

**Association of Physics Teachers**
**NATIONAL STANDARD EXAMINATION IN PHYSICS 2013- 2014**

Date of Examination : 24th November 2013

**Code - 136**
**Time 9.30 to 11.30 Hrs**


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**ANSWER KEY**


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**PART-A**
**SUB-PART A-1**

- 1 a  
2 b  
3 c  
4 c  
5 d  
6 c  
7 d  
8 d  
9 b  
10 c  
11 d  
12 a  
13 b  
14 a  
15 b  
16 b  
17 a  
18 b  
19 b  
20 a  
21 c  
22 b  
23 b  
24 c

- 25 b  
26 c  
27 a  
28 a  
29 a  
30 d  
31 c  
32 c  
33 d  
34 c  
35 a  
36 c  
37 c  
38 c  
39 a  
40 b

**SUB-PART A-2**

- 41 a, b  
42 a  
43 a, c, d  
44 a, b, c, d  
45 a, b, c, d  
46 c  
47 c, d  
48 a, c  
49 a, b, c  
50 c, d

**PART-B**

1. (i)  $\frac{\alpha^2}{2}t$       (ii)  $\frac{\alpha^2}{2}$   
 (iii)  $\frac{u+v}{2} = \frac{\alpha\sqrt{s}}{2}$
2. (i)  $\epsilon_r = \frac{\sin^2 \theta_1 \tan \theta_1}{\sin^2 \theta_2 \tan \theta_2} \left( \frac{\rho}{\rho - \sigma} \right)$   
 (ii)  $\epsilon_r = \frac{\rho}{\rho - \sigma}$
3. (a) 40 cm    (b)  $\sqrt{2}$
4. (a)  $P_C = P_B = \frac{1}{2^{5/3}} \text{ atm,}$   
 $T_B = (300) \left( \frac{1}{2} \right)^{2/3},$   
 $T_C = \frac{1}{2} \left( \frac{300}{2^{2/3}} \right) \text{ K}$   
 (b)  $150 \left[ 1 - \frac{1}{2^{2/3}} \right] \text{ J, } W_{CA} = 0,$   
 $W_{BC} = -\frac{100}{2^{5/3}} \text{ J}$   
 (c)  $\Delta Q = \frac{1}{2^{2/3}} [150 \times 2^{2/3} - 200]$   
 $= \Delta W$   
 (d) 0.233
5. (a) 644  $\Omega$   
 (c) 0.155  
 (d) 207.36 sec.