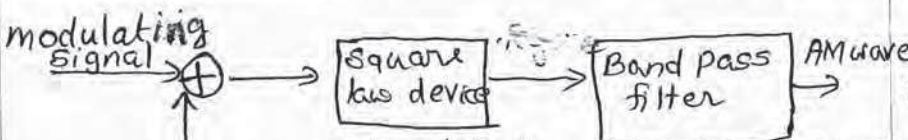


SECOND YEAR HIGHER SECONDARY SAY/IMP. EXAMINATION, JUNE 2016.  
(Finalised Scheme of Valuation)

Subject: Part III Physics

Code No: 2015

Qn.No	Scoring Indicators	Split Score	Total Score
1	Radio waves → Acceleration of charges in conducting wires → Cellular phones U-V rays → Inner shell electron transition → Detect fake currency notes Any two correct give 2 score	1 Score  1 Score	2 Score
2 a)	Name of any <sup>one</sup> series	1 Score	3 score
b)	Energy level diagram (Naming of series not necessary) [Drawing each series 1/2 score]	2 score	
3	Any option give (1 score) [symbols are not specified]	1 Score	1 Score
4 a) iv)	Independent of $\gamma$	1 score	3 score
b)	Figure with correct derivation or Statement of Gauss's theorem, or $\oint \vec{E} \cdot d\vec{s} = \frac{q}{\epsilon_0}$ or $\phi = \frac{q}{\epsilon_0}$ or Figure or final equation (1 score)	2 score  1 score	
5	 <p>For labelling each give 1/2 score or Drawing AM wave (2 score)</p>	2 score	2 Score

Qn.No	Scoring Indicators	Split Score	Total Score
6 A	<p>a) (iii) <math>f_{pp} = f_{nn} = f_{pn}</math></p> <p>b) Definition or equation or the mass of the nucleus is less than the total mass of its constituents.</p> <p>c) <math>BE = \Delta mc^2</math> or <math>\Delta m \times 931 \text{ MeV}</math>            give 1 score.            Energy = 23.8336 MeV            Unit is not necessary</p>	<p>1 score</p> <p>1 score</p> <p>1 score</p> <p>1 score</p>	<p>4 score</p>
6 B	<p>OR</p> <p>a) Definition or eqn</p> <p>b) <math>N = N_0 e^{-\lambda t}</math> or <math>\frac{m}{m_0} = \left(\frac{1}{2}\right)^n</math>  <math>(n = \frac{t}{t_{1/2}}; \text{no. of half life})</math>  <math>t = 560 \text{ days}</math></p> <p>c) (ii) Neutron</p>	<p>1 score</p> <p>1 score</p> <p>1 score</p> <p>1 score</p>	<p>4 score</p>
7 a)	<p>i) Series — Figure 1 score }            Final equation 1 score }</p> <p>ii) parallel — Figure 1 score }            Final equation 1 score }</p> <p>b) (iv) Energy stored in the capacitor</p>	<p>2 score</p> <p>2 score</p> <p>1 score</p>	<p>5 score</p>
8	<p>a) (Eqn. for series or parallel give correct answer <math>8 \Omega</math> 2 score)</p>	<p>1 score</p> <p>2 score</p>	<p>3 score</p>

Qn.No	Scoring Indicators	Split Score	Total Score
	b) Graph of any shape 1 score Non-ohmic behaviour 1 score c) Any one device 1 score	2 score  1 score	5 score
9	a) Any one difference between dia and ferro or figure showing Property b) iii) Curie Temperature	2 score  1 score	3 score
10	a) length of the day is longer or (diagram 1/2 score) b) For any related attempt give 2 score	1 score  2 score	3 score
11 <sup>A</sup>	a) (iii) $\lambda_a = \lambda_p = \lambda_e$ b) $\lambda = \frac{h}{m\nu}$ or $\lambda = \frac{h}{p}$ (1 score) Substitution 1/2 score Answer $v = 20\text{m/s}$ 1/2 score unit not necessary	1 score  2 score	3 score
11 <sup>B</sup>	a) (iii) Saturation <del>Current</del> OR b) Definition or $\omega = \frac{hc}{\lambda_0}$ or $h\nu_0$ or $\omega \propto \frac{1}{\lambda_0}$ 1 score Caesium - 1 score or Since the work function of Caesium is small, its threshold wavelength is large - 2 score	1 score  2 score	3 score

Qn.No	Scoring Indicators	Split Score	Total Score
12	<p>a) <math>L_2</math> — objective — 1 score  <math>L_3</math> — eyepiece — 1 score</p> <p>OR  Focal length of objective is greater than eye-piece or power of eye-piece is greater than objective — 1 score</p> <p>b) The separation between the objective and eye-piece = Length of the telescope or <math>f_o + f_e</math>  <math>= 1.44 + 0.06 = 1.5m</math>  (Unit not necessary)</p>	2 Score     1 score 1 score	4 score
13	<p>a) (ii) ohms</p> <p>b) <math>f = \frac{1}{2\pi\sqrt{LC}}</math>  Substitution <math>\frac{1}{2}</math> score  <math>f = 7.96 Hz</math> — <math>\frac{1}{2}</math> score  (Unit not necessary)</p>	1 score 1 score 1 score	3 score
14	<p>a) (iii)</p> <p>b) Figure — 1 score  Correct derivation — 2 score  final equation — 1 score  <math>\beta = \frac{\lambda D}{d}</math></p> <p>OR</p>	1 score  4 score	5 score
14	<p>a) (iii) cylindrical</p> <p>b) Huygens's principle statement  OR  any law of reflection  OR  diagram of reflection of a plane wave</p>	1 score  4 score	5 score

Qn.No	Scoring Indicators	Split Score	Total Score
15	a) Faraday's law of induction Statement - 1 score Equation - 1 score $\left( \mathcal{E} = \frac{d\phi}{dt} \right)$ b) i) geometry of the coil or material of the coil or No. of turns	2 score  1 score	3 score
16 A	a) Biot-Savart's law or Ampere's circuital theorem b) Figure - 1 score Derivation - 2 score Final equation - 1 score (Equation for centre give 1 score)	1 score  4 score	5 score
16 B	OR a) Principle or $\mathcal{I} \times \mathcal{O}$ or $\mathcal{T} = N I A B \sin \theta$ b) $\mathcal{T} = N I A B$ - 1 score $K\phi = N I A B$ or $\phi = \left( \frac{N I A B}{K} \right)$ - 1 score Current sensitivity is the deflection per unit current - 1 score $\frac{\phi}{I} = \frac{N A B}{K} - 1 \text{ score}$ OR Diagram only - 2 score	1 score  4 score	5 score
17	a) Any one feature b) Any one property of a Zener diode Symbol - 1 score	2 score  2 score	4 score
18	For truth table NOR + NOT or OR gate -	1 score 1 score	2 score