *Kharif* season …… but in south and north-eastern parts of ……. 3 seasons.

The wide range … variety of soils. ……grown on loamy sands and…. clay loams or clays … good water holding capacity ……..rice.

Major varieties:

Cultivar type	Rice cultivars
Hybrids	APHR 1, DRRH-3, PA 6201, Pusa RH 10, HRI 120, Sahyadri-2, UPH Rajalaxmi, Pant Sankar Dhan 1, Pant Sugandh Dhan-17, PHB 71
Basmati / scented varieties	Basmati 370, Pusa Basmati 1, Taraori Basmati (Karnal local), PusaSu 3, Pusa Sugandh 4, PusaSugandh 6, PRH 10, Pant Dhan 15, Punjab Ba 1, Pusa Basmati 1121, Pusa Basmati 6, Pusa Basmati 1509

Other improved varieties	Mahamaya, GK 5003, Pusa 33, Pusa 169, Mehsuri, JKRH-401, Gurjari, GR-6, Dandi, Pusa 33, HKR-127, Bhrigu Dhan, Himalaya 2216, SKAU 23, SKAU 27, GK 5003, Gauri, Sweta , Ratnagiri 24, Rajeshwari, PR 108, PR 109, PMK 2, Pant Dhan 10, Pant Dhan 11, VL Dhan 221, IR 20, Jayanthi

Propagation /cultivation:

Direct seeded rice

Rice is sown directly in dry soil (dry seeding) or wet soil (wet seeding), and irrigation is given to keep the soil sufficiently moist for good plant growth, but the soil is never flooded. Three methods are commonly followed in sowing dry and semi-dry crop. These are broadcasting, drilling or sowing in furrows behind country plough, and dibbling in general, a seed rate of 30-50 kg ha^{-1} is required for drilling, while 60-100 kg ha^{-1} is required for broadcasting. A row spacing of 15-20 cm is optimum for upland rice. There are mainly two methods of direct seeding

Major diseases and their management:

Disease	Symptoms	Management
Leaf and neck blast Fungal disease	Leaves become white to grayish green circular lesions/spots with dark green borders…..may enlarge and kill the entire leaf. Lesions on the neck cause the girdling of the neck and the panicle to fall over.	• Early sowing of seeds and balanced use of fertilizers. • Planting resistant varieties against the rice blast is the most practical and economical way. • Systemic fungicides are effective against the disease.
Bacterial leaf blight	Water-soaked to yellowish stripes on leaf blades or starting at leaf tips. Severely infected leaves tend to dry quickly.	• Field sanitation such as removing weed hosts, rice straws, ratoons, and volunteer seedlings. • Use of resistant varieties • Seed treatment with bleaching powder (100µg/ml) and zinc sulfate (2%) reduce bacterial blight.

Q. No. 31

Major oils seed crops grown in India: Mustard, groundnut, soybean and sunflower

Cultivation of mustard

Soil and Climatic requirements: Mustard is basically cultivated in temperate region, require an annual precipitation of 40-100 cm. Soil sandy loam with no water-logging.

Varieties: Some promising varieties of mustard are as under:

S.No.	Crop	Varieties
1	Indian mustard (*Brassica juncea*)	RH9304, RH9801,RH30, RH819, T-59
2	Karan Rai (*Brassica carinata*)	Pusa Sawarnim, PusaAditya
3	Brown Sarson (*Brassica rapa* var.	BSH-1, Pusa Kalyani, KBS-3

	brown sarson)	
4	Toria	TH68, Sangam and TL15, Bhawani

Seed and sowing method: For irrigated condition, 3-4kg seed is sufficient for sowing of one ha area whereas, the seed rate can be increased to5kg/ha under rainfed condition.
25th September to the first fortnight of October is the most appropriate time of sowing mustard cropinconservedmoisture.

Nutrient requirements: Forrainfedcrop, apply 40kg N and 20kg P_2O_5/ha. In irrigated areas apply 60kg N, 20kg P_2O_5 and 25kg K_2O/ha

Major diseases a n d m anagement

White rust Downy mildew and **Alternariablight** are major diseases of mustard. For the control of white rust, *Alternaria* and downy mildew spray Mancozeb 1.5 kg/ha at initial appearance of white rust or *Alternaria* and repeat the spray 1-3 times after 15 days.

Pestmanagement
Mustardaphidis major pest of mustard. Spray the crop with 625 to 1000 ml oxydemeton methyl (Metasystox 25E C) or dimethoate (Rogor) 30 EC after diluting it in 625 to 1000Lwater/ha.

Harvesting, threshing and yield
Usually rapeseed-mustard crops are harvested as soon as 75% of the pods turn yellow and moisture content of the seed is around 30 to 40%. Under normal conditions, rapeseed yields about 1.4-2.0 t/ha of seed, while mustard may give 2.0-2.5 t/ha.