Model questions for the 1st Internal

There will be no MCQ in the question paper. However, questions of the 1st Internal are to be set from the practice MCQ given below.

Practice MCQ: Noise pollution

1. Two fans are generating $1W$ noise each. The total noise power level is
(a) 123 dB, (b) 73 dB, (c) 113 dB, (d) 93 dB.

2. Calculate the average of the following noise levels
70 dBA, 58 dBA, 62 dBA, 80 dBA, 49 dBA, 76 dBA
(a) 69.24 dB, (b) 61.01 dB, (c) 74.04 dB, (d) 56.25 dB.

3. High frequency noise is responsible for
(a) low blood pressure, (b) easy verbal communications,
(c) damaging CNS, (d) damaging bones and joints.

4. UHF sound wave is not used
(a) in MRI scan machine, (b) to determine surface flaws of metals,
(c) to determine depth of ocean, (d) in USG scan machine.

5. When more than one noise level is active in a given area, which one of the following is true?
(a) L_{10} index is used to measure the noise level.
(b) $Lepn$ index is used to measure the noise level.
(c) NTLV is used to measure the harmfulness of noise level.
(d) L_{eq} is used to measure the noise level.

6. Noise dose limit value of noise level 82 dB is
(a) 32 hrs., (b) 17.85 hrs., (c) 20.56 hrs., (d) 24.25 hrs.

7. In a given area two noise levels, 90 dB and 120 dB are active. Intensity ratio of these noise levels is
(a) 100, (b) 1000, (c) 10, (d) 10000.

8. In a given area the following noise levels are active.
(a) 87 dB for 67 min, (b) 90 dB for 12 min, (c) 80 dB for 92 min and (d) 76 dB for 124 min.
The value of L_{eq} is
(a) 82.16 dB, (b) 80.95 dB, (c) 83.67 dB, (d) 78.02 dB

9. In a given area sound intensity is measured at a distance of 6 m as well as 12 m from the source. The corresponding loudness values are L_1 and L_2 respectively. Then the difference $(L_1 - L_2)$ is
(a) 2 dB, (b) 4 dB, (c) 6 dB, (d) cannot be determined.

10. Acoustic materials are used to
(a) control damaging equipment, (b) control damaging floors and walls,
(c) reduce noise pollution, (d) protect human body against UV radiations.

11. What is the dB of threshold hearing?
(a) 0 dB, (b) 10 dB, (c) 50 dB, (d) 100 dB

12. In a given area two noise levels, 87 dB and 92 dB are active. The total noise level is
(a) 179 dB, (b) 89.5 dB, (c) 122.8 dB, (d) 93.2 dB.

13. Which one of the following is true?
(a) Rail traffic noise is not harmful to human health.
(b) dB scale of noise is used to express noise level in airports.
(c) L_{90} noise index value is larger than L_{10} noise index value.
(d) dB scale of noise level follows additive rule.

14. In echocardiography machine which one of the following is used?
(a) $X-ray$, (b) UV, (c) NMR, (d) UHF sound wave.

15. For a given sound source the intensity level is measured 86 dB at a distance of 6 m from the source (point A) and 80 dB at a distance of 12 m from the source (point B). Then which one of the following is true?
(a) SWL value at the point A is greater than that at the point B.
(b) SWL value at the point A is same as that at the point B.
(c) SWL value at the point A is less than that at the point B.
(d) The difference between SWL values at these two points is 3 dB.

16. In airports what will be the maximum permissible noise level in day-time?
(a) 120 $PNdB$, (b) 90 $PNdB$, (c) 100 $PNdB$, (d) 95 $PNdB$.

17. If a point source develops free progressive waves and the sound pressure level is 78 dB at 8.5 m from the source, the sound power level of the source is
(a) 107.58 dB, (b) 111.5 dB, (c) 98.2 dB, (d) 115.6 dB

18. Noise in an area is measured as follows: 100 $dB(A)$ for 30 min/day, 90 $dB(A)$ for 4 hr/day and 70 $dB(A)$ for 5 hr/day. Noise dose limit values for 100 $dB(A)$ is 2 hrs., 90 $dB(A)$ is 8 hrs. and 70 $dB(A)$ is any time. The existing environmental condition is
(a) Just healthy, (b) Sufficiently healthy, (c) Unhealthy, (d) Cannot say.

19. UHF sound wave is used
(a) in MRI scan machine, (b) in ECG machine,
(c) in USG machine, (d) in X-ray scan machine.

20. The minimum sound pressure that the human ear can detect is
(a) 10 Pa, (b) 20 μPa , (c) 2 μPa, (d) 200 μPa

21. The sound pressure at which sensation of pain is experienced is
(a) 60 Pa, (b) 100 μPa , (c) 200 μPa, (d) 60 μPa

22. The noise level at a distance 10 m from a sound source is 90 dB. Then what would be the noise level if the distance is 30 m?
(a) 90 dB, (b) 86.43 dB, (c) 85.23 dB, (d) 80.46 dB.

23. Which one of the following noise-meter is used to measure noise level in residential area?
(a) $L_{10} - index$, (b) $Lepn - index$, (c) $L_{eq} - index$, (d) $L_{av} - index$.

24. Which one of the following is used to measure the peak value of the noise level?
(a) $L_{10} - index$, (b) $Lepn - index$, (c) $L_{eq} - index$, (d) $L_{av} - index$.

25. Which one of the following belongs to the occupational noise category?
(a) Fire-cracker noise, (b) Traffic-horn,
(c) Loud speaker noise, (d) Lathe-machine noise.

26. Noise dose limit of the noise level 92 dB is
(a) 6 hrs., (b) 8 hrs., (c) 4 hrs., (d) 9 hrs.

27. In a given area different noise levels are measured as: $L_{10} = 95\ dB$ and $L_{90} = 82\ dB$. What is the TNI of that area?
(a) 84 dB, (b) 112 dB, (c) 104 dB, (d) 92 dB

TNI=4(L30-L90)+(L90-30)

28. The noise level at zero dB, the measured noise intensity is
(a) 0 W/m^2, (b) 1 W/m^2, (c) 10 W/m^2, (d) 10^{-12} W/m^2.

29. Which one of the following is true?
(a) dB-scale can be used to measure noise level at 1 kHz frequency only.
(b) The maximum audible sound frequency is 2 kHz.
(c) $Lepn - index$ is introduced by the organisation ICAO.
(d) Lower the noise level lower the noise dose limit.

30. Which one of the following is not the adverse effect of noise pollution?
(a) Changing sleeping pattern, (b) Damaging Kidneys.
(c) Damaging Bones, (d) Malfunctioning of CNS.

31. Acceptable noise level in a Bank premises is
(a) 80 – 90 dB, (b) 50 – 60 dB, (c) 70 – 80 dB, (d) 60 – 70 dB

32. The noise level depends on
(a) frequency as well as intensity of noise.
(b) frequency as well as duration (in hrs.) of noise.
(c) intensity as well as duration (in hrs.) of noise.
(d) frequency, intensity as well as duration (in hrs.) of noise.

33. "Green Muffler" is related to
(a) Soil pollution, (b) Air pollution, (c) Water pollution, (d) Noise pollution.

Planting trees 4 – 6 rows surrounding polluted areas or noisy places is called "Green Muffler". Plants are absorbing high, low and medium frequency noises.

Answer Key

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1	A	10	C	19	C	28	D
2	C	11	A	20	B	29	C
3	D	12	D	21	A	30	B
4	A	13	A	22	D	31	B
5	C	14	D	23	C	32	A
6	D	15	B	24	B	33	D
7	B	16	A	25	D		
8	B	17	A	26	A		
9	C	18	B	27	C		

Practice MCQ on Greenhouse Effect

1. The earth is facing heavy storms and heat waves very often due to
(a) increased acid rain, precipitated on earth. (b) increased noise pollution.
(c) Regular depression at the seal level. (d) global warming

2. Normal greenhouse effect is essential for sustenance of life on Earth as it has raised the surface temperature of earth by
(a) 15℃, (b) 33℃, (c) −18℃, (d) 50℃.

3. Which one of the following gases is responsible for maximum contribution in global warming?
(a) carbon dioxide, (b) nitrous oxide,
(d) sulphur hexafluoride, (d) methane.

4. Which one of the following is not the naturally occurring GHG
(a) methane, (c) carbon dioxide, (c) ozone, (d) CFC

5. The most visually striking evidence of global warming is
(a) The increased precipitation along the Gulf coast states
(b) Highly varying temperature fluctuations felt during the winter months
(c) Rapid melting of glacial ice on nearly every continent.
(d) Ozone layer depletion

6. Greenhouse effect refers to
(a) Ability of atmosphere to retain water vapor.
(b) Ability of certain atmospheric gases to trap heat and keep the planet relatively warm.
(c) Ability of cloud to scatter electromagnetic radiation.
(d) Ability of atmosphere to reflect solar radiation to space.

7. Which of the following gas does not contribute to the global warming?
(a) Methane, (b) sulphur dioxide, (c) carbon dioxide, (d) acetylene

8. Kyoto protocol was first implemented globally in
(a) 2005, (b) 1992, (c) 1994, (d) 1997.

9. In which of the following planets GHE is found minimum?
(a) Earth, (b) Jupiter, (c) Mars, (d) Neptune.

10. Life on Mars does not exist because
(a) The planet is too hot. (b) Atmosphere does not contain sufficient GHG.
(c) There is no water in the planet. (d) The atmosphere contains huge amount of GHG.

11. The average surface temperature of the planet Jupiter ($\lambda_{max} = 69.33 \times 10^{-5}\ cm$) is
(a) 145℃, (b) 162℃, 131℃, (d) 157℃.

12. Calculate the solar flux of the planet Jupiter ($d = 779 \times 10^{9}\ m$).
Given: , $k = 3.087 \times 10^{25}\ Watt$
S. Flux=k/d^2
(a) 126.27 W/m^2, (b) 187.12 W/m^2, (c) 50.87 W/m^2, (d) 84.28 W/m^2.

13. Which of the following is true?
(a) Higher the value of GWP, higher the warming efficiency.
(b) Lower the value of GWP, higher the warming efficiency.
(c) Higher the value of GWP, higher the contribution in global warming.
(d) Shorter the lifetime of a GHG in the atmosphere, higher the contribution of that GHG in global warming.

14. If there were a little or negligible amount of CO_2 with high percentage of O_2 in the earth atmosphere, which one of the following is true?
(a) The surface temperature of the Earth would have been too high to have any existence of life on Earth.
(b) The surface the Earth would have been too cold to have any existence of life on Earth.
(c) Albedo of the Earth would have been much less than 0.3.
(d) Solar flux, received by the Earth surface would have been much higher than the present value, i.e., 1372 W/m^2.

15. Which one of the following statements is not true?
(a) All GHGs are equally effective in trapping radiations.
(b) Nitrous oxide has more warming potential than methane.
(c) Ozone is a GHG.
(d) Solar flux of a given planet depends on distance between the Sun and the planet.

16. Which one of the following is not true?
(a) In Mars life does not exist due to absence of greenhouse effect.
(b) Ozone is considered as GHG.
(c) GHG is responsible for global warming.
(d) GWP of N_2O gas is less than that of CO_2 and hence contribution to global warming is less in case of N_2O than in case of CO_2.

17. Which one of the following is not considered as adverse effect of global warming?
(a) Melting of ice caps.
(b) Decrease in DO content of water reservoir.
(c) Increase in CO_2 concentration in atmosphere.
(d) Increase in water level height in coastal areas.

18. Which one of the following is true about black body?
(a) It absorbs all the radiations, striking on its surface.
(b) Absorbed radiations follow Wien's displacement law.
(c) It is responsible for greenhouse effect.
(d) Emitted radiations follow Wien's displacement law.

19. Which one of the following relations is true?
(a) $S \propto \frac{1}{d}$ (b) $S.d^2 = Constant,$ (c) $S \propto d^2,$ (d) $\frac{S}{d} = Constant.$

20. The unit of Stephen-Boltzmann's constant is
(a) $W.m^{-2}T^{-2},$ (b) $W.m^{-1}T^{-4},$ (c) $W.m^{-2}T^{-4},$ (d) $W.m^2T^{-4}.$

21. Which one of the following is not true?

(a) Montreal protocol is related to greenhouse effect.

(b) GHG is responsible for global warming.

(c) Higher the GWP, higher the warming efficiency.

(d) GWP of nitrous oxide is higher than that of methane.

22. Wavelength range of trapped radiations by GHG is

(a) $40 - 50\ \mu m$, (b) $10 - 30\ nm$, (c) $6 - 28\ \mu m$, (d) $3 - 40\ mm$.

Answer key

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1	D	7	D	13	A	19	B
2	B	8	A	14	B	20	C
3	A	9	C	15	A	21	A
4	D	10	B	16	D	22	C
5	C	11	A	17	C		
6	B	12	C	18	D		

Exercises

1. Identify the adverse effect of high frequency noise
(i) low blood pressure, (ii) easy verbal communications (iii) damaging CNS,
(iv) changing sleeping pattern, (v) damaging bones and joints.

2. In a given area the following noise levels are active.
(i) 87 dB for 57 min, (ii) 90 dB for 12 min, (iii) 80 dB for 82 min and (iv) 76 dB for 144 min. Calculate *L*eq in that area.

3. In a given area sound pressure level is measured 0.5 Pa. Calculate the noise level in dB. Given reference sound pressure level is 20 μPa.

4. Calculate *L*eq using the following information
L_1 = 86 $dBA\ for$ 10 min, L_2 = 90 $dBA\ for$ 20 min, L_3 = 50 $dBA\ for$ 90 min

5. Calculate the average of the following noise levels
70 dBA, 58 dBA, 62 dBA, 80 dBA, 49 dBA, 76 dBA

6. In a given area the following noise levels are active: 76 dB, 80 dB, 83 dB and 73 dB. Calculate the total loudness in that area.

Notes:

1. There will be no MCQ in the 1st Internal Paper. However, questions are to be set on the basis of MCQ sets given above.

2. 10 Marks of the 1st Internal Paper is to be set from the above six questions. However, data may be changed for numerical problems.