(A) 2

(A) defeated

Q.5

(B) 4

Until Iran came along, India had never been

(B) defeating

## Q. 1 – Q. 5 carry one mark each. The fishermen, the flood victims owed their lives, were rewarded by the Q.1 government. (A) whom (B) to which (C) to whom (D) that Some students were not involved in the strike. Q.2 If the above statement is true, which of the following conclusions is/are logically necessary? 1. Some who were involved in the strike were students. No student was involved in the strike. 3. At least one student was involved in the strike. 4. Some who were not involved in the strike were students. (D) 2 and 3 (C) 4 (A) 1 and 2 (B) 3 Q.3 The radius as well as the height of a circular cone increases by 10%. The percentage increase in its volume is \_\_\_\_\_. (B) 21.0 (A) 17.1 (C) 33.1 (D) 72.8 Q.4 Five numbers 10, 7, 5, 4 and 2 are to be arranged in a sequence from left to right following the directions given below: 1. No two odd or even numbers are next to each other. 2. The second number from the left is exactly half of the left-most number. 3. The middle number is exactly twice the right-most number. Which is the second number from the right?

GA 1/3

(C) 7

(C) defeat

(D) 10

in kabaddi.

(D) defeatist

#### Q. 6 - Q. 10 carry two marks each.

(A) 10.50

(A) dhrupad, baani(B) gayaki, vocal(C) baaj, institution(D) gharana, lineage

were 540 km apart is \_\_\_\_\_ AM.

Q.9

Q.6 Since the last one year, after a 125 basis point reduction in repo rate by the Reserve Bank of India, banking institutions have been making a demand to reduce interest rates on small saving schemes. Finally, the government announced yesterday a reduction in interest rates on small saving schemes to bring them on par with fixed deposit interest rates.

Which one of the following statements can be inferred from the given passage?

- (A) Whenever the Reserve Bank of India reduces the repo rate, the interest rates on small saving schemes are also reduced
- (B) Interest rates on small saving schemes are always maintained on par with fixed deposit interest rates
- (C) The government sometimes takes into consideration the demands of banking institutions before reducing the interest rates on small saving schemes
- (D) A reduction in interest rates on small saving schemes follow only after a reduction in repo rate by the Reserve Bank of India

(C) 15.00

(D) 50.00

Q.7	In a country of 1400 million population, 70% own mobile phones. Among the mobile
	phone owners, only 294 million access the Internet. Among these Internet users, only half
	buy goods from e-commerce portals. What is the percentage of these buyers in the country?

Q.8	The nomenclature of Hindustani music has changed over the centuries. Since the medieval
	period dhrupad styles were identified as baanis. Terms like gayaki and baaj were used to
	refer to vocal and instrumental styles, respectively. With the institutionalization of music
	education the term gharana became acceptable. Gharana originally referred to hereditary
	musicians from a particular lineage, including disciples and grand disciples

Which one of the following pairings is NOT correct?

(B) 14.70

, , ,
Two trains started at 7AM from the same point. The first train travelled north at a speed of
80km/h and the second train travelled south at a speed of 100 km/h. The time at which they

(A) 9 (B) 10 (C) 11 (D) 11.30

GA 2/3

Q.10 "I read somewhere that in ancient times the prestige of a kingdom depended upon the number of taxes that it was able to levy on its people. It was very much like the prestige of a head-hunter in his own community."

Based on the paragraph above, the prestige of a head-hunter depended upon

- (A) the prestige of the kingdom
- (B) the prestige of the heads
- (C) the number of taxes he could levy
- (D) the number of heads he could gather

### END OF THE QUESTION PAPER

GA 3/3

# Q. 1 - Q. 25 carry one mark each.

Q.1	Which of the following is NOT an example	of cooperative behaviour?			
	(A) Biofilm formation	(B) Lek formation			
	(C) Reproductive division of labour	(D) Sentinel behaviour			
Q.2	In a simple linear regression, which of the funderlying the estimation of the slope and i	following statements represents the principle intercept?			
	(A) The sum of the residuals is minimised				
	<ul><li>(B) The sum of the residuals is maximised</li><li>(C) The sum of the squares of the residuals</li></ul>	is minimised			
	(D) The sum of the squares of the residuals				
0.2					
Q.3	According to MacArthur and Wilson's theo species on an island is a balance between	ry of island biogeography, the number of			
	<ul><li>(A) colonisation and extinction</li><li>(C) mutation and migration</li></ul>	<ul><li>(B) colonisation and speciation</li><li>(D) speciation and extinction</li></ul>			
	(C) initiation and inigration	(b) speciation and extinction			
Q.4	A researcher wants to sample ant diversity plateaus. Which among the following is the	in a landscape consisting of riverine valleys and best sampling strategy for her to employ?			
	(A) Once an ant is located, lay quadrats in that area				
	<ul><li>(B) Lay equal number of quadrats in valley.</li><li>(C) Lay quadrats in areas of high ant abund</li></ul>				
	(D) Lay quadrats in both habitats in proport				
	_				
Q.5		hous change per site are $dN$ and $dS$ respectively. In the evolution of a gene with $dN/dS = 0.2$ ?			
	(A) Diversifying selection	(B) Neutral evolution			
	(C) Positive selection	(D) Negative selection			

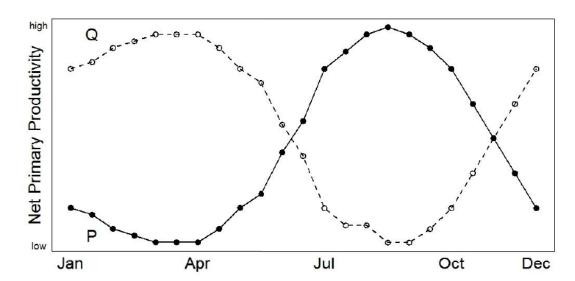
EY 1/20

Q.6	Which of the following assumptions allows us to use molecular clocks to estimate species divergence times?				
	(B) Adaptive change	es accumulate at a conses occur episodically accumulate at a consecur episodically			
Q.7	umans carry the allele for ny evolutionary advantage sual abundance of this				
	(A) Founder effect (C) Genetic hitchhik	ing	(B) Genetic drift (D) Purifying select	ion	
Q.8	The evolutionary ch	ange in the timing of	development is known	ı as	
	(A) heterochrony	(B) heterotopy	(C) homochrony	(D) homotopy	
Q.9	Which of the follow communication in a		ited for infrasound (lo	w frequency)	
	(A) Coral reef	(B) Open ocean	(C) Rainforest	(D) Urban area	
Q.10	Which of the follow  (A) High resolution (B) High resolution (C) Low resolution (D) Low resolution	and high sensitivity and low sensitivity and high sensitivity	yes of a nocturnal inse	ct?	
Q.11			ken from ingestion to o he longest gut passage	excretion of a food item.	
	(A) Black bear	(B) Gaur	(C) Human being	(D) Tiger	

EY 2/20

Q.12 A researcher found n number of woody species in a one hectare tropical forest plot. He employs the same method in another one hectare plot in the same forest. Based on the principle of species area curves, the expected number of new species in the second plot is

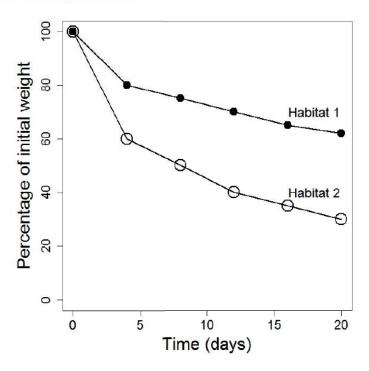
- (A) equal to n (the number of species found in the first plot)
- (B) less than n (the number of species found in the first plot)
- (C) more than n (the number of species found in the first plot)
- (D) always zero
- Q.13 A phylogenetic study finds that certain plants of peninsular India are more closely related to those in Australia than to those in China. Which of the following statements best explains this result?
  - (A) China and Australia were part of Laurasia, but India was in Gondwana
  - (B) India and Australia were part of Gondwana, but China was in Laurasia
  - (C) India and Australia were part of Laurasia, but China was in Gondwana
  - (D) India and China were part of Laurasia, but Australia was in Gondwana
- Q.14 The pattern of net primary productivity in a year for two grassland habitats (P and Q) is shown below. Which of the following statements is consistent with the figure?



- (A) Habitat P is in Argentina while Q is in Canada
- (B) Habitat P is in Russia while Q is in Canada
- (C) Habitat P is in Russia while Q is in South Africa
- (D) Habitat P is in South Africa while Q is in Argentina

EY 3/20

Q.15 Which of the following statements best explains the patterns of leaf-litter decomposition over time shown in the figure below?



- (A) Habitat 1 is cold and wet; Habitat 2 is warm and arid
- (B) Habitat 1 is warm and arid; Habitat 2 is cold and wet
- (C) Habitat 1 is cold and arid; Habitat 2 is warm and wet
- (D) Habitat 1 is warm and wet; Habitat 2 is cold and arid

Q.16 To compare biomass of a fish species in two lakes, A and B, a researcher records liveweights of 30 individuals from each lake. She assumes that these two datasets are normally distributed and have equal variance. She calculates

$$Q = \frac{\overline{x}_A - \overline{x}_B}{s}$$

where  $\overline{x}_A$  and  $\overline{x}_B$  are mean values from the respective lakes, and s is the pooled standard error.

What is this quantity Q?

- (A) Correlation coefficient
- (B) Regression coefficient

(C) t-statistic

(D) χ<sup>2</sup>-statistic

EY 4/20

Q.17	While developing his theory of evolution by natural selection, Charles Darw	n was
	influenced by the work of	

- (A) Charles Lyell and Thomas Malthus
- (B) Francis Crick and James Watson
- (C) Gregor Mendel and J.B.S. Haldane
- (D) Sewall Wright and Ronald Fisher
- Q.18 Weakly-electric fish typically produce electric voltages of less than 1 volt for communication and navigation. Which of the following features is **NOT** a characteristic of weakly-electric fish?
  - (A) Electrocytes
  - (B) Electroreception capabilities
  - (C) Exclusively marine habit
  - (D) Mechanisms to avoid signal jamming
- Q.19 Match the combination of primates and trees to the state/union territory where they can be found.

Primate and Tree combination	State
P: Bonnet macaque; Figs	i: Andaman and Nicobar Islands
Q: Crab-eating macaque; Mangroves	ii: Himachal Pradesh
R: Lion-tailed macaque; Myristica	iii: Maharashtra
S: Rhesus macaque; Deodar	iv: Kerala

(A) 
$$P - i$$
;  $Q - iii$ ;  $R - iv$ ;  $S - ii$ 

(B) 
$$P - iii$$
;  $Q - i$ ;  $R - iv$ ;  $S - ii$ 

(C) 
$$P - ii$$
;  $Q - i$ ;  $R - iii$ ;  $S - iv$ 

$$\begin{array}{ll} \text{(A) } P-i; \ Q-iii; \ R-iv; \ S-ii \\ \text{(C) } P-ii; \ Q-i; \ R-iii; \ S-ii \\ \end{array} \qquad \qquad \begin{array}{ll} \text{(B) } P-iii; \ Q-i; \ R-iv; \ S-ii \\ \text{(D) } P-i; \ Q-iv; \ R-ii; \ S-iii \\ \end{array}$$

- Q.20 Which of the following crops should show the LOWEST proportional increase in photosynthetic rate under rising carbon dioxide levels in the atmosphere?
  - (A) Barley
- (B) Maize
- (C) Rice
- (D) Wheat

5/20

- Q.21 Which among the following is the best indicator of the precision with which a population parameter is estimated?
  - (A) Degrees of freedom

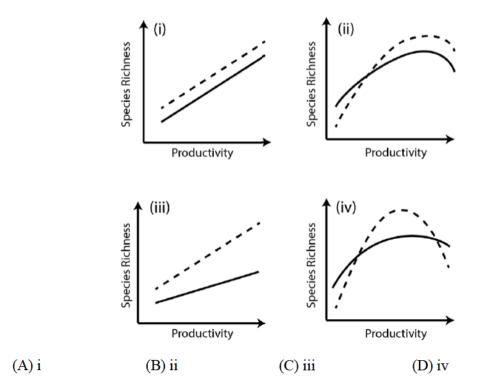
(B) Mean

(C) Sample size

(D) Standard error

EY

- Q.22 Which of the following hormones regulates moulting in arthropods?
  - (A) Corticosterone
- (B) Ecdysone
- (C) Gibberelin
- (D) Hydrocortisone
- Q.23 A study found that grazing decreased species richness when productivity was low, and increased species richness when productivity was high. Which of the following figures best represents this result? In the figure, the dotted line represents species richness in grazed plots and the solid line represents species richness in plots without grazing.



Q.24 The mean height of students in a class (number of students, n=10) was initially estimated to be 6 feet and 6 inches. Later an error was detected, where one boy's height was recorded as 10 feet taller than his actual height. The correct mean height of the students in the class is inches (round off to 1 decimal place).

EY 6/20

Q.25 Two true-breeding lines of a moth, one with black wings and the other with red wings, are crossed. All of the resulting offspring in the F<sub>1</sub> generation had red wings. These offspring are crossed to produce the F<sub>2</sub> generation of moths where the expected fraction of moths with black wings in the population is \_\_\_\_\_ (round off to two decimal places).

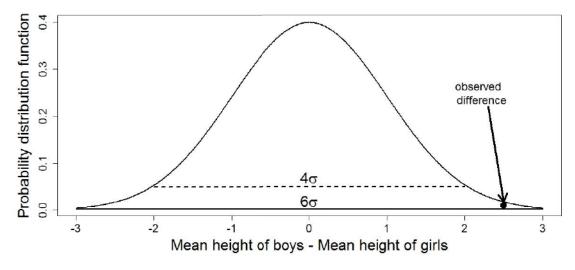
EY 7/20

#### Q. 26 - Q. 55 carry two marks each.

Q.26 A teacher proposed a null hypothesis  $(H_0)$  that there is no difference in the mean heights of boys and girls in his class. His alternative hypothesis  $(H_a)$  was that boys are taller than girls.

The figure below shows the probability distribution, i.e. probability density function, of the difference in the mean height of boys and girls if the null hypothesis were true. The observed mean difference in heights is shown by the solid black circle. The dotted line represents the range  $\mu \pm 2 \sigma$  whereas the solid line shows the range  $\mu \pm 3 \sigma$ .

Assuming a significance level of 0.05, which of the following conclusions is correct?



(A)  $H_0$  is accepted

(B)  $H_0$  is rejected

(C)  $H_a$  is accepted

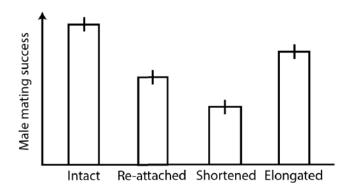
- (D)  $H_a$  is rejected
- Q.27 Females in many birds and mammals mate with multiple males, in addition to their paired-male. Which of the following is an **INCORRECT** adaptive explanation for such extra-pair mating?
  - (A) Increased genetic quality of offspring
  - (B) Increased care of offspring by the paired-male
  - (C) Increased probability of fertilisation
  - (D) Increased resources for offspring production

EY 8/20

Q.28 A researcher hypothesized that females of a bird species prefer to mate with long-tailed males. To test this hypothesis, she assigned male birds of similar tail lengths to one of the following four treatments:

- 1. Intact tails left unmanipulated
- 2. Re-attached tails cut and re-attached without any change in length
- 3. Shortened tails cut, shortened and re-attached
- 4. Elongated tails cut, elongated and re-attached

She measured mating success of these experimental birds and the results from this are shown below. Error bars represent 95% confidence intervals. Which of the following inferences are consistent with these results?



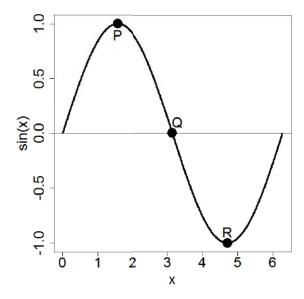
- i. Experimental manipulation of tails decreased male mating success
- ii. Females preferred to mate with males with short tails
- iii. Females preferred to mate with males with long tails
- (A) i only
- (B) i and iii only
- (C) i and ii only
- (D) iii only

Q.29 Highly repetitive sequences are most likely to be prevalent in regions of the genome with \_\_\_\_\_ recombination rate and originate via \_\_\_\_\_ crossing over. Choose the right pair of words that completes this statement correctly.

- (A) high; equal
- (B) high; unequal
- (C) low; equal
- (D) low; unequal

EY 9/20

Q.30 Which of the following is correct about first and second derivatives at points P, Q and R for  $f(x) = \sin(x)$  shown below?



$$(\mathbf{A})\frac{df}{dx}\Big|_{P}=0;\ \frac{df}{dx}\Big|_{Q}<0;\ \ \frac{d^{2}f}{dx^{2}}\Big|_{R}=0$$

(B) 
$$\frac{d^2f}{dx^2}\Big|_{P} < 0$$
;  $\frac{d^2f}{dx^2}\Big|_{Q} > 0$ ;  $\frac{df}{dx}\Big|_{R} = 0$ 

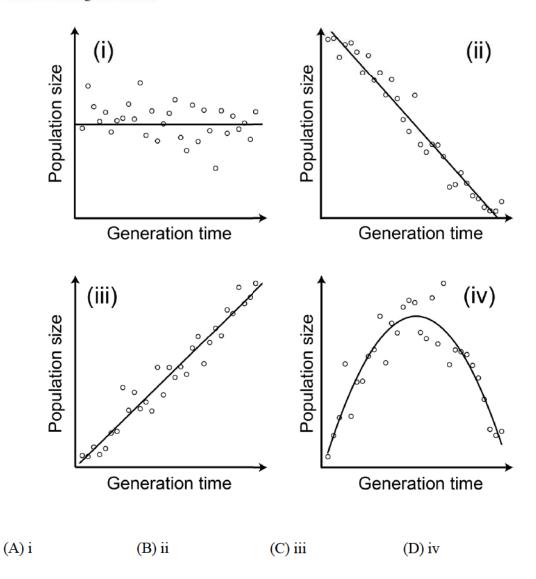
(C) 
$$\frac{d^2f}{dx^2}\Big|_P < 0$$
;  $\frac{d^2f}{dx^2}\Big|_Q = 0$ ;  $\frac{d^2f}{dx^2}\Big|_R > 0$ 

$$\begin{split} & \text{(A)} \frac{df}{dx} \Big|_{p} = 0; \; \frac{df}{dx} \Big|_{Q} < 0; \quad \frac{d^{2}f}{dx^{2}} \Big|_{R} = 0 & \text{(B)} \; \frac{d^{2}f}{dx^{2}} \Big|_{p} < 0; \; \frac{d^{2}f}{dx^{2}} \Big|_{Q} > 0; \; \frac{df}{dx} \Big|_{R} = 0 \\ & \text{(C)} \; \frac{d^{2}f}{dx^{2}} \Big|_{p} < 0; \; \frac{d^{2}f}{dx^{2}} \Big|_{Q} = 0; \; \frac{d^{2}f}{dx^{2}} \Big|_{R} > 0 & \text{(D)} \; \frac{d^{2}f}{dx^{2}} \Big|_{p} > 0; \; \frac{d^{2}f}{dx^{2}} \Big|_{Q} = 0; \; \frac{d^{2}f}{dx^{2}} \Big|_{R} < 0 \end{split}$$

- Q.31 Which of the following is **NOT** a proximate explanation for group cohesion among animals?
  - (A) Animals follow a common path while foraging
  - (B) Animals follow their nearest neighbor while foraging
  - (C) Animals reduce predation while foraging
  - (D) Animals secrete pheromones to attract conspecifics while foraging
- Q.32 Which of the following statements is **LEAST** likely to explain the evolution of dispersal?
  - (A) Dispersal enhances chances of finding novel habitats
  - (B) Dispersal regulates population densities
  - (C) Dispersal reduces parent-offspring conflict
  - (D) Dispersal reduces sibling conflict

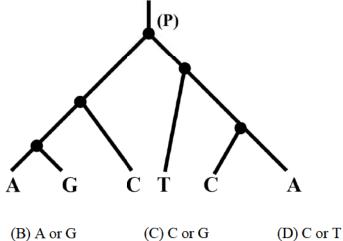
EY 10/20

Q.33 Which of the following plots describes the expected relationship between population size (y-axis) and generation time (x-axis) in vertebrates? Here, each data point represents a different vertebrate species and the generation time is defined as the average interval between two generations.



EY 11/20

Q.34 Six different species of centipedes represented by the following phylogenetic tree have these single nucleotide polymorphisms (SNPs) at a given locus. Assuming maximum parsimony (or minimum evolutionary changes), what is the most likely nucleotide in the ancestor 'P'?

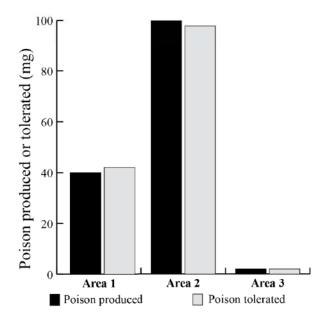


(A) A or C

(B) A or G

EY 12/20

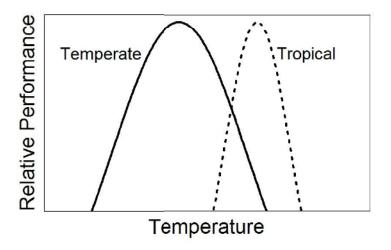
Q.35 Garter snakes have evolved resistance to the poisonous secretions of the rough-skinned newts. The following figure describes poison production in newts and the resistance (measured as amount of poison tolerated) in garter snakes in three different geographical areas. Given this information, which of the following statements is correct regarding the evolution of poison resistance in garter snakes?



- (A) Evolution of resistance is neutral
- (B) Snakes in Area 2 are more adapted than the others
- (C) Snakes in Area 3 are less adapted than the others
- (D) The resistance mechanism is costly
- Q.36 Many bird species show cooperative breeding. Offspring are cared for by parents and other individuals (helpers) who are typically offspring from previous years. Which of the following is NOT an appropriate evolutionary explanation for why helpers do not leave and breed on their own?
  - (A) At high population density new breeding territories are difficult to obtain and helpers gain more from staying and helping than from dispersing to breed
  - (B) In environments where resources are scarce, helpers gain more by suppressing their reproduction and minimizing population extinction than from dispersing to breed
  - (C) When complex parental care is required for offspring survival, helpers gain more by staying and learning to care than from dispersing to breed
  - (D) When predation risk during dispersal is high, helpers gain more by staying and helping than from dispersing to breed

EY 13/20

Q.37 The relative performance of amphibians adapted to tropical (dashed line) and temperate (solid line) climates as a function of temperature is shown below. Assume that global warming will result in an equal increase in mean temperatures over the next 30 years in both regions. Which of the following statements about the effects of global warming on these two amphibians is most likely?



- (A) Temperate and tropical amphibians will be similarly impacted
- (B) Temperate amphibians will be more negatively impacted than tropical amphibians
- (C) Tropical amphibians will be more negatively impacted than temperate amphibians
- (D) Tropical amphibians will be positively impacted, while temperate amphibians will be negatively impacted
- Q.38 Global warming potential of different greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, etc) is determined by their:

P: ability to absorb infrared radiation

Q: concentration in the atmosphere

R: residence time in the atmosphere

S: source of origin (whether natural, or anthropogenic)

(A) P & R only (B) P, Q & R only (C) Q, R & S only (D) Q & S only

EY 14/20

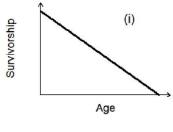
Q.39 A hornbill foraging exclusively on figs in a tropical forest spends an average of 36 minutes on a tree before moving to the next tree. The density of fig trees in the forest decreases by half. In accordance with optimal foraging theory, which of following represents a possible duration (in minutes) that the hornbill may spend per tree?

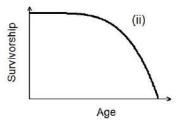
- (A) 6
- (B) 18
- (C) 36
- (D) 54

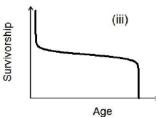
Q.40 Type-I errors in statistical tests represent false positives, where a true null hypothesis is falsely rejected. Type-II errors represent false negatives where we fail to reject a false null hypothesis. For a given experimental system, increasing sample size will

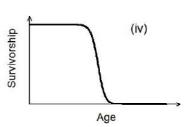
- (A) decrease both Type-I and Type-II errors
- (B) decrease Type-I and increase Type-II errors
- (C) increase both Type-I and Type-II errors
- (D) increase Type-I and decrease Type-II errors

Q.41 Semelparous species are those that produce all of their offspring in a single reproductive event. The survivorship curve of a population of a semelparous species would most likely resemble which of the following?









(A) i

(B) ii

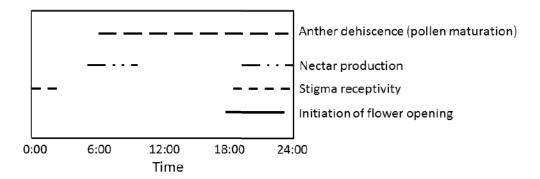
(C) iii

(D) iv

EY 15/20

Q.42 Bergmann's rule describes the increase in body size observed in related organisms as we go from the equator to the poles. Which of the following is a possible explanation for this pattern?

- (A) Decreased body mass in smaller organisms helps generate less heat
- (B) Decreased surface area to volume ratios in larger organisms helps conserve heat
- (C) Increased body mass in the poles is necessary to counter increased competition
- (D) Increased surface area in larger organisms helps efficient gas exchange in the poles
- Q.43 To estimate the number of foxes in an area, a researcher conducted a mark-recapture survey. In the first survey, he caught and marked 90 foxes. In his second survey a week later, he caught 120 foxes of which 40 were marked (recaptures). If you are told that the actual number of foxes in this area is 400, which of the following is a plausible explanation for the anomaly in the researcher's data?
  - (A) Capture increased mortality in the marked foxes
  - (B) Large mortality of foxes between the two surveys
  - (C) The marked foxes were more likely to avoid recapture
  - (D) The marked foxes were more likely to be recaptured
- Q.44 Which one of the statements below best describes a plant species with the timing of reproductive events shown in the following figure?



- (A) The plant does not require animal pollinators
- (B) The plant relies on diurnal pollinators only
- (C) The plant relies on diurnal and nocturnal pollinators
- (D) The plant relies on nocturnal pollinators only

EY 16/20

Q.45 Match species in column A to its phylogenetically closest relative in column B.

	Column A		Column B
(P)	Sperm whale	(V)	Sea anemone
(Q)	Corals	(W)	Guinea Pig
(R)	Platypus	(X)	Cuttlefish
(S)	Sea hare	(Y)	Hippopotamus
(T)	Prairie dog	(Z)	Echidna
(A) P - W; Q - V; R - Z;	S - X; T - Y	(B) P - Y;	Q - V; R - Z; S - X; T - W
(C) $P - W$ ; $Q - X$ ; $R - Z$ ;	S - X; T - Y	(D) P - Y;	Q - V; R - Z; S - W; T - X

- Q.46 Under which of the following conditions is rapid pollen tubes growth most likely to evolve?
  - (A) In a self-compatible species with few ovules
  - (B) In a self-compatible species with many ovules
  - (C) In a self-incompatible species with few ovules
  - (D) In a self-incompatible species with many ovules
- Q.47 Which of the following correctly represents a decreasing order of tree species richness?
  - P Dry tropical forests in Maharashtra
  - Q Lowland wet tropical forests in Anunachal Pradesh
  - R Scrub forest in Rajasthan
  - S Wet tropical forests in Kerala

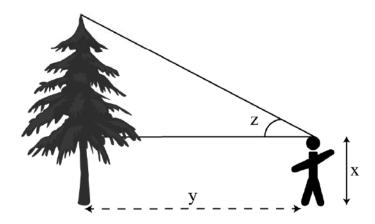
(A) 
$$Q > R > S > P$$

(B) 
$$Q > S > P > R$$

(C) 
$$S > P > Q > R$$

(D) 
$$S > Q > R > P$$

Q.48 A forester, pictured below, is trying to measure the height of a tree. Her height is x = 1.5 m. She stands y = 10 m away from a tree, from where the angle subtended to the top of the tree is  $z = 45^{\circ}$ . The height of the tree is \_\_\_\_\_ m (round off to 1 decimal place).



Q.49 In a recently discovered fossil, only 0.39% of  $C^{14}$  found in living fossils is present. If the half-life of  $C^{14}$  is 5730 years, the age of the fossil is expected to be \_\_\_\_\_ years (round off to the nearest integer).

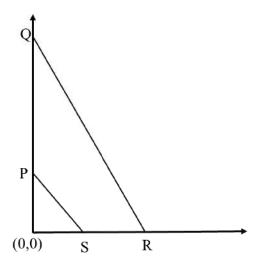
Q.50 A beaker contains a large number of spherical nuts of two types, one with radius 1 cm and the other with 2 cm, in the ratio 2:1. A squirrel picks one nut from a random point in this beaker. Assuming that the beaker is well-mixed, the probability of picking the smaller nut is \_\_\_\_\_ (round off to 1 decimal place).

Q.51 In a closed population following logistic growth, per capita birth rate b and per capita death rate d vary with population size N as b = 0.1 - 0.0001N and d = 0.01 + 0.00002N, respectively. The carrying capacity K of this population is \_\_\_\_\_ individuals.

EY 18/20

Q.52 A population of birds has a 3:2 male to female adult sex ratio at the beginning of the breeding season. During the breeding season, every female produces 8 eggs of which 4 survive to become juveniles. A census at the end of the breeding season accurately estimates the bird population to be 1300 individuals. Assuming no deaths, the number of adult males in this population is \_\_\_\_\_\_ individuals.

Q.53 The coordinates of P is (0,1), Q is (0,3), R is (2,0) and S is (1,0). The area of the trapezoid PQRS is (round off to 1 decimal place).



Q.54 Trees in two patches A and B can disperse seeds to a bare patch C. The probability of a seed being dispersed from A to C is 0.5 and the probability of germination of such a seed is 0.1. Likewise, the probability of a seed being dispersed from B to C is 0.4 and the probability of germination of such a seed is 0.2. If the number of seeds produced in patch A is 100 and that in B is 200, the expected number of germinated seeds in patch C is

EY 19/20

Q.55 A bacterial population grows from  $10^6$  cells to  $5.5 \times 10^7$  cells in 20 minutes. Assuming that the growth was not resource limited, the per-capita growth rate of bacteria is \_\_\_\_ per minute (round off to 2 decimal places).

END OF THE QUESTION PAPER

EY 20/20

Q.No.	Туре	Section	Кеу	Marks
1	MCQ	GA	С	1
2	MCQ	GA	С	1
3	MCQ	GA	С	1
4	MCQ	GA	С	1
5	MCQ	GA	Α	1
6	MCQ	GA	С	2
7	MCQ	GA	Α	2
8	MCQ	GA	С	2
9	MCQ	GA	В	2
10	MCQ	GA	D	2
1	MCQ	EY	В	1
2	MCQ	EY	С	1
3	MCQ	EY	А	1
4	MCQ	EY	D	1
5	MCQ	EY	D	1
6	MCQ	EY	С	1
7	MCQ	EY	D	1
8	MCQ	EY	A	1
9	MCQ	EY	В	1
10	MCQ	EY	С	1
11	MCQ	EY	В	1
12	MCQ	EY	В	1

Q.No.	Туре	Section	Кеу	Marks
13	MCQ	EY	В	1
14	MCQ	EY	С	1
15	MCQ	EY	С	1
16	MCQ	EY	С	1
17	MCQ	EY	Α	1
18	MCQ	EY	С	1
19	MCQ	EY	В	1
20	MCQ	EY	В	1
21	MCQ	EY	D	1
22	MCQ	EY	В	1
23	MCQ	EY	В	1
24	NAT	EY	65.9 to 66.1	1
25	NAT	EY	0.24 to 0.26	1
26	MCQ	EY	В	2
27	MCQ	EY	В	2
28	MCQ	EY	В	2
29	MCQ	EY	D	2
30	MCQ	EY	С	2
31	MCQ	EY	С	2
32	MCQ	EY	В	2
33	MCQ	EY	В	2
34	MCQ	EY	A	2

Q.No.	Туре	Section	Кеу	Marks
35	MCQ	EY	D	2
36	MCQ	EY	В	2
37	MCQ	EY	С	2
38	MCQ	EY	В	2
39	MCQ	EY	D	2
40	MCQ	EY	D	2
41	MCQ	EY	С	2
42	MCQ	EY	В	2
43	MCQ	EY	D	2
44	MCQ	EY	D	2
45	MCQ	EY	В	2
46	MCQ	EY	С	2
47	MCQ	EY	В	2
48	NAT	EY	11.49 to 11.51	2
49	NAT	EY	45800 to 45900	2
50	NAT	EY	0.19 to 0.35	2
51	NAT	EY	750 to 750	2
52	NAT	EY	300 to 300	2
53	NAT	EY	2.49 to 2.51	2
54	NAT	EY	21 to 21	2
55	NAT	EY	0.19 to 0.21	2