# MHT CET MEMORY-BASED QUESTION PAPER 2021
## 21 SEPTEMBER 2021

1. Which of the following has the lowest boiling point Options-- CH3F, CH3Cl, CH3Br, CH3I
2. What is the product of phenol and sulphuric acid?
3. which statement is not correct for alkali earth metals
4. If A bar =3 , b bar =5 and a-b bar =9 then a+b bar =
5. If p and q have truth values T and r have F then which statement have Truth value F?
6. Which is the Homopolymer?
7. Benzoic acid + A gives acetophenone then what is A?
8. Which has the lowest ionic character?
9. Which of the following give positive deviation from Raoult's Law?
10. (Log x)^2 find derivative w.r.t (log x)
11. e^-y . Y=x find dy/dx
12. Hydrolysis of starch gives?
13. The LC parallel resonant circuit
14. The angular speed of hour hand of a clock in degree per second is
15. Integration of sin(logx) + cos(logx)
16. What is the truth value of p,q if the truth value of the given expression is FALSE : p implies (~p or q)
17. When an electron in a hydrogen atom revolves in a stationary orbit, it is called as
18. Resolving power of telescope increases when
19. What is the truth value of p,q if the truth value of the given expression is FALSE : p implies (~p or q)
20. Find area btw y^2= x, y= 4, and the Y-axis
21. Which of the following quantity does NOT change due to damping of oscillations?
22. Find the new max speed of shm if the amplitude becomes thrice, and the frequency is halved
23. Pressure=2atm,v1=4.5L,v2=2.5L, change in internal energy=?
24. The angular speed of hour hand of a clock in degree per second is
25. The LC parallel resonant circuit
26. x^2 - 4xy +y^2, and theta and alpha are the angles then find the value of cot^2 theta + cot^2 alpha
27. Newton's law of gravitation is applicable for
28. Convert -197celcius into kelvin
29. Amphoteric oxide among the following?
30. TanA. Tan2B. Tan3C.
31. LPP x>=0 y>=0 x+y=5 maximum value of 10x+25y at... (x, y) [correct ans.(2,3)]
32. The minimum distance between 2 lines..[a+b+c b-a c]=?
33. A plane x/2 + y/3 + z/4 =1 makes intercepts A,B,C on x, y, z axes respectively. Find area ΔABC.

34. Find the vector equation of the plane given in the Cartesian form.
35. The slope of a line is 2 times the other. $[(h^2)/ab]=?$
36. If a polygon has 44 diagonals then the number of its sides are?
37. Integration of $\tan^{-1}(\sqrt{1+\sin x} /\sqrt{1-\sin x})$
38. Find dy/dx if $x=1-t^2/1+ t^2$ and $y =2at/ 1+t^2$.
39. $\sin^{-1}(dy/dx)=x+y$. Find a general solution.
40. The inverse of the matrix doesn't exist. Find k.
41. Find $|A^{-1}|$. (Matrix)
42. Integ.0 to 1 $[\tan^{-1}(1-2x/1-x+x^2)]$
43. The probability table was given in form of k. K=1/25. Find P(2=<x=<5)
44. The standard deviation of a set of 6 is 23.33. Each of the elements is multiplied by 2. Find new SD.
45. 3 coins were tossed. X is getting the difference of heads and tails as 1. Find P(x=1)
46. E(x)=18 V(x)=12 Find n.
47. 3 conditions were given. X is continuous/discontinuous at?
48. Limit x-->0. 2 times L Hospital.
49. The rectangle of the max area is to be fit in an ellipse. Find its sides.
50. $x=1+i$. Find $x^3+7x^2-x+16$
51. Solid sphere and cylinder have equal KE. Find relation in L.
52. Bob is released 90 deg from the mean position. Find T at the mean position.
53. Work done in blowing a bubble of radius r is W1. Temp is increased while blowing a radius of 2r with work W2. Find relation in W1 W2.
54. Water rises to a height h in a tube of radius r. Its mass is m. Find the mass of water in the tube of radius 2r.
55. The temperature of the sun is increased 4 times. The radiated energy is?
56. Question on Relation in KE of a gas molecule with temperature.
57. Select the correct option.(correct option=> in adiabatic process $\Delta U=-dW$)
58. N R T P1 V given. Find P2.
59. Find the velocity of shm.
60. When the mass of 9kg is attached to the sonometer, 5 antinodes are formed. Find mass attached for 3 antinodes.
61. A charge Q is placed midway between 2 charges +q such that the system is in equilibrium. Find Q.
62. KCL and KVL are based on... (Ans: Conservation of charge and conservation of energy)
63. In the Wheatstone bridge, P Q R are connected in 3 gaps. s1 and s2 are connected in parallel in the 4th gap. Find balancing conditions.
64. 2 circular conductors are concentric with radius r1 r2. (Some condition was given). Find i1/i2.
65. $\phi=\pi/4$. R=40ohm. L in series. Find inductive reactance.
66. Question on the relation of the wavelength of photon and proton.
67. The activity of nuclei is 1000 at t=0,
68. 600 at t=8. Find activity at t=6.
69. When 2 inputs are opposite, the output is high. Which Logic gate is it? (XOR gate)