SUB CODE:EN1T1   **SUB:ENGLISH - I**

Duration: 3Hours   **Max Marks:100**

Part A

Answer all the Questions: **(20X1=20)**

I Choose the correct synonym for the following words:

1. Plague   - a) calamity b) success   c) concern
2. Deluge   - a) indirect b) nuisance   c) overflow
3. Viable   - a) torrent b) genuine   c) feasible,
4. impediment   - a) workable   b) holdback   c) hopeless

II Match the following:

5. Megalomania – impulse to set fire
6. Dipsomania   - stealing for pleasure
7. Kleptomania - alcoholism
8. Pyromania   - power ('I' thinking)

III Fill in the blanks with suitable tenses:

9. He ___(leave) an hour ago
10. I ____(live) here for a month
11. It ____(rain) all night.
12. He _____(fail) last year.

IV Add Prefix and suffix to the given words:

13. ___ comfort__   14. __program__
15. __agree___   16. ___place___

V Fill in the blanks with suitable articles 'a', 'an' and 'the':

17. I met ___ honourable man.
18. Yesterday I saw ____ one-eyed man.
19. There is ___ Eskimo along the tourists.
20. He is ___ cleverest boy in the class

Part B

Answer all the Questions: **(5X6=30)**

1.Frame your own sentences using the given words:

a. volatile b) myth   c) douse   d) nodal e) defy f) paradox (**OR**)
b. **Give the meaning of the following words**:
    a) gynophobia b) agrophobia c) xenophobia d)egomania e) ergophobia f) bibliomania.

2. a) Analyse the following sentences into S,V,O,C and A.

i)   My uncle bought me a bicycle.
ii)   New Delhi is the capital of India
iii)   We have made john our cricket captain

Construct sentences after the following patterns: iv) SVOA v) Please VOO
 vi) SVOO   **OR**
b) **Fill in the blanks with proper tense of the words in brackets:**

i)   She ____ (go) to Delhi Yesterday

ii) I ___(do) a lot of work today.

iii) The baby ____ (cry) all morning.

iv)I _____(wait) at the station for her since 10 o'clock

3.a.) What is the advice that Shaw gives to foreign speakers of English?

OR

b) What was 'the most extraordinary thing' that the bank manager heard from Foreman
and how did he react?

4. The line graph below gives information about the number of visitors to three London museums between June and September 2013. Summarise the information by selecting and reporting the main features, and make comparisons where relevant. Write in at least 150 words.

Number of visitors per month in summer, 2013 (in thousands)

(OR)
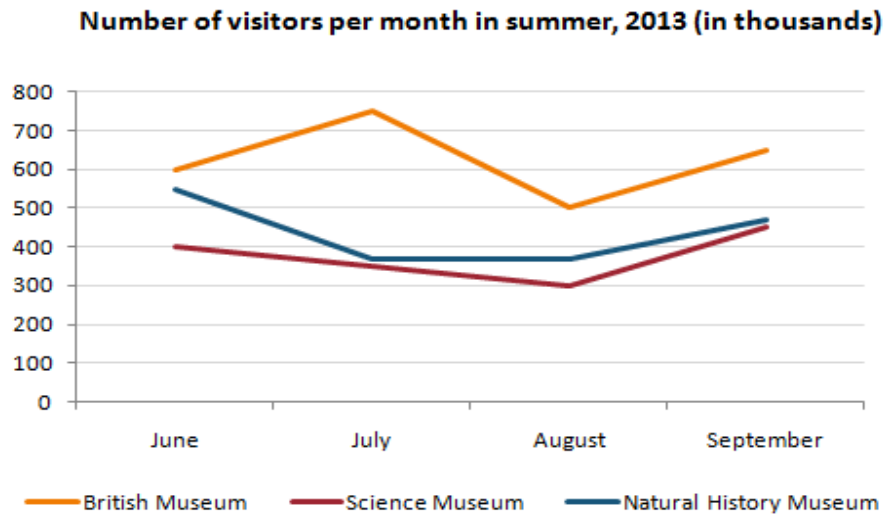
b) Expand the following **Acronyms**: i) NATO ii) Laser iii) SEM iv) UHV
v) WRF vi) UNICEF

5) **Dialogue Writing**:

a. Write a conversation between the General Manager and the Director of a
Company (Invent Details). **OR**

b) Write a conversation between a Customer and Shopkeeper (Invent Detail).

Part – C   5X10=50

1. **Write an essay in about 150 words on any one topic:**
   a) Energy conservation Or b) Globalization
                  (1X10=10)

2. a) **Use Suitable Preposition**:
             (1X5=5)
   i.   We laughed ____ her dress.
   ii.   He introduced me ____ his uncle.
   iii. He fought ____ his enemies.
   iv.   Satish has failed _____ English.
   v.   He is tired ____ this life.

   Transform the Adjective into Nouns: (1X5=5)
   vi.   Capable   vii. Difficulty viii. Obedient ix. deep x. Fair

                          OR

b. **Rewrite the following sentences, inserting or omitting Articles wherever necessary**:   (5X1=5)

i) Rohit has to catch train at Arkonam to go to the Mumbai.

ii) Men at meetings no longer treat the women as the inferiors.

iii) Some people prefer sending the fax message to talking over a phone.

iv) The gold is more valuable than the lead.

v) Oil is the very expensive now.

Identify the correctly spelt words in the following list:

                          (5X1/2=21/2)

vi) comprehansion vii) morphalogy viii) anthropology ix) Amalgemation

x) contradiction

Syllabify the following word by drawing vertical lines after each syllable: **(5X1/2=21/2)**

xi) Interesting   xii) remember xiii) retirement xiv) hesitated xv) perennial

3. a. Comment on Huxley's views on 'The Beauty Industry'? **OR**

b. Narrate how the Verger became a rich man.

4. The pie chart shows the percentage of women in poverty and the bar chart shows poverty rates by sex and age. They are from the United States in 2008.

Summarize the information by selecting and reporting the main features and make comparisons where relevant. Write at least 150 words.
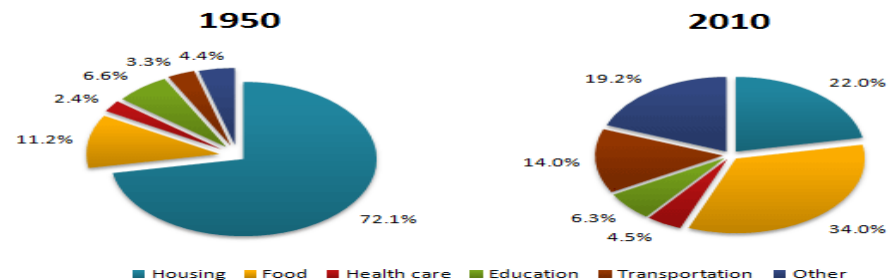
Women in poverty: family composition of household

- Single women with no dependent children — 26%
- Married women with no dependent children — 8%
- Married women with dependent children — 12%
- Single women with dependent children — 54%

Source: U.S. Census Bureau, *Current Population Survey, 2008 Annual Social and Economic Supplement.*

OR

b) The pie charts below show the average household expenditures in a country in 1950 and 2010. Summarise the information by selecting and reporting the main features, and make comparisons where relevant. Write in least 150 words. Average Household Expenditures   by   Major   Category

1950

- 72.1%
- 11.2%
- 2.4%
- 6.6%
- 3.3%
- 4.4%

2010

- 22.0%
- 34.0%
- 4.5%
- 6.3%
- 14.0%
- 19.2%

■ Housing   ■ Food   ■ Health care   ■ Education   ■ Transportation   ■ Other

5. **a) Draft an advertisement for the following:**

i) Sightseeing tour for 3 days, 5 days and 7 days travel schedule.

ii) Sale of two bed room apartment in Chennai   **Or**

b)Expand the following **Acronyms** i) ADIDAS   ii) AGA iii) PST   iv) Radar v) CIA vi) ESPN   vii) MLA viii) ASLV ix) ISS x) NCAR

B.E./B.TECH. DEGREE EEXAMINATIONS

SEMESTER – I

MODEL QUESTION PAPER

Sub Code: CH1T3   **SUB: ENGINEERING CHEMISTRY**
Duration: 3 Hrs.   **Maximum Marks: 100**

Answer all the questions   **(10 x 2 = 20)**

1. Calculate the entropy change for expansion of 5 moles of an ideal gas inside a Thermos flask.

2. What is meant by chemical potential?

3. What happens to the half-life period of a second order reaction if the concentration of the reactant is doubled?

4. How the Arrhenius equation is useful in calculating the energy of activation of a reaction?

5. List out the factors affecting the TGA curves.

6. What are the limitations of Beer-Lambert's law?

7. Define galvanic series.

8. What are corrosion inhibitors? Give examples.

9. Write the structures of (i) PP (ii) PVC.

10. The properties of materials in the bulk form and nano form are widely differing – Explain.

Answer all the questions   **(5 X 16 = 80)**

11. a. Derive entropy changes in isothermal expansion of an ideal gas.(10)
    b. Derive the relationship between equilibrium constant of a reaction and temperature (6)

(OR)

12. a.Derive Clausius-Clapeyron equation and give its applications. (10)
    b.What is partial molar free energy? Derive the Gibbs-Duhem equation (6)

13. Derive the expression for the rate constant of the reactions
    i) 3A → products (8)   ii) A ⇌ B (8)

(OR)

14. Derive Michaelis- Menton equation for an enzyme catalyzed reaction. (16)

15. Describe the theory and instrumentation of UV-Vis spectroscopy and discuss its applications. (16)

(OR)

16. Discuss the principle and working of TGA and give its applications. (16)

17. What are the factors influencing corrosion. (16)

(OR)

18. a)What is electrochemical series and give its applications. (8)
    b)How the corrosion is controlled by cathode protection and sacrificial anode method. (8)

19. a)Write the mechanism of addition polymerization. (8)
    b)Explain the condensation polymerization with example. (8)

(OR)

20. How the nanoparticles are synthesized by top-down and bottom-up approaches? (16)

SUB.CODE :PH1T3   **SUB.NAME: ENGINEERING PHYSICS**
Time : 3 hours   **Maximum : 100 marks**

Answer all questions: **(10x2=20)**

1. Define stress and strain.
2. Explain the factors that affect elasticity of a material.
3. What is piezoelectric effect?
4. A cinema hall has a volume of $7500m^2$, it is required to have reverberation time of 1.5 sec. What should be the total absorption in the hall?
5. Define population inversion in lasing action?
6. What are step index and graded index optic fiber?
7. Define percentage packing fraction of crystals.
8. Draw (1 0 1) and (2 1 1) planes in a simple cubic crystals.
9. What are dielectric materials? Mention some applications of dielectrics.
10. What are Nano materials?

Answer ALL questions: **(5 X 16 = 80)**

11. Obtain an expression to determine the time period of a torsional pendulum and obtain its Rigidity modulus.
                              (OR)
12. Obtain an expression for Young's modulus of a rectangular beam by cantilever depression method.
13. Define reverberation time. Derive an expression for it using Sabine's formula.
                              (OR)

14. Describe Magnetostriction oscillator method of generating ultrasonic waves.
15. Describe the construction and working of CO2 laser.
                              (OR)

16. Derive an expression for numerical aperture and acceptance angle in optical fiber.
17. Determine atomic radius and packing factor for FCC crystal structure.

                              (OR)
18. Obtain an expression for inter planar distance for simple cubic lattice with given Miller indices (h k l).
19. Explain synthesis of nano materials by ball milling method.
                              (OR)

20. Explain internal field of a dielectric material and obtain Claussius - Mossotti equation.

B.E./B.TECH. DEGREE EEXAMINATIONS

SEMESTER – I

MODEL QUESTION PAPER

SUB.CODE :ME1T4   **SUB.NAME: Basic Civil and Mechanical Engg.**

Time : 3 Hours   **Maximum: 100 Marks**

Answer all questions: **(10x2=20)**

1. State and explain Hooke's law.
2. What are the three basic principles of surveying.
3. Define "Bearing Capacity" & "Safe bearing capacity" of a soil.
4. State the classification of bricks based on strength.
5. Define cement.
6. What is a fire tube boiler?
7. What is the source of power in a hydro power plant?
8. Is there a spark plug in a diesel engine? Why?
9. Mention any two defects in casting.
10. How does boring differ from drilling?

Answer all questions: **(5x16=80)**

11. a) List out the Engineering properties and uses of bricks. **(8)**

    b) What are the constituents of cement and explain their functions. **(8)**

                        (OR)

12. a) What are the requirements of foundation. **(8)**

    b) What are the requirements of good flooring and State the purpose of plastering? **(8)**

13. A Copper rod of 20 mm diameter is acted upon by an axial pull of 60 KN. The rod elongates by 0.3mm over a gauge length of 150mm. The reduction in diameter is 0.0125mm. Find the values of Poisson's ration, Young's modulus, Bulk modulus, Rigidity modulus. **(16)**

                        (OR)

14. a) What are the various types of dams and write the factors considered for the selection of dams. **(10)**

    b) Find the quadrant bearings of the following whole circle bearing.(6)

    i) AP-$48^0$30'   ii) AQ-$132^0$1'   iii) AR-$195^0$00'

    iv) AS-$300^0$45'

15. Explain in detail the functioning of Lancashire boiler with neat sketch.

                        (OR)

16. With a neat layout explain the working of a nuclear power plant

17. Discuss in detail the working of a four stroke petrol engine

                        (OR)

18. Discuss in detail the various defects formed due to casting process

19. Explain the complete process of gas welding and discuss about the various types of gas flames formed.

                        (OR)

20. Discuss any eight operations performed in lathe with suitable diagrams.

SUB CODE: **EE1T4**
SUBJECT: **BASIC ELECTRICAL AND ELECTRONICS ENGINEERING**

TIME: **3 Hours**   MAX MARKS: **100**

**Answer All Questions**   **(10 X 2=20 Marks)**

1. Define electric current?
2. State the Faraday's electromagnetic Induction law?
3. Mention the Significance of operator j?
4. Given that the current in a given circuit is 3.90 - 6.04j mA and the impedance is 5.16 + 1.14j kΩ, find the magnitude of the voltage.
5. Define the power factor
6. What is the phase sequence?
7. List out the common diode applications?
8. Convert $(100001110.010)_2$ to decimal.
9. What is modulation?
10. Write the expression for modulation index?

Answer All Questions   **(5 X 16= 80 Marks)**

11. Find the current through the 3Ω resistor in the circuit shown below
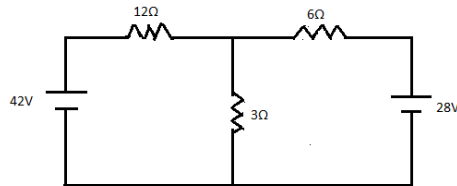
(OR)

12. Write a short note on
    (i) statically induced emf.
    (ii) dynamically induced emf.
    (iii) self inducedemf.
    (iv) mutually induced emf.

13. Two impedance given by Z_1=10+j5 & Z_2=6+j8 and are joined in parallel and across a voltage of V=200+j0 volts. Calculate the circuit current, its phase & branch currents, pf. Dram the vector Diagram.

(OR)

14. (i) Add the following vectors A=20∠60°, B=5∠30° . Draw the phase diagram.
    (ii) The following three vectors are given A=20+j20, B=30∠120° & C=10+j0. Find AB/C.
    (iii) Find the cube of the vector 5∠45°
    (iv) Write the equivalent exponential & polar forms of vector 5+j6.

15. Briefly describe two wattmeter method for the measurement of power & power factor.

(OR)

16. Three impedances each of (15-j20)Ω are connected in mesh across a 3-phase 400V AC supply.
    Determine the phase current, line current, active power &reactive power drawn from the supply.

17. (i) Convert $(29)_{10}$ into an equivalent hexadecimal number.
    (ii) Convert $(307.206)_8$ into decimal number.
    (iii) Draw the circuit of full adder & obtain its truth table.
    (iv) Prove the following Boolean identity
    $A+\bar{A}B = A+B$

(OR)

18. (i) Write a short note on transistor.   (10)
    (ii) Write a brief note on counter.   (6)

19. Explain how amplitude modulation is done with a neat diagram.

(OR)

20. Draw the block diagram of satellite communication system & explain.

SUB CODE : MA1T2   SUB: BASIC MATHEMATICS FOR ENGINEERS - I

Max. Time : 3.00 hrs

Max. marks : 100

Answer all the questions

(10 x 2 =20)

1. Using properties find the sum and product of the gien values of $A = \begin{bmatrix} 1 & 2 & -2 \\ 1 & 0 & 3 \\ -2 & -1 & -3 \end{bmatrix}$

2. If $A = \begin{bmatrix} 1 & 0 \\ 0 & 5 \end{bmatrix}$ write A^3 interms of A and I , using Cayley-Hamilton theorem.

3. State the iterative formula for Newton's method.

4. Find where the positive root lies for $f(x) = x^4 - 10$.

5. Solve $(D^2+2D+1)= 0$.

6. Find the stationary point of $f(x, y) = xy + \dfrac{9}{x} + \dfrac{3}{y}$.

7. Solve $x^3 \dfrac{d^3y}{dx^3} + 2x^2 \dfrac{d^2y}{dx^2}$ - x$\dfrac{dy}{dx}$ + y=0

8. Solve $\dfrac{dx}{dt}$ - y=0, $\dfrac{dy}{dt}$ + y =0

9. Prove that $\text{div}\left(\dfrac{\vec{r}}{r}\right) = \dfrac{2}{r}$.

10. If $\emptyset$ is a scalar point function, prove that $\nabla\emptyset$ is solenoidal and irrotational if $\emptyset$ is a solution of Laplace equation.

Answer all the questions   **(5 x 16 = 80)**

11. Find the eigen values and eigen vectors of the matrix $A = \begin{bmatrix} 2 & 2 & 0 \\ 2 & 1 & 1 \\ -7 & 2 & -3 \end{bmatrix}$ hence find the eigen

values of A^2,5A and A^{-1} using properties.

(OR)

12. (i) Solve the following system by Cramer Rule

$x + y + z = 3; x + 2y + 3z = 4; x + 4y + 9z = 6.$

(ii) If $A = \begin{bmatrix} 1 & 0 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$, find A^{-1} and A^4 using Cayley-Hamilton theorem.

13. (i) Find the positive root of $f(x) = x\tan x + 1$. correct to four decimal point using bisection method.

(ii) Find the positive root of $f(x) = x^3 + x^2 - 1$. correct to Three decimal point using Horner's method.

(OR)

14.   (i) Find the positive root of $x^3 + x^2$-1=0 by Iterative method.
(ii) Find the positive root of $x\log_{10}x - 1.2 = 0$. using False position method.

15. (i) If $u = \sin^{-1}\left[\dfrac{x^2 + y^2}{x + y}\right]$ prove $x\dfrac{\partial u}{\partial x} + y\dfrac{\partial u}{\partial y} = \tan u$

(ii) Find the jacobian of y_1, y_2, y_3 with respect to x_1, x_2, x_3 if

$y_1 = \dfrac{x_2 x_3}{x_1}, y_2 = \dfrac{x_3 x_1}{x_2}, y_3 = \dfrac{x_1 x_2}{x_3}.$

(OR)

16. (i) Expand $x^2 y + 3y - 2$ in powers of $(x - 1)$ and $(y + 2)$ using Taylor's expansion.

(ii) Solve $\dfrac{d^2y}{dx^2}$ - 6$\dfrac{dy}{dx}$ + 9y = $6e^{3x}+ 7e^{-2x}$ - log2

17. Solve $(D^2 + 4)$ y = sec2x by the method of variation of parameters .

(OR)

18. Solve $(3x + 2)^2 \dfrac{d^2y}{dx^2} + 3(3x+2)\dfrac{dy}{dx}$ - 36y = $3x^2 + 4x + 1$

19. (i) Find the angle between the surfaces $x\log z = y^2 - 1$ and $x^2 y = 2 - z$ at the point (1,1,1).

(ii) Prove $\vec{F} = (y^2\cos x + z^3)\vec{\imath} + (2y\sin x - 4)\vec{\jmath} + 3xz^2\vec{k}$ is irrotational and find its scalar potential

(OR)

20. (i) Determine $f(r)$ so that the vector $f(r)\vec{r}$ is solenoidal

(ii) Find a unit vector normal to the surface $x^2 - y^2 - z = 10$ at (1,1,1)

SUB.CODE : CS1T5   **SUB. NAME : COMPUTER PROGRAMMING**

TIME: 3 Hours   **Max Marks : 100**

PART – A

ANSWER ALL THE QUESTIONS   **10 x 2 = 20**

1. Convert $(100001100)_2$ into Hexadecimal?
2. Define Booting and its types?
3. What is the use of Decision making statement?
4. Define Data type?
5. List out the types of storage classes in C?
6. Difference between call by value and call by reference?
7. What is the use of address of operator?
8. What is the difference between string and character?
9. Define Pre-processor directive?
10. What are the difference types of modes in file processing?

ANSWER ALL THE QUESTIONS   **5 x 16 = 80**

11. Explain Briefly about any 8 DOS commands with syntax and example?

(or)

12. Explain briefly about generation of Computer?

13. Explain the various decision making mechanism in C ?

(or)

14. Write a C Program to swap two number without using temporary variable and write algorithm and flowchart?

15. What is recursion ? Write a any C Program using recursion?

(or)

16. Explain briefly about various storage classes in C language?

17. Write "C" Program for the following concepts?
    a. Call by value
    b. Call by reference

(or)

18. Define union. Explain union in details with an example program?

19. What is a macro? Explain how macro can be to replace a function?

(or)

20. Explain about the file read, write and append operations in C with suitable code?

SUB.CODE : ME1T6   SUB: ENGINEERING GRAPHICS
Time : 3 Hours   Maximum: 100 Marks

Answer all questions: **(5x20=100)**

1. Draw the projection of points on a common reference line. Take 30 mm distance between the projectors.
   i) Point A is 15 mm above H.P. and 25 mm infront of V.P.
   ii) Point B is 15 mm above H.P. and on the V.P.
   iii) Point C is 25 mm below H.P. and 20 mm behind V.P.
   iv) Point D is 15 mm below H.P. and 25 mm infront of V.P.
   v) Point E is on the reference line.

                               (OR)

2. A straight line 85 mm long has one end 15 mm infront of V.P. and 10 mm above H.P. while the other end is 50 mm infront of V.P. and 45 mm above H.P. Draw the plan and elevation of the line. Determine the inclinations of the line to H.P. and V.P.

3. Draw the projections of a cube of 45 mm side resting on one of its corners in the H.P. with a solid diagonal perpendicular to V.P.

                               (OR)

4. A square prism of base side 30 mm and 60 mm high rests on H.P. with one of its base edges such that the rectangular surface containing this edge makes 40^0 with the H.P. The axis of the prism appears to make 30^0 with V.P. Draw the projections of the prism.

5. A hexagonal pyramid of base side 25 mm and axis 70 mm is resting on the ground on its base with a base edge parallel to V.P. It is cut by two cutting planes starting from a point on the axis 35 mm above the base. One is perpendicular to V.P. and parallel to H.P. and the other is perpendicular to V.P. and 40^0 to the H.P. Draw sectional plan.

                               (OR)

6. A hexagonal pyramid of base side 35 mm and axis length 100 mm is resting on H.P. on its base with two sides of base perpendicular to V.P. It is cut by a plane inclined at 45^0 to V.P. and perpendicular to H.P. and is 10 mm away from the axis. Draw its top view, sectional front view and true shape of section.

7. Draw the three views of the object shown in fig.
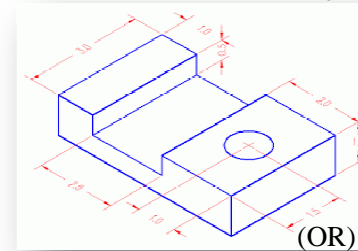
                               (OR)

8. A cylinder of diameter 40 mm, height 75 mm is cut by a plane perpendicular to V.P. inclined at 55^0 to H.P. meeting the axis at the top face. Draw the lateral development of solid.

9. A hexagonal prism of base side 30 m and height 65 mm has a square hole of side 20 mm at the centre. The axes of the square and hexagon coincide. One of the faces of the square hole is parallel to a face of the hexagon. Draw the isometric view of the prism with the hole to full scale.

                               (OR)

10. A Point A is 15 mm behind PP and 25 mm above G.P. The central plane is 30 mm to the left of the point. The station point is 35 mm in front of PP and 40 mm above G.P. Draw the perspective view of a point.

B.E./B.TECH. DEGREE EEXAMINATIONS

SEMESTER – I

MODEL QUESTION PAPER

SUB CODE: CH1T6   SUBJECT: ENVIRONMENTAL SCIENCE

Time: 3Hours   Maximum: 100 marks

Answer all the questions   (10 x 2 = 20)

1. What are the components of environment?

2.   Define Anthropocentrism.

3. What is the motto of Narmada bachao andolan.

4. Give the food chain for grassland ecosystem.

5. Define hot-spot and list the hot-spots in India.

6. What is Biomagnification?

7. List the reasons for over exploitation of resources.

8. What are the different types of water pollution?

9. What are the objectives of forest conservation act?

10. What is the aim of Kyoto Protocol.

Answer all the questions   (5 x 16 = 80)

11. a) 11.Write short notes on the importance, scope and aim of environmental studies (8)
    b) Write a brief note on the various Indian environmental movements. (8)

(OR)

12. a) What are the elements of sustainable development? How sustainability can be measured.(8)
    b) Explain the response of world community towards environmental problems(8)

13. a) Explain ecological succession**(8)**
    b) Explain carbon cycle (8)

(OR)

14. a) India a mega diversity nation-justify(8)
    b) Write short notes on various threats to biodiversity (8)

15. a) Explain the values of forest. (8)
    b) Discuss solar energy as an alternative energy resource. (8)

(OR)

16. a) Write short notes on i) Forest conservation act (8)
    b) Explain about urbanization and its effects (8)

17. Explain about the sources and effects and control measures of noise pollution **(16)**

(OR)

18. Write an essay about disaster management.

19. Write short notes on
        i) The Copenhagen UNFCCC summit
        iii) genetically modified organisms

(OR)

20. Write short notes on resettlement and rehabilitation – issues involved in Kodaikanal mercury case & Tawa Matsya sang.