

M.Sc Wildlife Biology and Conservation
National Entrance Test – 2009
13 December 2009

QUESTION BOOK

All questions in Sections A to D carry 1 mark each
 Answer all Sections

SECTION A. (Answer all questions)

1. Match the following heads of state with the corresponding countries.

- | | |
|---------------------|---------------------|
| A. Asif Ali Zardari | I. France |
| B. Hamid Karzai | II. Afghanistan |
| C. Nicolas Sarkozy | III. United Kingdom |
| D. Gordon Brown | IV. Pakistan |

- | | |
|-------------------------------------|-----------------------------------|
| a. A – I, B – III, C – IV, D – II | c. A – II, B – III, C – IV, D – I |
| b. A – IV, B – II, C – I, – D – III | d. A – II, B – I, C – III, D – IV |

2. Match the following sports with sportsperson:

- | | |
|-----------------------|------------------------|
| A. Squash | I. Jaspal Rana |
| B. Formula One racing | II. Jyoti Randhawa |
| C. Golf | III. Dipika Pallikal |
| D. Shooting | IV. Narain Karthikeyan |

- | | |
|-------------------------------------|-----------------------------------|
| a. A – I, B – III, C – IV, D – II | c. A – II, B – III, C – IV, D – I |
| b. A – IV, B – II, C – I, – D – III | d. A – III, B – IV, C – II, D – I |

3. Match the following Union Ministers with their portfolio:

- | | |
|---------------------|--------------------------|
| A. Pranab Mukherjee | I. Environment & Forests |
| B. A.K. Antony | II. Home Affairs |
| C. P.Chidambaram | III. Defense |
| D. Jairam Ramesh | IV. Finance |

- | | |
|-------------------------------------|-----------------------------------|
| a. A – IV, B – III, C – II, D – I | c. A – II, B – III, C – IV, D – I |
| b. A – IV, B – II, C – I, – D – III | d. A – III, B – IV, C – II, D – I |

4. Match the following states with corresponding capital:

- | | |
|-----------------|-------------|
| A. Chhattisgarh | I. Imphal |
| B. Jharkhand | II. Patna |
| C. Bihar | III. Ranchi |
| D. Manipur | IV. Raipur |

- a. A-III, B-I, C-IV, D-II
b. A-IV, B-III, C-II, D-I
- c. A-III, B-IV, C-II, D-I
d. A-IV, B-II, C-I, D-III
5. The proposed Indo-US nuclear deal, which has been a subject of considerable debate recently, is about the supply of:
- a. Low enriched Uranium
b. Enriched Thorium
c. High enriched Uranium
d. Enriched Plutonium
6. Match the following States with the rivers that flow through them.
- | | |
|-------------|-----------------|
| A. Cauvery | I. Orissa |
| B. Teesta | II. Gujarat |
| C. Tapti | III. Tamil Nadu |
| D. Mahanadi | IV. Sikkim |
- a. A - I, B - III, C - IV, D - II
b. A - IV, B - III, C - II, D - I
- c. A - III, B - IV, C - II, D - I
d. A - III, B - I, C - IV, D - II
7. Arrange the following Indian states in the order of *increasing* infant mortality:
- | | |
|--------------------|------------------|
| I. Kerala | III. West Bengal |
| II. Andhra Pradesh | IV. Bihar |
- a. I, II, III, IV
b. IV, II, III, I
- c. II, IV, I, III
d. I, II, IV, III
8. Match the following books with their authors:
- | | |
|-----------------------------|-----------------------|
| A. Fall of the Sparrow | I. Rachel Carson |
| B. An Inconvenient Truth | II. Salim Ali |
| C. India's Wildlife History | III. Al Gore |
| D. Silent Spring | IV. Mahesh Rangarajan |
- a. A-IV, B-I, C-II, D-III
b. A-IV, B-II, C-I, D-III
- c. A-II, B-III, C-I, D-IV
d. A-II, B-III, C-IV, D-I
9. A hundred hectares is equal to:
- a. 10 km²
b. 100,000 m²
- c. 247.1 acres
d. 2471.1 acres
10. In the ODI Cricket series in October – November 2009, between India and Australia:
- a. India won the series 4-2
b. India lost the series 2-4
- c. India lost series 2-5
d. India lost the series 3-4

11. The major goal of the Climate Conference which would take place in Copenhagen in December 2009 is to:
 - a. Replace the Kyoto Protocol on global warming, which is ending in 2012.
 - b. Replace the Montreal Protocol on substances that deplete the ozone layer.
 - c. Reach agreement on reducing the use of fossil fuel, a major cause of climate change.
 - d. Impose restrictions carbon emission in USA.

12. The 2009 Nobel Peace Prize was awarded to the US President Barrack Obama for:
 - a. His extraordinary efforts to strengthen international diplomacy and cooperation between peoples.
 - b. Initiating peace talks with Iraq and Afghanistan.
 - c. Leadership in dealing with global economic recession.
 - d. Being the first black American President.
13. Choose three Indian states affected by Maoist movement in recent months:
 - a. West Bengal, Orissa and Madhya Pradesh
 - b. Orissa, Jharkhand and Uttar Pradesh
 - c. Orissa, West Bengal and Jharkhand
 - d. Bihar, Orissa and Uttar Pradesh
14. The maximum strength of the Lok Sabha envisaged by the Constitution is:
 - a. 552
 - b. 425
 - c. 625
 - d. 500
15. Subprime crisis, a major reason for the recent economic crisis, refers to:
 - a. A sudden drop in TV viewership during prime time, leading to huge losses to advertisers and a sharp decline in the sale of goods and services.
 - b. The ongoing real estate and financial crisis triggered by a dramatic rise in mortgage delinquencies and foreclosures in U.S.A.
 - c. A sudden drop in prime lending rates in banks due to intense competition, leading to huge losses to banks in Europe and U.S.A.
 - d. A sharp decline in employment of people in their prime, due to swine flu.

SECTION B. (Answer all questions)

1. From the two sentences below choose the sentence that has the better English style.
 - a. For making a gold ring, it involves several complex steps.
 - b. Making a gold ring involves several complex steps.
2. From the two sentences below choose the sentence that has the better English style.
 - a. Choose a form of exercise which you like and which is suitable for your age, it is beneficial to your health.
 - b. It is beneficial to your health to choose a form of exercise which you like and which is suitable for your age.

3. Only one of the options below is a completely correct sentence, in terms of English grammar or word choice. Pick the correct option.
- The party leader, who was only recently elected; delivered an inspiring speech.
 - Accept for me everyone was wearing a sari,
 - If you want to get on in life, you must be ready to cease the day.
 - English has acquired words from many other languages.
-
4. Only one of the options below is a completely correct sentence, in terms of English grammar or word choice. Pick the correct option.
- The doctor's waiting room was overflowing with patience.
 - The trees that lined the road provided shade to the devotees who were walking to the temple.
 - Rohan could not possibly have seen the movie, because he were already gone.
 - The tiger, who is found in many parts of the country, is the national animal of India.
-
5. Only one of the options below is a completely correct sentence, in terms of English grammar or word choice. Pick the correct option.
- The husband removed all the items that could remember him of his wife.
 - Many people like to start the day by drinking a cup of strong coffee.
 - Throughout the entire lesson, the teacher did not talk to nobody in the classroom.
 - The travel brochure provided much informations about the Lakshadweep Islands.
6. Organize the statements below into the following sequence: Observation – Hypothesis – Prediction, by labeling them as O, H and P, respectively.
- During their evolution, peacocks with large, fancy tails have had greater success in attracting peahens.
 - The peacock has an extremely long and elaborately-coloured tail.
 - If the tail of a peacock is trimmed, he should be found less attractive by peahens.
- I II III
- H O P
 - O P H
 - P H O
 - P O H

Many people die while mountaineering. Therefore, the government should ban it.

7. What assumption is made in the argument above?
- Governments should ban anything that is enjoyable.
 - A government should discourage people from engaging in activities that have a very high risk of death.
 - People can make sensible decisions without the need for intervention by the government.
 - Mountaineers do not need to be safety-conscious because that it is the government's responsibility.

8. The argument above might be strengthened if it could be shown that:
- 90% of the people in mountaineering parties fall to their death.
 - Mountaineers are mostly anti-government.
 - Mountaineers are mostly pro-government.
 - Government ministers are less intelligent than mountaineers.

A tiger is the perfect pet because it will protect you better than any other animal.

9. Which of the statements below would be most suitable as a counter-argument to the opinion expressed above?
- It is cruel to keep any animal as a pet.
 - Many people keep pets for protection.
 - Pet tigers have frequently attacked their owners.
 - A tiger is not an animal, it is a mammal.
10. Which of the sentences below presents a logically valid argument?
- If the moon were made of cheese, moon rocks could be fed to mice.
 - Given that trees are green, we can conclude that trees are photosynthetic organisms.
 - The fact that we must first put food in our mouth before we can eat it proves that anything we put in our mouth must be food.
11. Two men, starting at the same point, walk in opposite directions for 4 meters, turn left and walk another 3 meters. What is the distance between them?
- 2 meters
 - 6 meters
 - 10 meters
 - 12.5 meters
12. Match the following antonyms:
- | | |
|--------------|-----------------|
| A. ephemeral | I. straight |
| B. impede | II. lasting |
| C. crooked | III. facilitate |
- A-I, B-III, C-II
 - A-III, B-I, C-II
 - A-II, B-I, C-II
 - A-II, B-III, C-I
13. In a contest, four fruits (an apple, a banana, an orange, and a pear) have been placed in four closed boxes (one fruit per box). People may guess which fruit is in which box. 123 people participate in the contest. When the boxes are opened, it turns out that 43 people have guessed none of the fruits correctly, 39 people have guessed one fruit correctly, and 31 people have guessed two fruits correctly. How many people have guessed three fruits correctly, and how many people have guessed four fruits correctly?
- 8, 7
 - 7, 3
 - 5, 6
 - 10, 10

14. Identify the two statements necessary to make the conclusion in the beginning of the question true.

Nisarg is swimming.

- a. Nisarg is in the pool during the winter.
- b. Nisarg is in the pool.
- c. Swimming takes place in the pool during the winter.
- d. All the boys in the pool are swimming.

15. Identify the two statements necessary to make the conclusion in the beginning of the question true.

A is south-west to C.

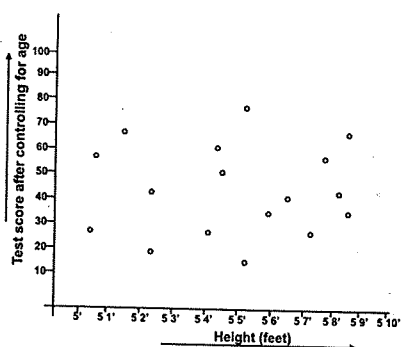
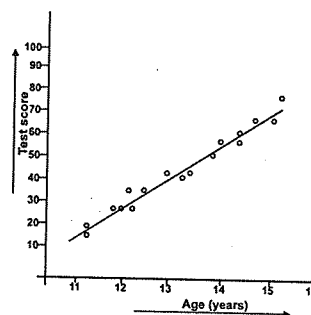
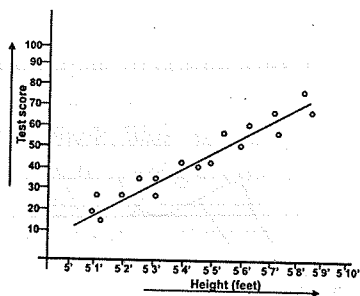
- I. A is two miles south of B.
- II. B is two miles east of D.
- III. C is two miles east of B.
- IV. D is North-west of A.

- a. I & III
- b. II & III
- c. II & IV
- d. I & IV

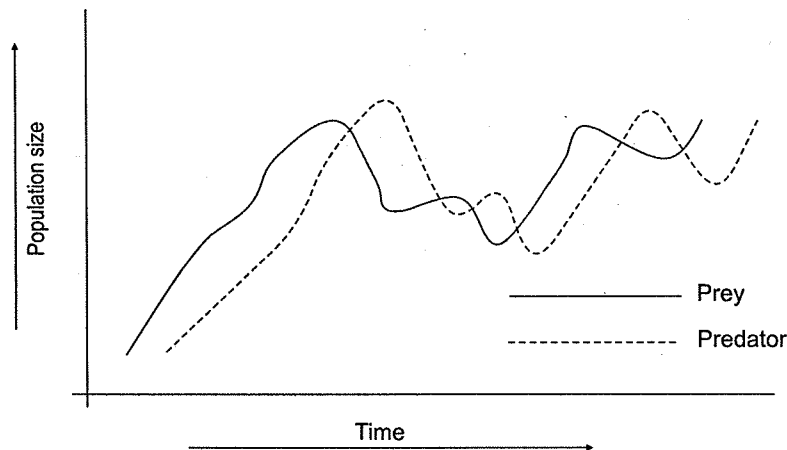
SECTION C. (Answer all questions)

1. A biologist counted 400 skipper frogs (*Euphlyctis cyanophlyctis*) in a lake, and using statistical techniques, determined that she had counted only 80% of the frogs that were present. The true number of frogs in the lake was:
 - a. 320
 - b. 500
 - c. 480
 - d. 475
2. Express 0.00389 as a percent
 - a. 3.89%
 - b. 0.0389%
 - c. 0.389%
 - d. 0.0000389%
3. Mayuresh's batting average is 3.2 runs/ over, with a standard deviation of 0.12. Nisarg's batting average is 3.8 runs/ over, with a standard deviation of 1.8. As the skipper, you need to decide which one to send in to bat, given that your team needs to score 24 runs in 8 overs to win. What do you decide, and why?
 - a. Mayuresh, because his mean run rate is slightly above the required run rate, and he is very consistent.
 - b. Nisarg, because his mean run rate is well above the required run rate, thus ensuring that your team will score the required runs well within the available 8 overs.

- c. Either, it does not matter either way.
- d. Neither; you choose Girish (a new player), whose mean and standard deviation of run rate are unknown.
4. The probability that *Syzygium densiflorum* occurs in a *shola* patch in the Nilgiris is 0.46, while the probability that *S. tamilnadensis* occurs in a *shola* patch is 0.36. The probability that *S. densiflorum* occurs, given that *S. tamilnadensis* occurs, is 0.22. This implies that:
- S. densiflorum* competitively excludes *S. tamilnadensis* from *shola* patches.
 - S. densiflorum* occurrence is independent of *S. tamilnadensis* occurrence
 - S. densiflorum* occurrence is dependent on *S. tamilnadensis* occurrence
 - The occurrence of the two species is mutually exclusive.
5. Students from classes 6 through 10 in a Bangalore school were administered a mathematics test. Before the test, each student's height was measured and his/ her age was recorded. Please look at the figures below, which graphically depict the results of statistical analyses carried out on the data. Based on these figures, one can conclude that:



- a. Mathematical ability increases with height; height is not related to age.
 b. Mathematical ability increases with age; the apparent relationship of mathematical ability with height is an artefact of the fact that height is correlated with age.
 c. There is no variation in mathematical ability between students.
 d. Neither age nor height explains any of the variation in mathematical ability.
6. A biologist tells you that in a population of white-bellied shortwings (*Brachypteryx major*) in the Anamalais, the probability that an individual caught in a mist net is male equals 0.247. Assuming that males and females are equally likely to be caught, this means that:
- a. Each individual is about three-fourths female and about a fourth male
 b. The sex ratio (female: male) in the population is approximately 3:1
 c. About a quarter of all males are caught on each trapping occasion.
 d. All of the above.
7. A biologist has been studying predator-prey dynamics in a population of lynx and its main prey, the snowshoe hare. Over time, the population trajectories look like this:



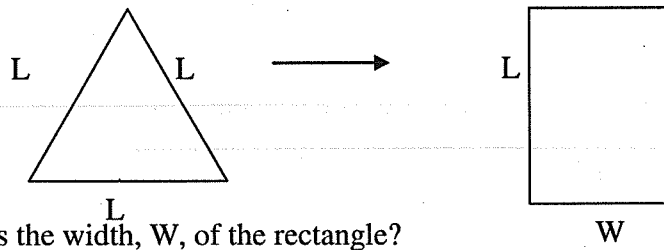
This suggests that:

- a. Snowshoe hare population size is determined by the amount of plant food available.
 b. Both predator and prey population sizes are determined directly by mean annual precipitation
 c. Snowshoe hare population size is very strongly determined by the size of the lynx population
 d. Lynx population size is very strongly determined by the size of the snowshoe hare population, with a time-lag in the response of the predator to prey population size.

8. According to a news report in September 2009, Corbett National Park has an average of one tiger for every 8 sq. km. If the total area of the park is 52,000 ha, how many tigers would one expect in the Park?
- a. 650
b. 165
c. 35
d. 65
9. You have to design a tourist enclave within the forest, with an area of roughly 8,000 sq.m. This enclave must be surrounded by expensive electrified fencing to keep elephants out. What shape and size would you choose for the enclave in order to keep the length of the perimeter (and therefore fencing costs) to a minimum?
- a. square of side 90 m
b. square of side 2,000 m
c. circle of radius 50 m
d. circle of radius 125 m
10. We want to know female camp elephants fed a dietary supplement give birth to calves that heavier than those born to females not fed the supplement. After analyzing the data, our conclusion should depend on:
- a. how different the mean birth weight is between the groups
b. the degree of within-group variation in birth weight
c. both a and b
d. neither
11. You intend to colour-ring Red-vented Bulbuls for your study on their breeding behaviour. On each individual, you plan to put one colour-ring on each leg. If you have black, blue, red, green, yellow, and white rings, how many individuals can you mark with a unique colour combination?
- a. 6
b. 12
c. 36
d. 72
12. Express $\frac{4}{50}$ in decimals
- a. 0.02
b. 0.04
c. 0.08
d. 0.2
13. We have four patches of forests with the following composition of species, which have been given numbers for the sake of convenience.
- | | | | |
|-----|---------------------------|------|----------------|
| I. | 11, 10, 12, 14, 15, 1, 18 | III. | 24, 23, 22 |
| II. | 2, 3, 11, 12, 13, 9 | IV. | 1, 2, 15, 3, 9 |
- If you are asked to have a minimum set of forest patches that would include all species, which patches would you chose?
- a. I, II, and IV
b. I, III, and IV
c. I, II, and III
d. All four patches
14. In a population of 30,000 people, 12% were affected by an epidemic disease, and 3% of the affected died. Determine the number of persons who died due to the disease.

- a. 108
b. 4500
- c. 2700
d. 10800
15. The sum of 3 consecutive integers is 78, find the largest integer.
a. 26
b. 52
c. 27
d. 54
16. If one of the sides of a right angle triangle is 3 and the other is 5, the length of the hypotenuse is:
a. $\sqrt{34}$
b. 34
c. $\sqrt{8}$
d. $\sqrt{3} + \sqrt{5}$

17. A wire bent into a triangular frame is reshaped into a rectangle as shown below:



What is the width, W , of the rectangle?

- a. $\sqrt{3}L/2$
b. $L/2$
c. L
d. $\sqrt{3}L/2$
18. In a small tea shop, the average profit was Rs 500 per day over a 10 day period. During this period, if the average daily profit was Rs 360 per day for the first 6 days, what was the average daily profit for the last 4 days?
a. Rs 500
b. Rs 550
c. Rs 560
d. Rs 480
19. You are rolling two dice at the same time, one green and one red. What is the probability that you will role the dice such that the sum of the numbers is eleven?
a. 0.027
b. 0.055
c. 0.305
d. 0
20. A poultry farm has only chickens and pigs. When the manager of the poultry counted the heads of the stock in the farm, the number totaled up to 200. However, when the number of legs was counted, the number totaled up to 540. How many chickens were there in the farm?
a. 70
b. 120
c. 60
d. 130

SECTION D. (Answer all questions)

1. Match the following:

A. Sunderbans Tiger Reserve	I. Assam
B. Namdapha Tiger Reserve	II. Arunachal Pradesh
C. Kaziranga National Park	III. Meghalaya
D. Balphakram National Park	IV. West Bengal

a. A-IV, B-I, C-II, D-III	c. A-III, B-II, C-IV, D-I
b. A-IV, B-II, C-I, D-III	d. A-IV, B-III, C-I, D-II

2. The tiger reserves from where the tiger was reported extinct recently are:

a. Periyar and Panna	c. Ranthambore and Sariska
b. Sariska and Panna	d. Ranthambore and Bandipur

3. The Wildlife (Protection) Act, 1972:
 - a. Extends protection to forests.
 - b. Protects endangered species of wild animals and plants.
 - c. Allows hunting of animals.
 - d. Prevents international trade in wildlife products.

4. Endemic species are those that:
 - a. Are native to a certain area.
 - b. Were native to a certain area, but no longer occur there.
 - c. Are found in a certain area and nowhere else.
 - d. Have been introduced to a certain area from elsewhere.

5. Given below are the numbers of species in four taxa reported from India. Match taxa with the number of species.

A. Flowering plants	I. 420 species
B. Amphibians	II. 1300 species
C. Mammals	III. 15000 species
D. Birds	IV. 230 species

a. A-III, B-I, C-IV, D-II	c. A-II, B-I, C-IV, D-III
b. A-III, B-IV, C-I, D-II	d. A-IV, B-I, C-II, D-III

6. Match the following birds with the states in which they occur:

A. Narcondam Hornbill	I. Gujarat
B. Jerdon's Courser	II. Andhra Pradesh
C. Lesser florican	III. Andaman & Nicobar

- a. A-I, B-III, C-II
b. A-II, B-I, C-III
- c. A-III, B-I, C-II
d. A-III, B-II, C-I
7. Which of the following is NOT a dicot Family?
a. Loranthaceae
b. Polygonaceae
c. Orchidaceae
d. Malvaceae
8. The three species of crocodilians found in India are:
a. Alligator, Salt-water Crocodile and Nile Crocodile
b. Alligator, Mugger and Gharial
c. Caiman, Gharial and Mugger
d. Gharial, Mugger and Salt-water crocodile.
9. A landscape species is defined as one that requires a large area to meet its ecological needs, relies on a heterogeneous array of habitats, and is culturally and economically significant to the local human population. Which among the following species would you choose as a landscape species?
a. Leopard
b. Marsh crocodile
c. Elephant
d. Bonnet monkey
10. Carbon fertilization refers to which of the following:
a. Artificial addition of carbon-rich compounds to rainforest soils to improve fertility.
b. A technique used in captive breeding of musk deer
c. Increased biomass production as a result of higher levels of CO₂ in the atmosphere.
d. Reaction between CO₂ and water vapour to produce carbonic acid which falls as acid rain.
11. It is planned to translocate some Asiatic lions from Gir Wildlife Sanctuary to Palpur-Kuno in Madhya Pradesh. This is because:
a. There is an over population of lions in Gir.
b. Lions in Gir are in serious conflict with livestock owners around the Sanctuary.
c. Gir has the only surviving population of Asiatic lions, which is at risk of extinction from disasters such as a disease outbreak.
d. Gujarat government wants to lease out the Sanctuary for mining.
12. What species of bird new to science was described in 2006 from Eaglenest Wildlife Sanctuary in Arunachal Pradesh?
a. *Bugun liocichla*
b. Mishmi wren babbler
c. Silver-eared mesia
d. Fire-tailed myzornis
13. Khichan village in the Jodhpur district, Rajasthan witnesses large congregations of which migratory wild species?
a. Lesser flamingo
b. Rosy pelicans
c. Demoiselle crane
d. Desert wheatear

14. Rank the following species in *decreasing* order of their geographic range within India
 I. Nilgiri langur, II. Leopard, III. Asiatic lion, IV. Bonnet macaque
- I-III-II-IV
 - IV-I-II-III
 - II-IV-I-III
 - IV-II-III-I
-
15. Singara in the Nilgiri Mountains is the site of a conservation battle regarding
- Open cast mining
 - Hydro-electric
 - Highways closure at night
 - Neutrino observatory
-
16. Smooth-coated, small-clawed and Eurasian are all common names of species of:
- Eagle
 - Weasel
 - Otter
 - Fruit bat
-
17. Match the following animals with their habitats:
- | | |
|-------------------------|-------------------------------|
| A. Great Indian Bustard | I. Moist grasslands |
| B. Bengal Florican | II. Dry grassland |
| C. Serow | III. Rivers |
| D. Gharial | IV. Temperate montane forests |
- A-II, B-I, C-IV, D-III
 - A-I, B-II, C-IV, D-III
 - A-IV, B-II, C-I, D-III
 - A-II, B-IV, C-III, D-I
-
18. Recently the Government of India set up an agency to strengthen the efforts for the conservation of tigers. This agency is called:
- Tiger Task Force
 - Tiger Protection Force
 - National Tiger Conservation Authority
 - National Wild Life Board
-
19. According to IUCN Red List criteria, a species would be classified as Endangered, if it meets one or more of the following criteria: (1) a 50-80% decline in population, inferred or estimated, during the past 10 years; (2) it occurs in an area of less than 20,000 sq. km; or (3) a total adult population of less than 2500 animals. Which one among the following would you NOT call an Endangered species, based the above criteria, if you apply these only to the Indian population?
- Tree pie
 - Great Indian bustard
 - Jerdon's courser
 - White-backed vulture

20. Arrange the following states in order of increasing forest cover: Arunachal Pradesh, Maharashtra, Goa, Punjab.
- Punjab, Goa, Maharashtra, Arunachal Pradesh
 - Goa, Punjab, Arunachal Pradesh, Maharashtra
 - Maharashtra, Punjab, Arunachal Pradesh, Goa
 - Punjab, Maharashtra, Goa, Arunachal Pradesh
-
21. Which of the following trees are exotic to India?
- Jacaranda
 - Jackfruit tree
 - Peepal tree
 - Flame of the forest tree
22. Glacial surface temperature is project to increase by 1 to 3.5°C by 2100 AD and sea level is expected to rise 15 to 95 cm. The latter is due to:
- Glacial ice melt
 - Expansion of sea water
 - a & b
 - Increased rainfall
23. *Arribaba* is:
- A tribal festival in Orissa associated with ritual hunting of wild animals.
 - The mass nesting of Olive ridley turtle, which occurs in the coast of Orissa.
 - The mass migration of whales from the southern to the northern hemisphere.
 - The mass fruiting of dipterocarp trees in Borneo
24. Which is a biodiversity hotspot in India?
- Eastern Himalaya
 - Sunberbans
 - Central Indian highlands
 - Rann of Kutch
25. National parks and wildlife sanctuaries cover about of the geographical area of India.
- 50%
 - 15%
 - 5%
 - 1%

SECTION E. Write an essay (in English) of not more than 700 words on one of the following. The essay would be evaluated only on the first 700 words. No additional sheets would be given for writing this essay. Please note that the essay would be evaluated only if you obtain a minimum of 40% for Sections A to D together.

1. You are very concerned about the Greater Indian Hornbill, which is facing imminent extinction in our country. You undertake a trip to the Namdapha National Park in eastern Arunachal Pradesh, one of the best areas where this beautiful bird can be protected. The main threat to the bird here is a certain tribe that regularly hunts these birds for meat and feathers. The people of this tribe have considered hornbill meat a delicacy over the centuries that they have lived here while the feathers form their headdress, an extremely important component of this tribe's cultural identity. What would be your possible arguments for and against the conservation of the hornbill in this area and how, if at all, would you attempt to protect this population of the bird?

2. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 grants legal recognition to the rights of traditional forest dwelling communities, and makes a beginning towards giving communities and the public a voice in forest and wildlife conservation. What in your opinion are the implications of this Act for the conservation of wildlife in India.
